Sudden Valley Community Association
1850 Lake Whatcom Blvd Bellingham, WA 98229
www.suddenvalley.com 360-734-6430

Finance Committee Meeting

September 16, 2026, 6:30 PM, Via Zoom

I. Call to Order

II. Roll Call

Finance

Jean Maixner, Treasurer & Committee Chair
Laurie Robinson
Ray Meador
Rob Gibbs
Marty Jeide
Ken Van de Polder
Robert Livingston

III. Adoption of Agenda

IV. Announcements

V. Property Owner Comments – 15 Minutes Total

Please note that comments are limited to 3 minutes per person.

VI. Approval of Minutes

- Minutes for June 17, 2026, July 15, 2026, and August 5, 2026

VII. Reports

a) June Financial Statements

VIII. New Business

a) Review of Capital Request – Barn 6 Demolition
b) Review of Proposed Golf Fees for 2027

IX. Adjournment

Sudden Valley Community Association
1850 Lake Whatcom Boulevard, Bellingham WA 98229
360-734-5320 www.suddenvalley.com

BOARD OF DIRECTORS MEMO

To: **Sudden Valley Community Association Board of Directors**

From: **Jo Anne Jensen, General Manager**

Date: **September 24, 2026**

Subject: **Capital Request – Barn 6 Demolition & Site Preparation**

Purpose
The purpose of this memo is to request funding for the demolition of Barn 6 as well as the necessary work to prepare the site for construction and contract award to the recommended vendor.

Background
On April 9, 2026, the SVCA Board of Directors approved funding for the design and permitting of a replacement for Barn 6, also known as the Ice Barn. The proposal approved by the Board included funds for the preparation and submission of a permit application for demolition of the existing structure and the completion of a geotechnical review of the site. The geotechnical review was completed on April 24, 2026, and the permit application for demolition was submitted on June 22, 2026.

As a result of the geotechnical study , it was determined that the soil beneath the current structure was not suitable for the installation of a new building. To address this, Impact Design prepared a set of construction drawings showing the recommended site work. Additionally, an engineer's estimate was prepared for the work needed to remove the existing structure and foundation, complete temporary drainage measures, and complete the site work needed to prepare a building pad.

Summary of Costs

Activity	Vendor	Cost
Construction Cost	WRS	$375,991.90
Excavation and Subgrade Inspection (2 days per phase; total of 4 days for project)	NW Geologic	$6,400.00
Density Testing Fill Placement; Proctor Tests and Onsite Testing (4 Proctors; total of 6 days for project)	Certerra	$8,960.00
Water Allowance	SVCA Hydrant Meter	$1,000.00
Construction Management	PNW Services	$9,450.00
	Subtotal	$401,801.90
	15% Contingency	$60,270.29
	Total	**$462,072.19**

Timing
Timing is dependent on when Whatcom County issues a permit for this work, which is planned

to take place in two phases. If the permit is received this fall, Phase 1 of the work (removal of the structure) will take place this year, with Phase 2 (the remaining site work) to be completed in June of 2027.

Impacts of Demolition
During Phase 1, high visibility construction fencing will be erected around the work site to protect visitors to the Community Center as well as the surrounding environment. A map (page 96) is included in the documentation attached to this memo showing that the fencing will enclose the asphalt areas surrounding Barn 6. This means that there will only be pedestrian access to the Community Center during Phase 1. When the structure has been removed, the fencing will be moved back to the building's foundations.

Implication of Starting Demolition
Barn 6 has been left standing because removing it starts a countdown for when it needs to be replaced. Once demolition begins, SVCA will have twelve months to submit a permit application for the building that will replace it. If we do not submit a permit application during that time, we will not be allowed to build within 200 feet of Austin Creek. If we are granted a building permit for a replacement structure, we will have two (2) years to complete construction. If substantial progress is made during that time, a 12 month extension can be granted. So, starting demolition in the fall of 2026 means that we will have to submit our permit application for a replacement structure before the end of Summer in 2027. Since design is almost complete at this time, it will be feasible to meet that deadline.

Bid Process
Quotes were requested from eight (8) contractors and five (5) responded with bids:

- Western Refinery Services (WRS) – $375,991.90
- RAM Construction General Contractors, LLC – $384,528.58
- Stremler Gravel, Inc. – $457,096.21
- Strider Construction Co., Inc. – $597,472.23
- Premium Services Inc. – $856,090.68
- Tiger Construction – No Quote
- Dirt Works Bellingham – No Quote
- Granite Construction – No Quote

A detailed bid tabulation (page 86) is attached. SVCA recommends that WRS, the low bidder, be given a contract for this work. Additionally, WRS completed the removal of Barn 7, so they are experienced with this type of work for SVCA. Of note, the bid from WRS is $67,048.23 less than the engineer's estimate for this work.

Funding
The 2026 CRRRF budget does not include allocated funds for this project, but the proposed 2027 budget includes $504,000.00 for Barn 6 demolition and site work.

Request
I request that the SVCA Board of Directors approve $462,072.19 in funding from CRRRF as proposed for the demolition of Barn 6 and site preparation for the new building and authorize the General Manager to execute SVCA's standard construction contract with WRS for this work.

Motion

I move that the SVCA Board of Directors approve $462,072.19 in funding from CRRRF as proposed for the demolition of Barn 6 and site preparation for the new building and authorize the General Manager to execute SVCA's standard construction contract with WRS for this work.

Recommendation

Recommended: _____Not Recommended: _____Finance Committee

Signed: _____

Jean Maixner, Treasurer

Approvals

Approved: _____Not Approved: _____ SVCA Board of Directors

Signed: _____Date: _____

Keith McLean, President

PNW SERVICES, INC.

July 5, 2026

Sudden Valley Community Association
Attn: Jo Anne Jensen
1850 Lake Whatcom Blvd
Bellingham, WA 98229

RE: Project Scope Letter
Barn 6 Demolition & Site Work Preparation

PNW is providing this overall project scope letter to SVCA for the Barn 6 demolition and site work preparation. On April 9th, 2026, SVCA's Board approved funding for design and permitting to begin for replacing Barn 6. Part of this included preparing the demolition permit application, and completing a geotechnical review of the site. The demolition permit was submitted to Whatcom County on June 22nd, 2026, and the geotechnical report was completed April 24th, 2026. The geotechnical report, attached for reference, identified the existing fill is not suitable in its existing condition for a new building to be installed. The existing fill will be removed for depths varying between 3' and 5', geotextile fabric installed, quarry spalls placed, additional geotextile fabric installed, and then existing fill reinstalled in lifts with proper compaction.

Impact Design reviewed the geotechnical report, and prepared a construction set of drawings to complete the site work recommended, drawings attached. In addition, an engineer's estimate was completed to remove the existing structure and foundation, complete temporary drainage measures, and complete the initial site work needed to prepare a building pad. Drawings and a construction budget are underway for the new structure and remaining site work relating to new drainage, stormwater treatment, and parking lot improvements. These will be completed later this summer. At this time, we are requesting funding to remove the existing Barn 6 building, and complete the required site work for a new structure to be built. Depending on when the demolition permit is issued, it is hoped this scope of work will be completed in September. Otherwise, the structure can be removed, less the foundation, when the demolition permit is received, and site work would push to June 2027.

Summary of anticipated costs for demolition and site work preparation:

- Engineer's Estimate – Impact Design dated 6-11-26	$443,040.13
- Excavation & Subgrade Inspection – NW Geologic – 2 Days per Phase = 4 Days at 8 Hours Allowance	$6,400.00
- Density Testing Fill Placement – Certerra – Proctor Tests and Onsite Testing – 4 Proctors & 6 Days (3 Days per Phase) Allowance	$8,960.00
- Water Allowance – SVCA Hydrant Meter	$1,000.00
- Construction Management – PNW Services, Inc. – Per Attached	$9,450.00
Total	**$468,850.13**
Contingency at 15%	$70,327.52
Total with Contingency	**$539,177.65**

PNW SERVICES, INC.

Please let me know if you have any questions, or if you would like any further information.

Sincerely,

Tyler Andrews
President

PO Box 30498 • Bellingham, WA 98228 • p: 425-954-9614

SCVA BARN 6 DEMO

Engineer's Estimate

06.11.2026

Estimate Prepared by:
Impact Design, LLC
5426 Barrett Road, Suite A103
Ferndale, WA 98248
Phone: (360) 389-8138

Client:
Tyler Andrews
PNW Services, Inc.
PO Box 30498
Bellingham, WA 98228

		ESTIMATED CONSTRUCTION COST			
NO.	ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
Construction Costs					
1	MOBILIZATION	1	L.S.	$40,000.00	$40,000.00
2	TEMPORARY EROSION AND SEDIMENT CONTROL	1	L.S.	$1,500.00	$1,500.00
3	SAWCUT & ASPHALT REMOVAL	1000	SF	$10.00	$10,000.00
4	EXCAVATION & EMBANKMENT OF EXIST STRUCTURAL	1,350	CY	$30.00	$40,500.00
5	EXCAVATION & EXPORT UNSUITABLE, IMPORT GRAVEL BACKFILL FOR WALLS	1,180	TON	$70.00	$82,600.00
6	8" CRUSHED SURFACING BASE COURSE	688	TON	$50.00	$34,400.00
7	QUARRY SPALLS IMPORT & PLACE	800	TON	$40.00	$32,000.00
8	STORM DRAIN, 12-INCH DIAMETER, PVC SDR35 PIPE INCL. BACKFILL	118	LF	$50.00	$5,900.00
9	STORM DRAIN, 4-INCH DIAMETER, PVC SR35 PIPE INCL. BACKFILL	140	LF	$35.00	$4,900.00
10	FOOTING & ROOF COLLECTOR STORM DRAIN, 4-INCH DIAMETER, PVC CLEANOUT	2	EA.	$1,500.00	$3,000.00
11	CATCH BASIN TYPE 1 REMOVE & REPLACE	3	EA	$4,000.00	$12,000.00
12	BUILDING DEMO (ROOF AREA)	13,372	SF	$10.50	$140,406.00
	Subtotal				*$407,206.00*
	WSST Sales Tax @ 8.8%				*$35,834.13*
TOTAL CONSTRUCTION COST					$443,040.13
15% CONTINGENCY					$61,080.90
PROJECT TOTAL					$504,121.03

6-11-2026

June 11, 2026

Whatcom County
Planning & Development Services Director
5280 Northwest Drive
Bellingham, WA 98226-9097
360-778-5900

RE: Barn 6 Demolition Permit as noted in (PRE2025-00097)
Parcel # 370408 318457 0000 Shoreline Exemption & Demolition Permit Project Narrative

To Whom it May Concern,

Impact Design has been retained by the applicant and property owner, Sudden Valley Community Association, to prepare a Shoreline Exemption Application for the demolition of existing Barn at 10 Barn View Court, Bellingham, WA 98229 (TP#: 370408 318457 0000).

Existing Conditions

The existing parcel is a partially developed recreation space for the surrounding community. There is a paved asphalt loop road with existing parking delineated with striping. Existing gravel surfacing adjacent to the existing Barn 6 easterly side and grass field between the existing Dance Barn and Barn 6. The recreational area includes indoor gathering area(s) to south and outdoor pool area. Fenced in small dog park and tennis courts are in the southerly portion of the parcel. A fall protection/Mulched Children's Playground is located along the main gravel path that connects the recreational area to the golf course club house and overflow gravel parking area. This existing gravel parking area serves the pool and barns as well as golfing community is located south of Austin Creek. The Whatcom County Community library and gardening area are located to west and northwest of the existing Barn 6 Building and Parking lot. The existing barn 6 is approximately 32' at its peak. The existing asphalt parking and barn buildings have series of catch basins collecting stormwater runoff and directing it to discharge pipe located North of the library and Barn 6 Parking area. The storm drain system will remain intact during the demolition phase of the project. Existing Critical Areas within the vicinity of the project include Austin Creek, which flows parallel to

southern portion of the site then bends to west and into the golf course before confluence with Lake Whatcom. The Parcel's mapped area per City IQ = 13.9 AC. The Assessor area per city IQ = 11.7 AC.

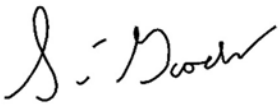
Proposed Development

Overall project goal after Demolition is creating a community center with gym/sport court and gathering area, which is a like for like in the replacement. The demolition of the existing Barn 6 structure and concrete footing &/or grade beam removal which includes excavation below footing elevation of structural fill with purpose of recycling/salvaging the old structural fill to greatest extent practicable. We anticipate minimal export volume of below grade soil/subgrade material, but we have planned for some unsuitable material to be exported off site. Total Area of Barn 6 demolition scope of work including footing and structural fill excavation is approximately 15,175 square feet (anticipated excavation outline shown on plans). An average of Four feet (4') depth of existing structural fill is proposed. Removing the existing & recycling structural fill is recommended by project Geotechnical Consultant (see Geotechnical Report provided by NW Geologic Services, PLLC). Per the Pre-application package (PRE2025-00097) – The new Recreation Structure will include indoor sports court and office. Additional parking is not anticipated but will be addressed during the Building Permit review process. This Demolition Permit includes minor strip of asphalt saw cutting for excavation of existing structural fill. All pavement repairs will be addressed during the Building Permit application. Gravel surfacing is proposed in the interim.

The overall demolition excavation perimeter is 15,175 SF and includes the existing Barn (Roof Area = 13,372 SF) and adjacent gravel & pavement area(s). A stabilized gravel pad equaling the removal/excavation area will remain post construction. Existing drainage patterns will remain in place and storm drain conveyance to existing discharge points will remain functional. The future barn and parking lot restriping design is proceeding, and stormwater site plan and report are being developed.

The anticipated demoliton schedule is to start work this summer (2026) but will be dependent on the review process. Demolition/construction is anticpated to be finished by early fall.

Thank you for your time. You can contact me at (360) 389-8138, or by email at scott@bold-impact.com
Respectfully.



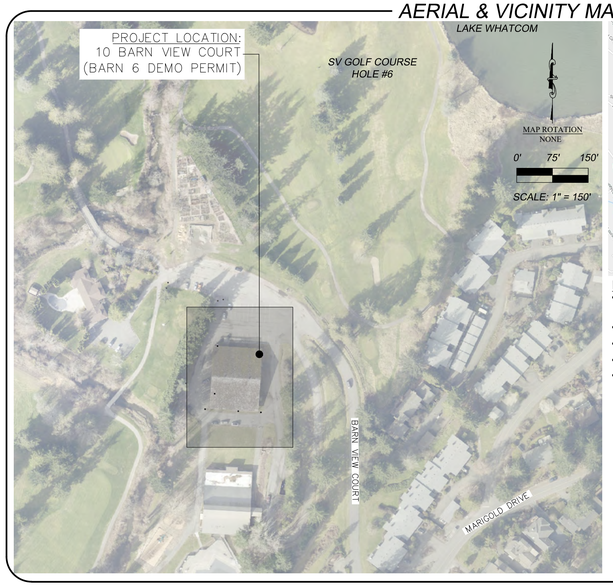
Scott Goodall, MS, PE
Principal
Impact Design, LLC

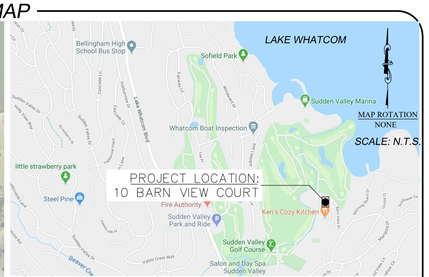
SUDDEN VALLEY COMMUNITY ASSOCIATION (SVCA)

SITUATE IN A PORTION OF THE NE 1/4, SW 1/4 SECTION 5, TOWNSHIP 37 NORTH, RANGE 4 EAST OF W.M. SUDDEN VALLEY, WHATCOM COUNTY, WASHINGTON

10 BARN VIEW COURT (BARN 6) DEMOLITION PERMIT (DEMO-XXXX)

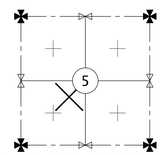
AERIAL & VICINITY MAP





MAPPING/DATA/GIS CREDITS:

- BARN 6 PROJECTED COORDINATE SYSTEM: NAD_1983_HARN_STATEPLANE_WASHINGTON_NORTH_FIPS_4601_FEET
- PARCELS: WASHINGTON GEOSPATIAL OPEN DATA PORTAL [2024]
- LIDAR: WA DNR, NV5 [2023]
- AIR PHOTO: WHATCOM COUNTY [2024]
- PARCEL #: 370408 318457



NE 1/4, SW 1/4 SECTION 5
T. 37 N., R. 4 E. OF W.M.

SURVEY NOTES

1. THIS SURVEY WAS PREPARED IN ACCORDANCE WITH WAC 332-130-145 IN MAY 2026 AT THE REQUEST OF TYLER ANDREWS.
2. FIELD SURVEY PERFORMED WITH TRIMBLE R8-3 GNSS RECEIVER AND LEICA TCRP 1201+ ROBOTIC TOTAL STATION AND MEETS OR EXCEEDS THE STANDARDS SET FORTH WITHIN WAC 332-130-090.
3. BASIS OF BEARINGS PER SUDDEN VALLEY COMMUNITY ASSOCIATION BARN 6 DEMO EXISTING CONDITIONS MAP DATED 10-10-2017 [NAD83(2007)]. INVERSE BETWEEN P-TEK#313 AND P-TEK#316 N07°24'10"E.

P-TEK#313	P-TEK#316
N=629292.7011	N=629529.5055
E=1280730.0428	E=1280760.8099

4. VERTICAL DATUM: ASSUMED (OLD COB)

P-TEK#313	P-TEK#10	P-TEK#20
N=629292.7011	N=629270.8577	N=629583.9857
E=1280730.0428	E=1280895.7434	E=1280906.5802
EL.=329.94	EL.=338.97	EL.=325.97

5. THIS SURVEY WAS COMPLETED WITHOUT THE BENEFIT OF A TITLE REPORT AND DOES NOT PURPORT TO SHOW ANY OR ALL EASEMENTS.
6. POWERTEK SURVEYING ASSUMES NO LIABILITY FOR ANY SUBSURFACE CONDITIONS OR FEATURES THAT MAY EXIST THAT ARE UNDETECTABLE AND/OR NOT VISIBLE.
7. CONTOUR INTERVALS ARE SHOWN AT 1 FOOT AND ARE COMPUTER GENERATED FROM GROUND FIELD TOPOGRAPHY GATHERED FOR THIS SURVEY AND MEET OR EXCEED NATIONAL MAPPING STANDARDS UTILIZING ELECTRONIC DATA COLLECTION.
8. THE TOPOGRAPHIC ELEMENTS SHOWN ON THIS MAP ARE INTENDED TO SUPPORT PLANNING AND DESIGN. UTILITY LOCATIONS DERIVED FROM ABOVE GROUND APPURTENANCES AND/OR UTILITY PAINT MARKS PER WASHINGTON STATE ONE-CALL UNDERGROUND LOCATES (811).
9. OCCUPATIONAL INDICATORS AND EXISTING FENCE LINE NOTE: THIS SURVEY MAY DEPICT EXISTING FENCE LINES AND/OR ENCROACHMENTS IN ACCORDANCE WITH WAC CH 332.130. THESE OCCUPATIONAL INDICATORS MAY INDICATE A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE OWNERSHIP. THIS IS NOT A BOUNDARY SURVEY AND THE LEGAL RESOLUTION OF OWNERSHIP BASED UPON UNWRITTEN TITLE CLAIMS HAS NOT BEEN RESOLVED BY THIS SURVEY.

GENERAL CONSTRUCTION NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
2. NORMAL WORKING HOURS ARE 8:00 AM. TO 7:00 PM., MONDAY THROUGH FRIDAY. WORK DURING HOLIDAYS, WEEKENDS, AND OUTSIDE THE NORMAL WORK HOURS REQUIRES PRIOR ARRANGEMENTS AND APPROVAL.
3. THE CONTRACTOR SHALL CONTACT UTILITY LOCATION SERVICE 48 HOURS PRIOR TO STARTING WORK AT (800) 424-5555 OR 811.
4. A COPY OF THE DRAWINGS MUST BE ON THE JOBS SITE WHENEVER WORK IS IN PROCESS.
5. ALL TESTING REQUIRED FOR THE WORK SHALL BE THE RESPONSIBILITY OF THE OWNER.
6. THE CONTRACTOR SHALL RESTORE ALL PRIVATE AND PUBLIC PROPERTY DISTURBED BY THE WORK IMMEDIATELY AFTER CONSTRUCTION. THE CONTRACTOR SHALL NOT LEAVE ANY PART OF THE ROAD USED BY OTHERS UN-PASSABLE WITHOUT NOTIFICATIONS AND AGREEMENT OF OTHER USERS.
7. ALL CUT AND FILL SLOPES SHALL BE MULCHED AND SEEDED FOR EROSION CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SLOPE EROSION UNTIL VEGETATION IS FIRMLY ESTABLISHED.
8. CONTRACTOR SHALL SWEEP AND REMOVE ALL DEBRIS TRACKED ONTO EXISTING ROADS DURING ALL PHASES OF CONSTRUCTION.
9. THE CONTRACTOR SHALL INFORM THE ENGINEER OF RECORD OR REPRESENTATIVE OF UTILITY CONFLICTS AND OBTAIN APPROVAL FOR ANY PROPOSED CHANGES IN PLANS PRIOR TO IMPLEMENTATION.
10. TRAFFIC CONTROL IS TO BE MAINTAINED IN ACCORDANCE WITH WSDOT/APWA STANDARD SPECIFICATIONS.

SHEET INDEX

D1	COVER SHEET
D2	EXISTING CONDITIONS & UAV AERIAL
D3	STORWATER POLLUTION PREVENTION PLAN (SWPPP)
D4	TEMPORARY EROSION & SEDIMENTATION CONTROL PLAN
D5	DEMOLITIONS SITE PLAN
D6	TESC AND DEMOLITION DETAILS

ABBREVIATIONS

1"/1"	ONE FOOT/ONE INCH
AC	ACRE
AF#	AUDITORS FILE NUMBER
APPROX	APPROXIMATE
ASB/AB	AS-BUILT
ASPH	ASPHALT
BLDG	BUILDING
BMP	BEST MANAGEMENT PRACTICE
BNDRY	BOUNDARY
BVCS	BEGINNING OF VERTICAL CURVE STATION
BVCE	BEGINNING OF VERTICAL CURVE ELEVATION
C	COMPACT PARKING STALL
CC	CURB CUT
CB	CATCH BASIN
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CNTRL	CONTROL
CO	CLEANOUT
COR	CORNER
CPP	CORRUGATED POLYETHYLENE PIPE
CONC	CONCRETE
CSTC	CRUSHED SURFACING TOP COURSE
CULV	CULVERT
ø	DIAMETER
DEMO	DEMOLITION
DI	DUCTILE IRON
DWGS	DRAWINGS
E	EAST
EA	EACH
EL/ELEV	ELEVATION
ENC	REVOCABLE ENCROACHMENT PERMIT
EP/EOP	EDGE OF PAVEMENT
ESMT	EASEMENT
EVCS	END OF VERTICAL CURVE STATION
EVCE	END OF VERTICAL CURVE ELEVATION
EX/EXIST	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FFE/FF	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FH	FIRE HYDRANT
FND	FOUND
GND	GROUND
GUTT	GUTTER
HP	HIGH POINT
INV	INVERT
IE/I.E.	INVERT ELEVATION
IRRIG	IRRIGATION
LF	LINEAR FOOT
L.S.	LAND SURVEYOR
MAX	MAXIMUM
MIN	MINIMUM
MON	MONUMENT
NIC	NOT IN CONTRACT
N	NORTH
NO./#	NUMBER
O.C.	ON CENTER
PC	POINT OF CURVATURE
PCL	PARCEL
PERF	PERFORATED
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
POB	POINT OF BEGINNING
PP	POWER POLE
PROP	PROPERTY
K	LENGTH OF VERTICAL CURVE PER PERCENT GRADE DIFFERENCE
PT/POT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INFLECTION
PWR	POWER
R	RADIUS
R/C	REBAR WITH CAP
RCP	REINFORCED CONCRETE PIPE
RET	RETAINING
RIM	RIM
R/W	RIGHT-OF-WAY (R.O.W.)
RPP	REDUCED PRESSURE PRINCIPAL
S	SOUTH
SAN	SANITARY
SCH	SCHEDULE
SVCA	SUDDEN VALLEY COMMUNITY ASSOCIATION
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDCO	STORM DRAIN CLEANOUT
SDMH	STORM DRAIN MAN HOLE
SERV	SERVICE
STND/STD	STANDARD
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
ST	STREET
TBD	TO BE DETERMINED
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TEL/TELE	TELEPHONE
TESC	TEMPORARY EROSION & SEDIMENTATION CONTROL
TP	TOP OF PAVEMENT
TS	TOP OF SIDEWALK
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
VC	VERTICAL CURVE
VEG	VEGETATION
W	WEST
WA	WATER
W/IN	WITHIN
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

CONTACTS

OWNER
SUDDEN VALLEY COMMUNITY ASSOCIATION
1850 LAKE WHATCOM BLVD
BELLINGHAM, WA 98229

OWNER'S REPRESENTATIVE
TYLER ANDREWS
PNW SERVICES INC
PO BOX 30498
BELLINGHAM, WA 98228
(360) 739-2072
tylera@pnwcivil.com

CIVIL ENGINEER/PERMIT AGENT
IMPACT DESIGN, INC.
SCOTT GOODALL, PE
5426 BARRETT ROAD
SUITE 103
FERNDALE, WA 98248
(360) 650-1408
scott@bold-impact.com

SURVEYOR
POWERTEK SURVEYING
JEREMY DISCH, PLS
5426 BARRETT ROAD,
SUITE A104
FERNDALE, WA 98248
(360) 746-8801
jdisch@poertek.net

GEOTECHNAL CONSULTANT
NW GEOLOGIC, PLLC
KURT PARKER, OWNER
6131 VENUS PLACE
FERNDALE, WA 98248
(208) 755-6173
nwgeologicpllc@gmail.com

WATER & SEWER
LAKE WHATCOM WATER & SEWER DISTRICT
1220 LAKEWAY DRIVE
BELLINGHAM, WA 98229
(360) 734-9224
RICH MUNSON
rich.munson@lwwsd.org

POWER
PUGET SOUND ENERGY
PO BOX 91269
BELLEVUE, WA 98009
(888) 225-5773

TELEPHONE
CENTURY LINK
4281 MERIDIAN STREET
BELLINGHAM, WA 98226
(800) 224-1111

NATURAL GAS
CASCADE NATURAL GAS
1520 SOUTH 2ND STREET
MOUNT VERNON, WA 98273
(360) 733-5980

GENERAL SYMBOLS LEGEND

- = FOUND CONCRETE MONUMENT
- = FOUND REBAR & CAP
- = EXISTING STORM DRAIN CATCH BASIN (TYPE I)
- = EXIST SANITARY SEWER MANHOLE
- = EXISTING FIRE HYDRANT
- = EXISTING WATER VALVE
- = EXISTING SIGN
- = EXISTING POWER/AND OR UTILITY POLE
- = EXISTING POWER JBOX/HANDHOLD
- = EXISTING CONIFER TREE (15"ø, 20"ø)
- = EXISTING DECIDUOUS TREE
- = EXISTING LOT LINE (PROJECT SITE)
- = EXISTING LOT LINE (OFF-SITE)
- = EXISTING RIGHT-OF-WAY LINE
- = EXISTING ROADWAY CENTERLINE
- = EXISTING EASEMENT LINE
- = EXISTING WATER LINE
- = EXISTING SANITARY SEWER LINE
- = EXISTING CULVERT
- = EXISTING EDGE OF ASPHALT PAVEMENT
- = EXISTING EDGE OF CONCRETE PAVEMENT OR CURB
- = EXISTING EDGE OF GRAVEL SURFACING
- = EXISTING FIBER OPTIC LINE
- = EXISTING UNDERGROUND TELECOMMUNICATIONS
- = EXISTING UNDERGROUND POWER
- = EXISTING GAS
- = EXISTING OVERHEAD UTILITY
- = EXISTING FENCE
- = EXISTING TOP OF BANK
- = EXISTING TOE OF BANK
- = EXISTING CONTOUR (MAJOR)
- = EXISTING CONTOUR (MINOR)
- = EXISTING ASPHALT
- = SET MONUMENT
- = PROPOSED STORM DRAIN CLEANOUT
- = PROPOSED STORM DRAIN CATCH BASIN
- = PROPOSED PROTECTION BOLLARD
- = PROPOSED SIGN
- = PROPOSED SAWCUT LINE (DEMO)
- = PROPOSED SAWCUT/ASPHALT REPLACEMENT
- = PROPOSED GRAVEL MAINTENANCE

REVIEW APPROVAL

REVIEW IS FOR GENERAL COMPLIANCE AND CONSISTENCY WITH APPLICABLE WHATCOM COUNTY CODES, REGULATIONS, AND/OR STANDARDS

NO RESPONSIBILITY IS ASSUMED FOR CORRECTNESS OF DATA, DIMENSIONS, OR DETAILS

DEPARTMENT OF PUBLIC WORKS-ENGINEERING SERVICES

BY _____ DATE _____

TWO WORKING DAYS BEFORE YOU DIG
1-800-424-5555

UTILITIES ARE KNOWN TO EXIST AND NOT ALL ARE SHOWN. VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.

PARCEL # 370408 318457

IMPACT DESIGN
5426 BARRETT ROAD, SUITE A103
360-389-8358 WWW.BOLD-IMPACT.COM

SCOTTIAN GOODALL
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT
DEMOLITION PERMIT - XXXXX
COVER SHEET
10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019
DESIGNED/DRAWN BY: SCR
CHECKED BY: SIG
ISSUE DATE: 06.09.2026

D1
OF: D1-D6

Z:\Shared\PROJECTS\26019 SVCA Barn 6\DWG\26019SP6 SVCA Barn 6 Demo Plan (06.08.2026).dwg Jun 10, 2026-3:51pm

BARN 6 - EXISTING CONDITIONS & UAV AERIAL

IMPACT DESIGN
5426 BARRETT ROAD, SUITE A103
360-389-8138 WWW.BOLD-IMPACT.COM

SCOTTIAN GOODELL
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT
DEMOLITION PERMIT - XXXXX
EXISTING CONDITIONS & UVA AERIAL
10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019
DESIGNED/DRAWN BY: SCR
CHECKED BY: SIG
ISSUE DATE: 06.09.2026

D2
OF:
D1-D6

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ELEMENT 1: PRESERVE VEGETATION / MARK CLEARING LIMITS

A. BEFORE BEGINNING LAND DISTURBING ACTIVITIES, INCLUDING CLEARING AND GRADING, CLEARLY MARK ALL CLEARING LIMITS, SENSITIVE AREAS AND THEIR BUFFERS, AND TREES THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION AREA.

B. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM DEGREE PRACTICABLE.

ADDITIONAL GUIDANCE FOR ELEMENT 1

- PLASTIC, METAL, FABRIC FENCE, OR OTHER PHYSICAL BARRIERS MAY BE USED TO MARK THE CLEARING LIMITS. NOTE THE DIFFERENCE BETWEEN THE PRACTICAL USE AND PROPER INSTALLATION OF BMP C233: SILT FENCE AND THE PROPER USE AND INSTALLATION OF BMP C103: HIGH-VISIBILITY FENCE.
- IF IT IS NOT PRACTICAL TO RETAIN THE DUFF LAYER IN PLACE, THEN STOCKPILE IT ON SITE, COVER IT TO PREVENT EROSION, AND REPLACE IT IMMEDIATELY WHEN YOU FINISH DISTURBING THE SITE.

SUGGESTED BMPS FOR ELEMENT 1

- BMP C101: PRESERVING NATURAL VEGETATION
- BMP C102: BUFFER ZONES
- BMP C103: HIGH-VISIBILITY FENCE
- BMP C233: SILT FENCE

ELEMENT 2: ESTABLISH CONSTRUCTION ACCESS

A. LIMIT CONSTRUCTION VEHICLE ACCESS AND EXIT TO ONE ROUTE, IF POSSIBLE.

B. STABILIZE ACCESS POINTS WITH A PAD OF QUARRY SPALLS, CRUSHED ROCK, OR OTHER EQUIVALENT BMPS, TO MINIMIZE TRACKING OF SEDIMENT ONTO PUBLIC ROADS.

C. LOCATE WHEEL WASH OR TIRE BATHS ON SITE, IF THE STABILIZED CONSTRUCTION ENTRANCE IS NOT EFFECTIVE IN PREVENTING TRACKING SEDIMENT ONTO ROADS.

D. IF SEDIMENT IS TRACKED OFF SITE, CLEAN THE AFFECTED ROADWAY(S) THOROUGHLY AT THE END OF EACH DAY, OR MORE FREQUENTLY AS NECESSARY (FOR EXAMPLE, DURING WET WEATHER). REMOVE SEDIMENT FROM ROADS BY SHOVELING, SWEEPING, OR PICKING UP AND TRANSPORTING THE SEDIMENT TO A CONTROLLED SEDIMENT DISPOSAL AREA.

E. CONDUCT STREET WASHING ONLY AFTER SEDIMENT IS REMOVED IN ACCORDANCE WITH 2.D (ABOVE).

F. CONTROL STREET WASH WASTEWATER BY PUMPING BACK ON SITE, OR OTHERWISE PREVENT IT FROM DIS- CHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.

ADDITIONAL GUIDANCE FOR ELEMENT 2

MINIMIZE CONSTRUCTION SITE ACCESS POINTS ALONG LINEAR PROJECTS, SUCH AS ROADWAYS. STREET WASHING MAY REQUIRE LOCAL JURISDICTION APPROVAL.

SUGGESTED BMPS FOR ELEMENT 2

- BMP C105: STABILIZED CONSTRUCTION ACCESS
- BMP C106: WHEEL WASH
- BMP C107: CONSTRUCTION ROAD / PARKING AREA STABILIZATION

ELEMENT 3: CONTROL FLOW RATES

A. PROTECT PROPERTIES AND WATERWAYS DOWNSTREAM OF DEVELOPMENT SITES FROM EROSION AND THE ASSOCIATED DISCHARGE OF TURBID WATERS DUE TO INCREASES IN THE VELOCITY AND PEAK VOLUMETRIC FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE.

B. WHERE NECESSARY TO COMPLY WITH 3.A (ABOVE), CONSTRUCT STORMWATER INFILTRATION OR DETENTION BMPS AS ONE OF THE FIRST STEPS IN GRADING. ASSURE THAT DETENTION BMPS FUNCTION PROPERLY BEFORE CONSTRUCTING SITE IMPROVEMENTS (E.G., IMPERVIOUS SURFACES).

C. IF PERMANENT INFILTRATION BMPS ARE USED FOR TEMPORARY FLOW CONTROL DURING CONSTRUCTION, PROTECT THESE BMPS FROM SILTATION DURING THE CONSTRUCTION PHASE.

ADDITIONAL GUIDANCE FOR ELEMENT 3

- CONDUCT A DOWNSTREAM ANALYSIS IF CHANGES IN FLOWS COULD IMPAIR OR ALTER CONVEYANCE SYSTEMS, STREAMBANKS, BED SEDIMENT, OR AQUATIC HABITAT. SEE III-3.2 PREPARING A STORMWATER SITE PLAN FOR OFF-SITE ANALYSIS GUIDELINES.
- EVEN GENTLY SLOPED AREAS NEED FLOW CONTROLS SUCH AS BMP C235: WATTLES OR OTHER ENERGY DISSIPATION / FILTRATION STRUCTURES. PLACE DISSIPATION FACILITIES CLOSER TOGETHER ON STEEPER SLOPES. THESE METHODS PREVENT WATER FROM BUILDING HIGHER VELOCITIES AS IT FLOWS DOWNSTREAM WITHIN THE CONSTRUCTION SITE.
- CONTROL STRUCTURES DESIGNED FOR PERMANENT DETENTION BMPS ARE NOT APPROPRIATE FOR USE DURING CONSTRUCTION WITHOUT MODIFICATION. IF USED DURING CONSTRUCTION, MODIFY THE CONTROL STRUCTURE TO ALLOW FOR LONG-TERM STORAGE OF RUNOFF AND ENABLE SEDIMENT TO SETTLE. VERIFY THAT THE BMP IS SIZED APPROPRIATELY FOR THIS PURPOSE. RESTORE BMPS TO THEIR ORIGINAL DESIGN DIMENSIONS, REMOVE SEDIMENT, AND INSTALL A FINAL CONTROL STRUCTURE AT COMPLETION OF THE PROJECT.
- EROSION HAS THE POTENTIAL TO OCCUR BECAUSE OF INCREASES IN THE VOLUME, VELOCITY, AND PEAK FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE. THE LOCAL PERMITTING AGENCY MAY REQUIRE INFILTRATION OR DETENTION BMP DESIGNS THAT PROVIDE ADDITIONAL OR DIFFERENT STORMWATER FLOW CONTROL THAN THE DESIGNS DETAILED IN THIS MANUAL. THESE REQUIREMENTS MAY BE NECESSARY TO ADDRESS LOCAL CONDITIONS OR TO PROTECT PROPERTIES AND WATERWAYS DOWNSTREAM.
- VELOCITY OF WATER LEAVING THE SITE SHOULD NOT EXCEED 3 FEET/SECOND, IF THE DISCHARGE IS TO A STREAM OR DITCH. INSTALL VELOCITY DISSIPATION, SUCH AS BMP C207: CHECK DAMS OR BMP C202: RIPRAP CHANNEL LINING TO ENSURE REDUCTION OF THE FLOW VELOCITY TO A NON-EROSIVE LEVEL.
- IF THE DISCHARGE FROM A PROJECT SITE IS TO A MUNICIPAL STORM DRAINAGE SYSTEM, THE ALLOWABLE DIS- CHARGE RATE MAY BE LIMITED BY THE CAPACITY OF THE PUBLIC SYSTEM. IT MAY BE NECESSARY TO CLEAN THE MUNICIPAL STORM DRAINAGE SYSTEM PRIOR TO THE START OF THE DISCHARGE TO PREVENT SCOURING SOLIDS FROM THE DRAINAGE SYSTEM. OBTAIN PERMISSION FROM THE OWNER OF THE COLLECTION SYSTEM BEFORE DISCHARGING TO IT. ENSURE THAT NO DOWNSTREAM PIPES ARE SURCHARGED AS A RESULT OF INCREASED FLOWS FROM THE PROJECT SITE.
- IF THE DISCHARGE FROM A PROJECT SITE IS DIRECTLY TO A FLOW CONTROL EXEMPT RECEIVING WATER LISTED IN APPENDIX I-A: FLOW CONTROL EXEMPT RECEIVING WATERS OR TO AN INFILTRATION SYSTEM, THERE IS NO DISCHARGE FLOW LIMIT.

SUGGESTED BMPS FOR ELEMENT 3

- BMP C203: WATER BARS
- BMP C207: CHECK DAMS
- BMP C209: OUTLET PROTECTION
- BMP C235: WATTLES
- BMP C240: SEDIMENT TRAP
- BMP C241: SEDIMENT POND (TEMPORARY)

ELEMENT 4: INSTALL SEDIMENT CONTROLS

A. CONSTRUCT SEDIMENT CONTROL BMPS (SEDIMENT PONDS, TRAPS, FILTERS, ETC.) AS ONE OF THE FIRST STEPS IN GRADING. THESE BMPS MUST BE FUNCTIONAL BEFORE OTHER LAND DISTURBING ACTIVITIES TAKE PLACE.

B. MINIMIZE SEDIMENT DISCHARGES FROM THE SITE. THE DESIGN, INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS MUST ADDRESS FACTORS SUCH AS THE AMOUNT, FREQUENCY, INTENSITY AND DURATION OF PRECIPITATION, THE NATURE OF RESULTING STORMWATER RUNOFF, AND SOIL CHARACTERISTICS, INCLUDING THE RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT ON THE SITE.

C. DIRECT STORMWATER RUNOFF FROM DISTURBED AREAS THROUGH BMP C241: SEDIMENT POND (TEMPORARY) OR OTHER APPROPRIATE SEDIMENT REMOVAL BMP, BEFORE THE RUNOFF LEAVES A CONSTRUCTION SITE OR BEFORE DISCHARGE TO AN INFILTRATION FACILITY. RUNOFF FROM FULLY STABILIZED AREAS MAY BE DISCHARGED WITHOUT A SEDIMENT REMOVAL BMP, BUT MUST CONTROL FLOW RATES PER ELEMENT 3: CONTROL FLOW RATES.

D. LOCATE BMPS INTENDED TO TRAP SEDIMENT ON SITE IN A MANNER TO AVOID INTERFERENCE WITH THE MOVEMENT OF JUVENILE SALMONIDS ATTEMPTING TO ENTER OFF-CHANNEL AREAS OR DRAINAGES.

E. PROVIDE AND MAINTAIN NATURAL BUFFERS AROUND SURFACE WATERS, DIRECT STORMWATER TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION, UNLESS INFEASIBLE.

F. WHERE FEASIBLE, DESIGN OUTLET STRUCTURES THAT WITHDRAW IMPOUNDED STORMWATER FROM THE SURFACE TO AVOID DISCHARGING SEDIMENT THAT IS STILL SUSPENDED LOWER IN THE WATER COLUMN.

ADDITIONAL GUIDANCE FOR ELEMENT 4

- OUTLET STRUCTURES THAT WITHDRAW IMPOUNDED STORMWATER FROM THE SURFACE TO AVOID DISCHARGING SEDIMENT THAT IS STILL SUSPENDED LOWER IN THE WATER COLUMN ARE FOR THE CONSTRUCTION PERIOD ONLY. IF INSTALLING A FLOATING PUMP STRUCTURE, INCLUDE A STOPPER TO PREVENT THE PUMP BASKET FROM HITTING THE BOTTOM OF THE POND.
- IF A SEDIMENT TRAPPING BMP UTILIZES A CONTROL STRUCTURE THAT WILL ALSO BE USED IN A PERMANENT DETENTION BMP APPLICATION, THE CONTROL STRUCTURE CONSTRUCTION MUST BE FINALIZED FOR THE PERMANENT BMP APPLICATION UPON PROJECT COMPLETION.
- INSTALL SEDIMENT CONTROLS IN A MANNER THAT PROTECTS THE SENSITIVE AREAS AND THEIR BUFFERS MARKED IN ACCORDANCE WITH ELEMENT 1: PRESERVE VEGETATION / MARK CLEARING LIMITS.
- WHERE FEASIBLE, DIRECT STORMWATER TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION.
- SEED AND MULCH EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS ACCORDING TO THE TIMING INDICATED IN ELEMENT 5: STABILIZE SOILS.
- FULL STABILIZATION INCLUDES CONCRETE OR ASPHALT PAVING; QUARRY SPALLS USED AS DITCH LINING; OR THE USE OF ROLLED EROSION PRODUCTS, A BONDED FIBER MATRIX PRODUCT, OR VEGETATIVE COVER IN A MANNER THAT WILL FULLY PREVENT SOIL EROSION.
- THE LOCAL PERMITTING AUTHORITY MAY INSPECT AND APPROVE AREAS FULLY STABILIZED BY MEANS OTHER THAN PAVEMENT OR QUARRY SPALLS.

SUGGESTED BMPS FOR ELEMENT 4

- BMP C231: BRUSH BARRIER
- BMP C232: GRAVEL FILTER BERM
- BMP C233: SILT FENCE
- BMP C234: VEGETATED STRIP
- BMP C235: WATTLES
- BMP C240: SEDIMENT TRAP
- BMP C241: SEDIMENT POND (TEMPORARY)
- BMP C250: CONSTRUCTION STORMWATER CHEMICAL TREATMENT
- BMP C251: CONSTRUCTION STORMWATER FILTRATION

ELEMENT 5: STABILIZE SOILS

A. STABILIZE EXPOSED AND UNWORKED SOILS BY APPLICATION OF EFFECTIVE BMPS THAT PREVENT EROSION. APPLICABLE BMPS INCLUDE, BUT ARE NOT LIMITED TO: TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, PLASTIC COVERING, EROSION CONTROL FABRICS AND MATTING, SOIL APPLICATION OF POLYACRYLAMIDE (PAM), THE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED, AND DUST CONTROL.

B. CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION.

C. CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND TO MINIMIZE DOWNSTREAM CHANNEL AND STREAM BANK EROSION.

D. SOILS MUST NOT REMAIN EXPOSED AND UNWORKED FOR MORE THAN THE TIME PERIODS SET FORTH BELOW TO PREVENT EROSION:

a. DURING THE DRY SEASON (MAY 1 - SEPTEMBER 30): 7 DAYS

b. DURING THE WET SEASON (OCTOBER 1 - APRIL 30): 2 DAYS

E. STABILIZE SOILS AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST.

F. STABILIZE SOIL STOCKPILES FROM EROSION, PROTECT WITH SEDIMENT TRAPPING MEASURES, AND WHERE POSSIBLE, LOCATE AWAY FROM STORM DRAIN INLETS, WATERWAYS AND DRAINAGE CHANNELS.

G. MINIMIZE THE AMOUNT OF SOIL EXPOSED DURING CONSTRUCTION ACTIVITY.

H. MINIMIZE THE DISTURBANCE OF STEEP SLOPES.

I. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

ADDITIONAL GUIDANCE FOR ELEMENT 5

- SOIL STABILIZATION BMPS SHOULD BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, ESTIMATED DURATION OF USE, AND POTENTIAL WATER QUALITY IMPACTS THAT STABILIZATION AGENTS MAY HAVE ON DOWNSTREAM WATERS OR GROUND WATER.
- ENSURE THAT GRAVEL BASE USED FOR STABILIZATION IS CLEAN AND DOES NOT CONTAIN FINES OR SEDIMENT.

SUGGESTED BMPS FOR ELEMENT 5

- BMP C120: TEMPORARY AND PERMANENT SEEDING
- BMP C121: MULCHING
- BMP C122: NETS AND BLANKETS
- BMP C123: PLASTIC COVERING
- BMP C124: SODDING
- BMP C125: TOPSOILING / COMPOSTING
- BMP C126: POLYACRYLAMIDE (PAM) FOR SOIL EROSION PROTECTION
- BMP C130: SURFACE ROUGHENING
- BMP C131: GRADIENT TERRACES
- BMP C140: DUST CONTROL

ELEMENT 6: PROTECT SLOPES

A. DESIGN AND CONSTRUCT CUT-AND-FILL SLOPES IN A MANNER TO MINIMIZE EROSION. APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, REDUCING CONTINUOUS LENGTH OF SLOPE WITH TERRACING AND DIVERSIONS, REDUCING SLOPE STEEPNESS, AND ROUGHENING SLOPE SURFACES (FOR EXAMPLE, TRACK WALKING).

B. DIVERT OFF-SITE STORMWATER (RUN-ON) OR GROUND WATER AWAY FROM SLOPES AND DISTURBED AREAS WITH INTERCEPTOR DIKES, PIPES AND/OR SWALES. OFF-SITE STORMWATER SHOULD BE MAN- AGED SEPARATELY FROM STORMWATER GENERATED ON SITE.

C. AT THE TOP OF SLOPES, COLLECT DRAINAGE IN PIPE SLOPE DRAINS OR PROTECTED CHANNELS TO PREVENT EROSION. TEMPORARY PIPE SLOPE DRAINS MUST BE SIZED TO CONVEY THE FLOW RATE CALCULATED BY ONE OF THE FOLLOWING METHODS:

a. SINGLE EVENT HYDROGRAPH METHOD: THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE TIME STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM.

OR

b. CONTINUOUS SIMULATION METHOD: THE 10-YEAR PEAK FLOW RATE, AS DETERMINED BY AN APPROVED CONTINUOUS RUNOFF MODEL WITH A 15-MINUTE TIME STEP.

D. THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WESTERN WASHINGTON HYDRO- LOGY MODEL (WWHM) TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED" AREA.

E. PLACE EXCAVATED MATERIAL ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.

F. PLACE CHECK DAMS AT REGULAR INTERVALS WITHIN CONSTRUCTED CHANNELS THAT ARE CUT DOWN A SLOPE.

ADDITIONAL GUIDANCE FOR ELEMENT 6

- CONSIDER SOIL TYPE AND ITS POTENTIAL FOR EROSION.
- STABILIZE SOILS ON SLOPES, AS SPECIFIED IN ELEMENT 5: STABILIZE SOILS.
- BMP COMBINATIONS ARE THE MOST EFFECTIVE METHOD OF PROTECTING SLOPES WITH DISTURBED SOILS. FOR EXAMPLE, USE BOTH BMP C121: MULCHING AND BMP C122: NETS AND BLANKETS IN COMBINATION.

SUGGESTED BMPS FOR ELEMENT 6

- BMP C120: TEMPORARY AND PERMANENT SEEDING
- BMP C121: MULCHING
- BMP C122: NETS AND BLANKETS
- BMP C123: PLASTIC COVERING
- BMP C124: SODDING
- BMP C130: SURFACE ROUGHENING
- BMP C131: GRADIENT TERRACES
- BMP C200: INTERCEPTOR DIKE AND SWALE
- BMP C201: GRASS-LINED CHANNELS
- BMP C203: WATER BARS
- BMP C204: PIPE SLOPE DRAINS
- BMP C205: SUBSURFACE DRAINS
- BMP C206: LEVEL SPREADER
- BMP C207: CHECK DAMS
- BMP C208: TRIANGULAR SILT DIKE (TSD)

ELEMENT 7: PROTECT DRAIN INLETS

A. PROTECT ALL STORM DRAIN INLETS MADE OPERABLE DURING CONSTRUCTION SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT.

B. CLEAN OR REMOVE AND REPLACE INLET PROTECTION DEVICES WHEN SEDIMENT HAS FILLED ONE-THIRD OF THE AVAILABLE STORAGE (UNLESS A DIFFERENT STANDARD IS SPECIFIED BY THE PRODUCT MANUFACTURER).

ADDITIONAL GUIDANCE FOR ELEMENT 7

PROTECT ALL EXISTING STORM DRAIN INLETS SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT.

- KEEP ALL APPROACH ROADS CLEAN. DO NOT ALLOW SEDIMENT AND STREET WASH WATER TO ENTER STORM DRAINS WITHOUT PRIOR AND ADEQUATE TREATMENT (AS DEFINED ABOVE) UNLESS TREATMENT IS PROVIDED BEFORE THE STORM DRAIN DISCHARGES TO WATERS OF THE STATE.
- INLETS SHOULD BE INSPECTED WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS.

SUGGESTED BMPS FOR ELEMENT 7

- BMP C220: INLET PROTECTION

ELEMENT 8: STABILIZE CHANNELS AND OUTLETS

A. DESIGN, CONSTRUCT, AND STABILIZE ALL ON-SITE CONVEYANCE CHANNELS TO PREVENT EROSION FROM THE FLOW RATE CALCULATED BY ONE OF THE FOLLOWING METHODS:

a. SINGLE EVENT HYDROGRAPH METHOD: THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE TIME STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM.

OR

b. CONTINUOUS SIMULATION METHOD: THE 10-YEAR PEAK FLOW RATE, AS DETERMINED BY AN APPROVED CONTINUOUS RUNOFF MODEL WITH A 15-MINUTE TIME STEP.

THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WESTERN WASHINGTON HYDRO- LOGY MODEL (WWHM) TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED" AREA.

B. PROVIDE STABILIZATION, INCLUDING ARMORING MATERIAL, ADEQUATE TO PREVENT EROSION OF OUTLETS, ADJACENT STREAM BANKS, SLOPES AND DOWNSTREAM REACHES AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.

ADDITIONAL GUIDANCE FOR ELEMENT 8

THE BEST METHOD FOR STABILIZING CHANNELS IS TO COMPLETELY LINE THE CHANNEL WITH BMP C122: NETS AND BLANKETS FIRST, THEN ADD BMP C207: CHECK DAMS AS NECESSARY TO FUNCTION AS AN ANCHOR AND TO SLOW THE FLOW OF WATER.

SUGGESTED BMPS FOR ELEMENT 8

- BMP C122: NETS AND BLANKETS
- BMP C202: RIPRAP CHANNEL LINING
- BMP C207: CHECK DAMS
- BMP C209: OUTLET PROTECTION

ELEMENT 9: CONTROL POLLUTANTS

DESIGN, INSTALL, IMPLEMENT AND MAINTAIN EFFECTIVE POLLUTION PREVENTION MEASURES TO MINIMIZE THE DISCHARGE OF POLLUTANTS. THE PROJECT PROPONENT MUST:

A. HANDLE AND DISPOSE OF ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS THAT OCCUR ON SITE IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER.

B. PROVIDE COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND OTHER MATERIALS THAT HAVE THE POTENTIAL TO POSE A THREAT TO HUMAN HEALTH OR THE ENVIRONMENT. ON-SITE FUELING TANKS MUST INCLUDE SECONDARY CONTAINMENT. SECONDARY CONTAINMENT MEANS PLACING TANKS OR CONTAINERS WITHIN AN IMPERVIOUS STRUCTURE CAPABLE OF CONTAINING 110% OF THE VOLUME CONTAINED IN THE LARGEST TANK WITHIN THE CONTAINMENT STRUCTURE. DOUBLE-WALLED TANKS DO NOT REQUIRE ADDITIONAL SECONDARY CONTAINMENT.

C. CONDUCT MAINTENANCE, FUELING, AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES USING SPILL PREVENTION AND CONTROL MEASURES. CLEAN CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY SPILL INCIDENT.

D. DISCHARGE WHEEL WASH OR TIRE BATH WASTEWATER TO A SEPARATE ON-SITE TREATMENT SYSTEM THAT PREVENTS DISCHARGE TO SURFACE WATER, OR TO THE SANITARY SEWER, WITH LOCAL SEWER DISTRICT APPROVAL.

E. APPLY FERTILIZERS AND PESTICIDES IN A MANNER AND AT APPLICATION RATES THAT WILL NOT RESULT IN LOSS OF CHEMICAL TO STORMWATER RUNOFF. FOLLOW MANUFACTURERS' LABEL REQUIREMENTS FOR APPLICATION RATES AND PROCEDURES.

F. USE BMPS TO PREVENT CONTAMINATION OF STORMWATER RUNOFF BY PH-MODIFYING SOURCES. THE SOURCES FOR THIS CONTAMINATION INCLUDE, BUT ARE NOT LIMITED TO: RECYCLED CONCRETE STOCKPILES, BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHING AND CURING WATERS, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, DEWATERING CONCRETE VAULTS, CONCRETE PUMPING AND MIXER WASHOUT WATERS.

G. ADJUST THE PH OF STORMWATER IF NECESSARY TO PREVENT VIOLATIONS OF WATER QUALITY STANDARDS.

H. ASSURE THAT WASHOUT OF CONCRETE TRUCKS IS PERFORMED OFF SITE OR IN DESIGNATED CONCRETE WASHOUT AREAS ONLY. DO NOT WASH OUT CONCRETE TRUCK DRUMS OR CONCRETE HANDLING EQUIPMENT ONTO THE GROUND, OR INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS. WASHOUT OF SMALL CONCRETE HANDLING EQUIPMENT MAY BE DISPOSED OF IN A FORMED AREA AWAITING CONCRETE WHERE IT WILL NOT CONTAMINATE SURFACE OR GROUND WATER. DO NOT DUMP EXCESS CONCRETE ON SITE, EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. CONCRETE SPILLAGE OR CONCRETE DISCHARGE DIRECTLY TO GROUND WATER OR SURFACE WATERS OF THE STATE IS PROHIBITED. DO NOT WASH OUT TO FORMED AREAS AWAITING INFILTRATION BMPS.

I. OBTAIN WRITTEN APPROVAL FROM ECOLOGY BEFORE USING CHEMICAL TREATMENT OTHER THAN CO2, DRY ICE, OR FOOD GRADE VINEGAR TO ADJUST PH.

J. UNCONTAMINATED WATER FROM WATER-ONLY BASED SHAFT DRILLING FOR CONSTRUCTION OF BUILDING, ROAD, AND BRIDGE FOUNDATIONS MAY BE INFILTRATED PROVIDED THE WASTEWATER IS MANAGED IN A WAY THAT PROHIBITS DISCHARGE TO SURFACE WATERS. PRIOR TO INFILTRATION, WATER FROM WATER-ONLY BASED SHAFT DRILLING THAT COMES INTO CONTACT WITH CURING CONCRETE MUST BE NEUTRALIZED UNTIL PH IS IN THE RANGE OF 6.5 TO 8.5 (SU).

ADDITIONAL GUIDANCE FOR ELEMENT 9

- WHEEL WASH AND/OR TIRE BATH WASTEWATER CAN BE COMBINED WITH WASTEWATER FROM CONCRETE WASHOUT AREAS IF THE WASTEWATERS WILL BE PROPERLY DISPOSED OF AT AN OFFSITE LOCATION OR TREATMENT FACILITY.
- DO NOT USE UPLAND LAND APPLICATIONS FOR DISCHARGING WASTEWATER FROM CONCRETE WASHOUT AREAS.
- WOODY DEBRIS MAY BE CHOPPED AND SPREAD ON SITE.
- CONDUCT OIL CHANGES, HYDRAULIC SYSTEM DRAIN DOWN, SOLVENT AND DEGREASING CLEANING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES WHICH MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS.
- CLEAN CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. EMERGENCY REPAIRS MAY BE PERFORMED ON-SITE USING TEMPORARY PLASTIC PLACED BENEATH AND, IF RAINING, OVER THE VEHICLE.

SUGGESTED BMPS FOR ELEMENT 9

- BMP C151: CONCRETE HANDLING
- BMP C152: SAWCUTTING AND SURFACING POLLUTION PREVENTION
- BMP C153: MATERIAL DELIVERY, STORAGE, AND CONTAINMENT
- BMP C154: CONCRETE WASHOUT AREA
- BMP C250: CONSTRUCTION STORMWATER CHEMICAL TREATMENT
- BMP C251: CONSTRUCTION STORMWATER FILTRATION
- BMP C252: TREATING AND DISPOSING OF HIGH PH WATER

ALSO SEE THE SOURCE CONTROL BMPS DETAILED IN VOLUME IV

ELEMENT 10: CONTROL DEWATERING

A. DISCHARGE FOUNDATION, VAULT, AND TRENCH DEWATERING WATER, WHICH HAVE SIMILAR CHARACTERISTICS TO STORMWATER RUNOFF AT THE SITE, INTO A CONTROLLED CONVEYANCE SYSTEM BEFORE DISCHARGE TO BMP C240: SEDIMENT TRAP OR BMP C241: SEDIMENT POND (TEMPORARY).

B. DISCHARGE CLEAN, NON-TURBID DEWATERING WATER, SUCH AS WELL-POINT GROUND WATER, TO SYSTEMS TRIBUTARY TO, OR DIRECTLY INTO SURFACE WATERS OF THE STATE, AS SPECIFIED IN ELEMENT 8: STABILIZE CHANNELS AND OUTLETS, PROVIDED THE DEWATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF RECEIVING WATERS. DO NOT ROUTE CLEAN DEWATERING WATER THROUGH STORMWATER SEDIMENT BMPS. NOTE THAT “SURFACE WATERS OF THE STATE” MAY EXIST ON A CONSTRUCTION SITE AS WELL AS OFF SITE; FOR EXAMPLE, A CREEK RUNNING THROUGH A SITE.

C. HANDLE HIGHLY TURBID OR OTHERWISE CONTAMINATED DEWATERING WATER SEPARATELY FROM STORM- WATER.

D. OTHER DEWATERING TREATMENT OR DISPOSAL OPTIONS MAY INCLUDE:

a. INFILTRATION.

b. TRANSPORT OFF SITE IN A VEHICLE, SUCH AS A VACUUM FLUSH TRUCK, FOR LEGAL DISPOSAL IN A MANNER THAT DOES NOT POLLUTE STATE WATERS.

c. ECOLOGY-APPROVED ON-SITE CHEMICAL TREATMENT OR OTHER SUITABLE TREATMENT TECHNOLOGIES.

d. SANITARY OR COMBINED SEWER DISCHARGE WITH LOCAL SEWER DISTRICT APPROVAL, IF THERE IS NO OTHER OPTION.

e. USE OF A SEDIMENTATION BAG THAT DISCHARGES TO A DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DEWATERING.

ADDITIONAL GUIDANCE FOR ELEMENT 10

- CHANNELS MUST BE STABILIZED, AS SPECIFIED IN ELEMENT 8: STABILIZE CHANNELS AND OUTLETS.
- CONSTRUCTION EQUIPMENT OPERATION, CLAMSHELL DIGGING, CONCRETE TREMIE POUR, OR WORK INSIDE A COFFERDAM CAN CREATE HIGHLY TURBID OR CONTAMINATED DEWATERING WATER.
- DISCHARGING SEDIMENT-LADEN (MUDDY) WATER INTO WATERS OF THE STATE LIKELY CONSTITUTES VIOLATION OF WATER QUALITY STANDARDS FOR TURBIDITY. THE EASIEST WAY TO AVOID DISCHARGING MUDDY WATER IS THROUGH INFILTRATION AND PRESERVING VEGETATION.
- DEWATERING WATER FROM CONTAMINATED SITES MUST BE HANDLED SEPARATELY FROM STORMWATER. DIRECT CONTAMINATED STORMWATER TO A SANITARY SEWER WHERE ALLOWED BY THE LOCAL SEWER AUTHORITY, OR TO OTHER APPROVED TREATMENT.

SUGGESTED BMPS FOR ELEMENT 10

- BMP C203: WATER BARS
- BMP C236: VEGETATIVE FILTRATION

ELEMENT 11: MAINTAIN BMPS

A. MAINTAIN AND REPAIR ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION IN ACCORDANCE WITH BMP SPECIFICATIONS.

B. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS WITHIN 30 DAYS AFTER ACHIEVING FINAL SITE STABILIZATION OR AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED.

ADDITIONAL GUIDANCE FOR ELEMENT 11

- SOME TEMPORARY EROSION AND SEDIMENT CONTROL BMPS ARE BIODEGRADABLE AND DESIGNED TO REMAIN IN PLACE FOLLOWING CONSTRUCTION. BMP C122: NETS AND BLANKETS IS AN EXAMPLE OF A BMP WITH BIODEGRADABLE OPTIONS.
- PROVIDE PROTECTION TO ALL BMPS INSTALLED FOR THE PERMANENT CONTROL OF STORMWATER FROM SEDIMENT AND COMPACTION. ALL BMPS THAT ARE TO REMAIN IN PLACE FOLLOWING COMPLETION OF CONSTRUCTION SHALL BE EXAMINED AND PLACED IN FULL OPERATING CONDITIONS. IF SEDIMENT ENTERS THE BMPS DURING CONSTRUCTION, IT SHALL BE REMOVED AND THE FACILITY SHALL BE RETURNED TO THE CONDITIONS SPECIFIED IN THE CONSTRUCTION DOCUMENTS.
- REMOVE OR STABILIZE TRAPPED SEDIMENT ON SITE. PERMANENTLY STABILIZE DISTURBED SOIL RESULTING FROM REMOVAL OF BMPS OR VEGETATION.

SUGGESTED BMPS FOR ELEMENT 11

- BMP C150: MATERIALS ON HAND
- BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD

ELEMENT 12: MANAGE THE PROJECT

A. PHASE DEVELOPMENT PROJECTS TO THE MAXIMUM DEGREE PRACTICABLE AND TAKE INTO ACCOUNT SEASONAL WORK LIMITATIONS.

B. INSPECT, MAINTAIN AND REPAIR ALL BMPS AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. PROJECTS REGULATED UNDER THE CONSTRUCTION STORMWATER GENERAL PERMIT (CSWGP) MUST CONDUCT SITE INSPECTIONS AND MONITORING IN ACCORDANCE WITH SPECIAL CONDITION S4 OF THE CSWGP.

C. MAINTAIN, UPDATE, AND IMPLEMENT THE CONSTRUCTION SWPPP.

D. PROJECTS THAT DISTURB ONE OR MORE ACRES MUST HAVE SITE INSPECTIONS CONDUCTED BY A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL). PROJECT SITES DISTURBING LESS THAN ONE ACRE MAY HAVE A CESCL OR A PERSON WITHOUT CESCL CERTIFICATION CONDUCT INSPECTIONS. BY THE INITIATION OF CONSTRUCTION, THE CONSTRUCTION SWPPP MUST IDENTIFY THE CESCL OR INSPECTOR, WHO MUST BE PRESENT ON SITE OR ON-CALL AT ALL TIMES.

ADDITIONAL GUIDANCE FOR ELEMENT 12

THE PROJECT MANAGER MUST ENSURE THAT THE PROJECT IS BUILT IN SUCH A WAY TO COMPLY WITH ALL CONSTRUCTION SWPPP ELEMENTS, AS DETAILED IN THIS SECTION. CONSIDERATIONS FOR THE PROJECT MANAGER INCLUDE, BUT ARE NOT LIMITED TO:

- CONSTRUCTION PHASING
- SEASONAL WORK LIMITATIONS
- COORDINATION WITH UTILITIES AND OTHER CONTRACTORS
- INSPECTION
- MONITORING
- MAINTAINING AN UPDATED CONSTRUCTION SWPPP

PHASING OF CONSTRUCTION

PHASE DEVELOPMENT PROJECTS WHERE FEASIBLE IN ORDER TO PREVENT SOIL EROSION AND TRANSPORTING OF SEDIMENT FROM THE SITE DURING CONSTRUCTION. REVEGETATE EXPOSED AREAS AND MAINTAIN THAT VEGETATION AS AN INTEGRAL PART OF THE CLEARING ACTIVITIES FOR ANY PHASE.

CLEARING AND GRADING ACTIVITIES FOR DEVELOPMENTS SHALL BE PERMITTED ONLY IF CONDUCTED USING AN APPROVED SITE DEVELOPMENT PLAN (E.G., SUBDIVISION APPROVAL) THAT ESTABLISHES PERMITTED AREAS OF CLEARING, GRADING, CUTTING, AND FILLING. MINIMIZE REMOVING TREES AND DISTURBING OR COMPACTING NATIVE SOILS WHEN ESTABLISHING PERMITTED CLEARING AND GRADING AREAS. SHOW ON THE SITE PLANS AND THE DEVELOPMENT SITE PERMITTED CLEARING AND GRADING AREAS AND ANY OTHER AREAS REQUIRED TO PRESERVE CRITICAL OR SENSITIVE AREAS, BUFFERS, NATIVE GROWTH PROTECTION EASEMENTS, OR TREE RETENTION AREAS AS MAY BE REQUIRED BY LOCAL JURISDICTIONS.

INSPECTION

ALL BMPS MUST BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. SITE INSPECTIONS MUST BE CONDUCTED BY A PERSON KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROL. THE PERSON MUST HAVE THE SKILLS TO 1) ASSESS THE SITE CONDITIONS AND CONSTRUCTION ACTIVITIES THAT COULD IMPACT THE QUALITY OF STORMWATER, AND 2) ASSESS THE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES USED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES.

FOR CONSTRUCTION SITES ONE ACRE OR LARGER THAT DISCHARGE STORMWATER TO SURFACE WATERS OF THE STATE, A CESCL MUST BE IDENTIFIED IN THE CONSTRUCTION SWPPP; THIS PERSON MUST BE ON-SITE OR ON-CALL AT ALL TIMES. CERTIFICATION MUST BE OBTAINED THROUGH AN APPROVED TRAINING PROGRAM THAT MEETS THE EROSION AND SEDIMENT CONTROL TRAINING STANDARDS ESTABLISHED BY ECOLOGY. SEE BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD.

APPROPRIATE BMPS OR DESIGN CHANGES SHALL BE IMPLEMENTED AS SOON AS POSSIBLE WHENEVER INSPECTION AND/OR MONITORING REVEALS THAT THE BMPS IDENTIFIED IN THE CONSTRUCTION SWPPP ARE INADEQUATE, DUE TO THE ACTUAL DISCHARGE OF /OR POTENTIAL TO DISCHARGE A SIGNIFICANT AMOUNT OF ANY POLLUTANT.

THE CESCL OR INSPECTOR MUST EXAMINE STORMWATER VISUALLY FOR THE PRESENCE OF SUSPENDED SEDIMENT, TURBIDITY, DISCOLORATION, AND OIL SHEEN. THEY MUST EVALUATE THE EFFECTIVENESS OF BMPS AND DETERMINE IF IT IS NECESSARY TO INSTALL, MAINTAIN, OR REPAIR BMPS TO IMPROVE THE QUALITY OF STORMWATER DISCHARGES.

BASED ON THE RESULTS OF THE INSPECTION, CONSTRUCTION SITE OPERATORS MUST CORRECT THE PROBLEMS IDENTIFIED BY:

- REVIEWING THE CONSTRUCTION SWPPP FOR COMPLIANCE WITH THE 13 ELEMENTS AND MAKING APPROPRIATE REVISIONS WITHIN 7 DAYS OF THE INSPECTION.
- IMMEDIATELY BEGINNING THE PROCESS OF FULLY IMPLEMENTING AND MAINTAINING APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPS AS SOON AS POSSIBLE, ADDRESSING THE PROBLEMS NO LATER THAN WITHIN 10 DAYS OF THE INSPECTION. IF INSTALLATION OF NECESSARY TREATMENT BMPS IS NOT FEASIBLE WITHIN 10 DAYS, THE CONSTRUCTION SITE OPERATOR MAY REQUEST AN EXTENSION WITHIN THE INITIAL 10- DAY RESPONSE PERIOD.
- DOCUMENTING BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK (APPLIES ONLY TO SITES THAT HAVE COVERAGE UNDER THE CONSTRUCTION STORMWATER GENERAL PERMIT).

THE CESCL MUST INSPECT ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, ALL BMPS, AND ALL STORMWATER DISCHARGE POINTS AT LEAST ONCE EVERY CALENDAR WEEK AND WITHIN 24 HOURS OF ANY DISCHARGE FROM THE SITE. (FOR PURPOSES OF THIS CONDITION, INDIVIDUAL DISCHARGE EVENTS THAT LAST MORE THAN ONE DAY DO NOT REQUIRE DAILY INSPECTIONS. FOR EXAMPLE, IF A STORMWATER POND DISCHARGES CONTINUOUSLY OVER THE COURSE OF A WEEK, ONLY ONE INSPECTION IS REQUIRED THAT WEEK.) THE CESCL OR INSPECTOR MAY REDUCE THE INSPECTION FREQUENCY FOR TEMPORARY STABILIZED, INACTIVE SITES TO ONCE EVERY CALENDAR MONTH

MAINTAINING AN UPDATED CONSTRUCTION SWPPP

CESCL CONTACT INFORMATION SHALL BE PROVIDED TO THE CITY OF FERNDALE AT OR BEFORE PRE-CONSTRUCION. THE CONSTRUCTION SWPPP WILL BE RETAINED ON-SITE AND WILL BE UPDATED ON A REGULAR BASIS. MODIFICATIONS TO THE CONSTRUCTION SWPPP WILL BE MADE WHENEVER THERE IS A SIGNIFICANT CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF ANY BMP.

RETAIN THE CONSTRUCTION SWPPP ON-SITE OR WITHIN REASONABLE ACCESS TO THE SITE.

MODIFY THE CONSTRUCTION SWPPP WHENEVER THERE IS A CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE AT THE CONSTRUCTION SITE THAT HAS, OR COULD HAVE, A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO WATERS OF THE STATE.

THE CONSTRUCTION SWPPP MUST BE MODIFIED IF, DURING INSPECTIONS OR INVESTIGATIONS CONDUCTED BY THE OWNER/OPERATOR, OR THE APPLICABLE LOCAL OR STATE REGULATORY AUTHORITY, IT IS DETERMINED THAT THE CONSTRUCTION SWPPP IS INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS IN STORMWATER DIS- CHARGES FROM THE SITE. MODIFY THE CONSTRUCTION SWPPP AS NECESSARY TO INCLUDE ADDITIONAL OR MODIFIED BMPS DESIGNED TO CORRECT PROBLEMS IDENTIFIED. COMPLETE REVISIONS TO THE CONSTRUCTION SWPPP WITHIN SEVEN (7) DAYS FOLLOWING THE INSPECTION.

SUGGESTED BMPS FOR ELEMENT 12

- BMP C150: MATERIALS ON HAND
- BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD
- BMP C162: SCHEDULING

ELEMENT 13: PROTECT LOW IMPACT DEVELOPMENT BMPS

THE PRIMARY PURPOSE OF ON-SITE STORMWATER MANAGEMENT IS TO REDUCE THE DISRUPTION OF THE NATURAL SITE HYDROLOGY THROUGH INFILTRATION. BMPS USED TO MEET I-3.4.5 MR5: ON-SITE STORMWATER MANAGEMENT (OFTEN CALLED LID BMPS) ARE PERMANENT FACILITIES.

A. PROTECT ALL LID BMPS (INCLUDING, BUT NOT LIMITED TO BMP T7.30: BIORETENTION, BMP T5.14: RAIN GARDENS, AND BMP T5.15: PERMEABLE PAVEMENTS) FROM SEDIMENTATION THROUGH INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL BMPS ON PORTIONS OF THE SITE THAT DRAIN INTO THE LID BMPS. RESTORE THE BMPS TO THEIR FULLY FUNCTIONING CONDITION IF THEY ACCUMULATE SEDIMENT DURING CONSTRUCTION. RESTORING THE BMP MUST INCLUDE REMOVAL OF SEDIMENT AND ANY SEDIMENT-LADEN BIORETENTION/RAIN GARDEN SOILS, AND REPLACING THE REMOVED SOILS WITH SOILS MEETING THE DESIGN SPECIFICATION.

B. MAINTAIN THE INFILTRATION CAPABILITIES OF LID BMPS BY PROTECTING AGAINST COMPACTION BY CONSTRUCTION EQUIPMENT AND FOOT TRAFFIC. PROTECT COMPLETED LAWN AND LANDSCAPED AREAS FROM COMPACTION DUE TO CONSTRUCTION EQUIPMENT.

C. CONTROL EROSION AND AVOID INTRODUCING SEDIMENT FROM SURROUNDING LAND USES ONTO BMP T5.15: PERMEABLE PAVEMENTS. DO NOT ALLOW MUDDY CONSTRUCTION EQUIPMENT ON THE BASE MATERIAL OR PAVEMENT. DO NOT ALLOW SEDIMENT-LADEN RUNOFF ONTO PERMEABLE PAVEMENTS OR BASE MATERIALS.

D. PERMEABLE PAVEMENT FOULED WITH SEDIMENTS OR NO LONGER PASSING AN INITIAL INFILTRATION TEST MUST BE CLEANED USING PROCEDURES IN ACCORDANCE WITH THIS MANUAL OR THE MANUFACTURER'S PROCEDURES.

E. KEEP ALL HEAVY EQUIPMENT OFF EXISTING SOILS UNDER LID BMPS THAT HAVE BEEN EXCAVATED TO FINAL GRADE TO RETAIN THE INFILTRATION RATE OF THE SOILS.

ADDITIONAL GUIDANCE FOR ELEMENT 13

SEE CHAPTER 5: PRECISION SITE PREPARATION, CONSTRUCTION & INSPECTION OF LID FACILITIES IN THE LID TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND (HINMAN AND WULKAN, 2012) FOR MORE DETAIL ON PROTECTING LID INTEGRATED MANAGEMENT PRACTICES.

NOTE THAT THE LID TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND (HINMAN AND WULKAN, 2012) IS FOR ADDITIONAL INFORMATIONAL PURPOSES ONLY. YOU MUST FOLLOW THE GUIDANCE WITHIN THIS MANUAL IF THERE ARE ANY DISCREPANCIES BETWEEN THIS MANUAL AND THE LID TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND

(HINMAN AND WULKAN, 2012).

SUGGESTED BMPS FOR ELEMENT 13

- BMP C102: BUFFER ZONES
- BMP C103: HIGH-VISIBILITY FENCE
- BMP C200: INTERCEPTOR DIKE AND SWALE
- BMP C201: GRASS-LINED CHANNELS
- BMP C207: CHECK DAMS
- BMP C208: TRIANGULAR SILT DIKE (TSD)
- BMP C231: BRUSH BARRIER
- BMP C233: SILT FENCE
- BMP C234: VEGETATED STRIP

A **STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

NTS

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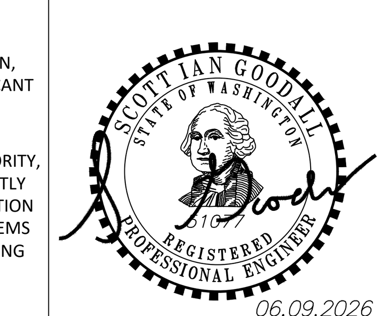

06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT
DEMOLITION PERMIT - XXXXX
STORMWATER POLLUTION PREVENTION PLAN
10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019

DESIGNED/DRAWN BY: SCR

CHECKED BY: SIG

ISSUE DATE: 06.09.2026

D3

OF: D1-D6

EMERGENCY CONTACTS:

CONTRACTOR:
T.B.D

CESCL:
TYLER ANDREWS, CESCL
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PO BOX 30498
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TYLER@PNWCIVIL.COM

LEGEND

ELEMENT #1 – MARK CLEARING LIMITS

- 101 — BMP C101 PRESERVE VEGETATION

ELEMENT #2 – ESTABLISH CONSTRUCTION ACCESS

- 107 — BMP C107 CONSTRUCTION ROAD/PARKING STABILIZATION (GRAVEL MAINTENANCE)

ELEMENT #3 – CONTROL FLOW RATES

- 207 — BMP C207: CHECK DAMS – NOT APPLICABLE
- 209 — BMP C209: OUTLET/INLET PROTECTION – NOT APPLICABLE
- 241 — BMP C241: TEMP SEDIMENT POND – NOT APPLICABLE

ELEMENT #4 – INSTALL SEDIMENT CONTROLS

- 220 — BMP C220 STORM DRAIN INLET PROTECTION
- 233 — BMP 233 SILT FENCE
- 235 — BMP 235 STRAW WATTLES

ELEMENT #5 – STABILIZE SOILS

- 120 — BMP C120 TEMPORARY AND PERMANENT SEEDING
- 121 — BMP C121 MULCHING
- 140 — BMP C140 DUST CONTROL

ELEMENT #6 – PROTECT SLOPES

- 120 — BMP C120 TEMPORARY AND PERMANENT SEEDING
- 121 — BMP C121 MULCHING

ELEMENT #7 – PROTECT DRAIN INLETS

- 220 — BMP C220 STORM DRAIN INLET PROTECTION

ELEMENT #8 – STABILIZE CHANNELS AND OUTLETS

NO CHANNELS OPEN ON THE SITE

ELEMENT #9 – CONTROL POLLUTANTS

- 152 — BMP C152 SAWCUTTING AND SURFACE POLLUTION PREVENTION
- 153 — BMP C153 MATERIAL DELIVERY, STORAGE AND CONTAINMENT

ELEMENT #10 – CONTROL DEWATERING

- 236 — BMP C236 VEGETATIVE FILTRATION – NOT APPLICABLE

ELEMENT #11 – MAINTAIN BMPs

- 160 — BMP C160 CERTIFIED EROSION AND SEDIMENT CONTROL LEAD

ELEMENT #12 – MANAGE THE PROJECT

- 160 — BMP C160 CERTIFIED EROSION AND SEDIMENT CONTROL LEAD

ELEMENT #13 – PROTECT LID BMPs

NO LOW IMPACT DEVELOPMENT BMPs

DEMOLITION SCHEDULE & GENERAL DEMOLITION NOTES:

THE FOLLOWING IS A GENERAL BASELINE AND SCHEDULE FOR INSTALLING EROSION CONTROL BMPS. THE EROSION CONTROL MEASURES LISTED ARE A GENERAL GUIDE AND THE PERMITTED DEMOLITION CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND MODIFICATION OF ALL EROSION CONTROL MEASURES TO ACHIEVE DEMOLITION PLAN AND OUTLINED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

1. IDENTIFY AND PAINT CLEARING SAWCUT AND EXTENT OF WORK LIMITS
3. INSTALL PERIMETER BMP'S
4. INSTALL TEMPORARY CONSTRUCTION PAD EAST OF EXISTING BARN FOR STAGING AND BEGIN IF REMOVING CONCRETE PADS AND EAST SIDE OF BARN (PHASE 1 OF DEMOLITION PERMIT).
5. PRESERVE SURROUNDING NATIVE VEGETATION.
6. DEPENDING ON WEATHER CONDITIONS, EROSION ISSUES MAY ARISE. INSPECT AND MAINTAIN INSTALLED ESC ITEMS AND BE PREPARED FOR THE POSSIBLE NEED FOR ADDITIONAL ESC MEASURES. CONTACT THE ENGINEER FOR ESC RECOMMENDATIONS.
7. MONITOR WEATHER AND ADD ADDITIONAL EROSION CONTROL MEASURES AS REQUIRED, WHETHER SHOWN ON THIS PLAN OR NOT. ADDITIONAL BMP MATERIALS SHALL BE KEPT ON HAND AT ALL TIMES (SUCH AS GRAVEL, STRAW, PLASTIC OR EQUIVALENT).
8. DISCHARGE OF STORMWATER FROM THE SITE IS NOT EXPECTED.

GENERAL DEMOLITION NOTES:

1. VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING WORK. BRING ANY DISCREPANCIES FROM THE DRAWINGS AND NOTES TO THE PROJECT ENGINEER IMMEDIATELY. MINOR CHANGES IN THE SCOPE OF THE DEMOLITION WORK SHALL NOT JUSTIFY AN ADDITIONAL COST.
2. BELOW GRADE POWER & GAS LINES LOCATED EAST OF EXISTING BARN BUILDING. EXTREME CAUTION SHALL BE APPLIED TO ANY WORK WITHIN 10–FEET OF POWER AND GAS.
3. POWER TO BARN 6 (200 AMP SUBPANEL) LOCATED IN BARN 8.
4. EXISTING BUILDING (BARN WITH OLD ICE RINK) 4" SEWER CONNECTION AT NORTHEAST CORNER OF BUILDING AND CONNECTS TO EXISTING MANHOLE. SEWER SERVICE TO BE CAPPED AT END OF SERVICE CONNECTION FOR FUTURE CONNECTION. SEWER SERVICE, PIPE AND MANHOLES HAVE BEEN LOCATED.
5. WATER SERVICE LINE(S) ARE TO BE REMOVED FROM INTERIOR. EXISTING WATER SERVICE TO BUILDING REMOVED. WATER SERVICE CONNECTION TO BUILDING NOT LOCATED/MARKED. CONTRACTOR TO LOCATE WATER SERVICE AND ABANDON AS NEEDED.
6. EXISTING WATERMAIN IS SHOWN ALONG WEST, SOUTH, AND NORTHERN SIDE OF EXISTING BARN. WATERMAIN, VAULT, VALVES, AND METER SHOWN WERE LOCATED PER PROJECT SURVEYOR. WATER METER SHOWN NORTHEAST OF BARN VIEW ROAD APPEARS TO BE SOURCE FOR GOLF COURSE BATHROOM. WATER SERVICE LINE TO BARN IS NOT SHOWN. WATER SERVICE LINE TO BE REMOVED BACK TO WATER METER AND SERVICE LINE TO BE ABANDONED. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS.
7. ALL WORK MUST BE COORDINATED AND SCHEDULED WITH THE OWNER'S REPRESENTATIVE. CONTRACTOR TO PROVIDE THE LEAST AMOUNT OF DISRUPTION OF EXISTING WATERMAIN AND USE ACTIVITIES AS POSSIBLE.
8. DUST CONTROL IS REQUIRED DURING DEMOLITION. CONTRACTOR SHALL ESTABLISH A WATER SOURCE FOR EASY ACCESS TO HOSE AND/OR SPRINKLERS IN ORDER TO LIMIT DUST PARTICLES LEAVING SITE DURING DEMOLITION WORK. EXISTING WATER SERVICE LINE CONNECTED TO TEMPORARY YARD DRAIN IS RECOMMENDED.
9. CONTRACTOR SHALL CLEAN DAILY. ALL AREAS/SURFACES THAT ACCUMULATE CONSTRUCTION DIRT/DEBRIS SHALL BE RAKED, SWEPT, OR VACUUMED UPON COMPLETION OF EACH PARTICULAR DAILY PROJECT. TEMPORARY STORAGE PILES SHALL BE COVERED WITH PLASTIC AT END OF EACH WORK DAY.
10. UPON COMPLETION OF DEMOLITION PROJECT, CONTRACTOR SHALL STABILIZE ALL EXPOSED SURFACES WITH LONG TERM GRAVEL BASE STABILIZATION. SEE DETAIL.
11. EVERYTHING WITHIN THE BUILDING AND ALL BUILDING COMPONENTS SHALL BE REMOVED .
12. ALL CUTTING AND CHANNELING OF EXISTING BUILDING SHALL BE ACCOMPLISHED IN A NEAT AND WORKMANLIKE MANNER WITHOUT REMOVAL OF EXCESS SOILS.
13. CONTRACTOR SHALL REPLACE ANY DAMAGED SURFACING WITHIN THE SUDDEN VALLEY COMMUNITY ASSOCIATION'S PAVED NETWORK OF ROADS, DRIVEWAYS, AND PARKING AREAS THAT THEY ARE RESPONSIBLE FOR DAMAGING, TYPICAL.
14. CONTRACTOR SHALL NOTIFY PROJECT ENGINEER IF PAVEMENT SURFACING WITHIN WORK AREA IS UNAVOIDABLE. PROJECT ENGINEER TO COORDINATE WITH WHATCOM COUNTY PUBLIC WORKS DURING CONSTRUCTION.
15. ALL ACCESSIBLE ABANDONED PIPING AND DUCTWORK SHALL BE REMOVED AND PROPERLY DISPOSED OF.

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JONATHAN GOODELL — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT

DEMOLITION PERMIT - XXXXX

TEMPORARY EROSION & SEDIMENTAITON CONTROL (TESC) PLAN

10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019

DESIGNED/DRAWN BY: SCR

CHECKED BY: SIG

ISSUE DATE: 06.09.2026

D4

OF: D1-D6

Z:\Shared\PROJECTS\26019 SVCA Barn 6\DWG\26019SP6 SVCA Barn 6 Demo Plan (06.08.2026).dwg Jun 10, 2026–3:47pm

BARN 6 - DEMOLITION SITE PLAN

DEMO NOTES:
- THE BUILDING WAS ABATED IN 2018 FOR LEAD AND ASBESTOS.
- THE REFRIGERANT DRAINED IN 2017 FROM THE OLD ICE SKATING RINK.

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JONATHAN GOODELL STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT
DEMOLITION PERMIT - XXXXX
DEMOLITION SITE PLAN
10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019
DESIGNED/DRAWN BY: SCR
CHECKED BY: SIG
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D5
OF: D1-D6

Z:\Shared\PROJECTS\26019 SVCA Barn 6\DWG\26019SP6 SVCA Barn 6 Demo Plan (06.08.2026).dwg Jun 10, 2026-3:50pm

Table II-3.6: Mulch Standards and Guidelines

Mulch Material	Guideline	Description
Straw	Quality Standards	Air-dried; free from undesirable seed and coarse material.
	Application Rates	2"-3" thick; 5 bales per 1,000 sf or 2-3 tons per acre
	Remarks	Cost-effective protection when applied with adequate thickness. Hand-application generally requires greater thickness than blown straw. The thickness of straw may be reduced by half when used in conjunction with seeding. In windy areas straw must be held in place by crimping, using a tackifier, or covering with netting. Blown straw always has to be held in place with a tackifier as even light winds will blow it away. Straw, however, has several deficiencies that should be considered when selecting mulch materials. It often introduces and/or encourages the propagation of weed species and it has no significant long-term benefits It should also not be used within the ordinary high-water elevation of surface waters (due to flotation).
Chipped Site Vegetation	Quality Standards	Gradations from fines to 6 inches in length for texture, variation, and interlocking properties. Include a mix of various sizes so that the average size is between 2- and 4-inches.
	Application Rates	2" thick min.;
	Remarks	This is a cost-effective way to dispose of debris from clearing and grubbing, and it eliminates the problems associated with burning. Generally, it should not be used on slopes above approx. 10% because of its tendency to be transported by runoff. It is not recommended within 200 feet of surface waters. If permanent seeding or planting is expected shortly after mulch, the decomposition of the chipped vegetation may tie up nutrients important to grass establishment. Note: thick application of this material over existing grass, herbaceous species, and some groundcovers could smother and kill vegetation.

Table II-3.6: Mulch Standards and Guidelines

Mulch Material	Guideline	Description
Wood-Based Mulch	Quality Standards	No visible water or dust during handling. Must be purchased from a supplier with a Solid Waste Handling Permit or one exempt from solid waste regulations.
	Application Rates	2" thick min.; approx. 100 tons per acre (approx. 750 lbs. per cubic yard)
	Remarks	This material is often called "wood straw" or "hog fuel". The use of mulch ultimately improves the organic matter in the soil. Special caution is advised regarding the source and composition of wood-based mulches. Its preparation typically does not provide any weed seed control, so evidence of residual vegetation in its composition or known inclusion of weed plants or seeds should be monitored and prevented (or minimized).
Wood Strand Mulch	Quality Standards	A blend of loose, long, thin wood pieces derived from native conifer or deciduous trees with high length-to-width ratio.
	Application Rates	2" thick min.
	Remarks	Cost-effective protection when applied with adequate thickness. A minimum of 95-percent of the wood strand shall have lengths between 2 and 10-inches, with a width and thickness between 1/16 and 1/2-inches. The mulch shall not contain resin, tannin, or other compounds in quantities that would be detrimental to plant life. Sawdust or wood shavings shall not be used as mulch. [Specification 9-14.4(4) from the *Standard Specifications for Road, Bridge, and Municipal Construction* (WSDOT, 2016)

Washington State Department of Ecology
2019 Stormwater Management Manual for Western Washington (2019 SWMMWW)
Publication No.19-10-021

A TESC (MULCH) APPLICATION TABLE
NTS

BMP C152: SAWCUTTING AND SURFACING POLLUTION PREVENTION

PURPOSE
SAWCUTTING AND SURFACING OPERATIONS GENERATE SLURRY AND PROCESS WATER THAT CONTAINS FINE PARTICLES AND HIGH PH (CONCRETE CUTTING), BOTH OF WHICH CAN VIOLATE THE WATER QUALITY STANDARDS IN THE RECEIVING WATER. CONCRETE SPILLAGE OR CONCRETE DISCHARGE TO WATERS OF THE STATE IS PROHIBITED. USE THIS BMP TO MINIMIZE AND ELIMINATE PROCESS WATER AND SLURRY CREATED THROUGH SAWCUTTING OR SURFACING FROM ENTERING WATERS OF THE STATE.

CONDITIONS OF USE
UTILIZE THESE MANAGEMENT PRACTICES ANYTIME SAWCUTTING OR SURFACING OPERATIONS TAKE PLACE. SAWCUTTING AND SURFACING OPERATIONS INCLUDE, BUT ARE NOT LIMITED TO:

- SAWING
- CORING
- GRINDING
- ROUGHENING
- HYDRO-DEMOLITION
- BRIDGE AND ROAD SURFACING

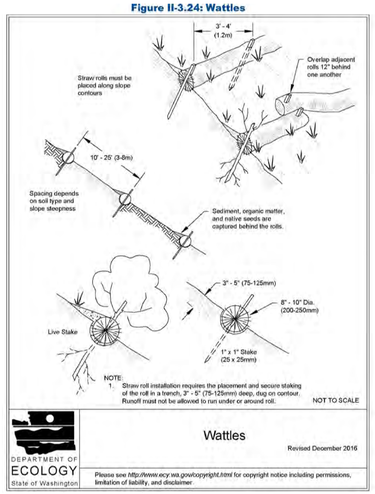
DESIGN AND INSTALLATION SPECIFICATIONS
- VACUUM SLURRY AND CUTTINGS DURING CUTTING AND SURFACING OPERATIONS.
- SLURRY AND CUTTINGS SHALL NOT REMAIN ON PERMANENT CONCRETE OR ASPHALT PAVEMENT OVERNIGHT.
- SLURRY AND CUTTINGS SHALL NOT DRAIN TO ANY NATURAL OR CONSTRUCTED DRAINAGE CONVEYANCE INCLUDING STORMWATER SYSTEMS. THIS MAY REQUIRE TEMPORARILY BLOCKING CATCH BASINS.
- DISPOSE OF COLLECTED SLURRY AND CUTTINGS IN A MANNER THAT DOES NOT VIOLATE GROUND WATER OR SURFACE WATER QUALITY STANDARDS.
- DO NOT ALLOW PROCESS WATER GENERATED DURING HYDRO-DEMOLITION, SURFACE ROUGHENING OR SIMILAR OPERATIONS TO DRAIN TO ANY NATURAL OR CONSTRUCTED DRAINAGE CONVEYANCE INCLUDING STORMWATER SYSTEMS. DISPOSE OF PROCESS WATER IN A MANNER THAT DOES NOT VIOLATE GROUND WATER OR SURFACE WATER QUALITY STANDARDS.
- HANDLE AND DISPOSE OF CLEANING WASTE MATERIAL AND DEMOLITION DEBRIS IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF WATER. DISPOSE OF SWEEPING MATERIAL FROM A PICK-UP SWEEPER AT AN APPROPRIATE DISPOSAL SITE.

MAINTENANCE STANDARDS
CONTINUALLY MONITOR OPERATIONS TO DETERMINE WHETHER SLURRY, CUTTINGS, OR PROCESS WATER COULD ENTER WATERS OF THE STATE. IF INSPECTIONS SHOW THAT A VIOLATION OF WATER QUALITY STANDARDS COULD OCCUR, STOP OPERATIONS AND IMMEDIATELY IMPLEMENT PREVENTIVE MEASURES SUCH AS BERMS, BARRIERS, SECONDARY CONTAINMENT, AND/OR VACUUM TRUCKS.

B SAWCUTTING & SURFACE POLLUTION PREVENTION
NTS

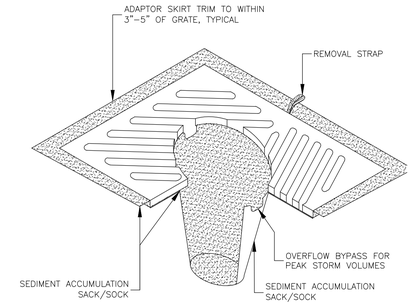
NOTES:
1. STRAW WATTLES/ROLLS SHALL BE INSTALLED IN LIEU OF TRI-ANGULAR SILT DIKE, TYPICALLY USED ADJACENT TO PAVEMENT SAWCUTTING AND/OR SURFACING DEMOLITION.
2. INSTALL SAND BAG ALONG BACK SIDE OF WATTLE EVERY 10 LF AND AT SEAMS. 12" OVERLAP AT WATTLE SEAMS, TYPICAL.
3. INSTALL ALONG DOWNHILL SIDE OF SAWCUT OR SURFACING CONSTRUCTION IF SLOPE IS EVIDENT. INSTALL AROUND THE ENTIRE CUTTING OR SURFACING OPERATION IF RUNOFF TO ALL SIDES OF WORK IS POSSIBLE.
4. REMOVE WATTLE AND CLEAN PAVEMENT AT END OF DAY UNLESS THE WATTLE IS STAKED AND/OR SECURELY FASTENED TO EDGE OF PAVEMENT AREA.
5. IF WATTLE IS FUNCTIONING AS AS PERIMETER SEDIMENTATION BARRIER SUCH AS SILT FENCE ALONG CREEK SIDE OF ASPHALT (WEST SIDE OF DEMOLITION), THEN INCLUDE ORANGE CONSTRUCTION FENCING (HIGH VISIBILITY FENCE) FOR TALLER WORK DELINEATION OF WORK AND WATTLE REINFORCEMENT.

Figure II-3.24: Wattles



C WATTLES
NTS

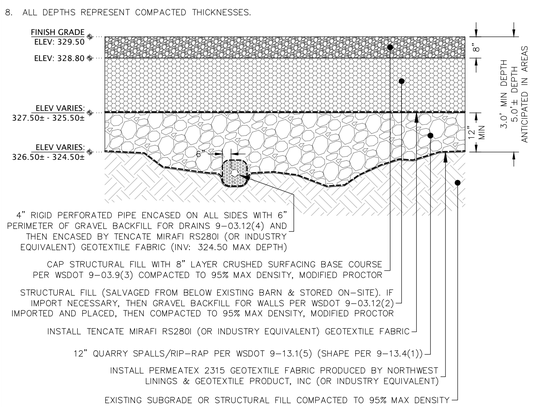
NOTES:
1. INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
2. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL.
3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE-INSERTING IT INTO THE CATCH BASIN.



D CATCH BASIN INLET PROTECTION
NTS

STABILIZED BUILDING ENVELOPE POST DEMOLITION NOTES:

1. PER GEOTECHNIAL REPORT PROVIDED BY NW GEOLOGIC, PLLC DATED APRIL 4TH, 2026. EXISTING FOOTING(S) & GRADE BEAM SHALL BE REMOVED. IN ADDITION THE EXISTING STRUCTURAL FILL IS TO BE REMOVED AND RECYCLED AND REDISTRIBUTED OVER THE FULL EXTENT OF THE EXCAVATED AREA. EXISTING BARN HAS TWO SURVEYED FINISH FLOORS (NORTH END FF=229.30 & SOUTHERN END FF=329.90).
2. WITHIN THE STRUCTURAL FILL PRISM, THE GEOTEXTILE AND IMPORT FILL MATERIAL SHOULD EXTEND LATERALLY BEYOND THE EDGE OF EACH SIDE OF THE SIDE OF THE FOOTING, A DISTANCE EQUAL TO THE DEPTH OF THE EXCAVATION BELOW THE BASE OF THE FOOTING.
3. MINIMUM DEPTH OF EXCAVATION IS 3.0' PER REPORT. FOR FIRST PHASE OF DEMOLITION THE EASTERLY HALF OF THE EXISTING BUILDING IS TO BE REMOVED. THE DEMO INCLUDES REMOVAL OF CONCRETE SLAB AND/OR CONCRETE GRADE BEAMS WITHIN THE INTERIOR OF THE BUILDING.
4. PER THE GEOTECHNICAL REPORT, A LAYER OF QUARRY SPALLS TO BE INSTALLED TO BRIDGE THE LAYER OF LACUSTRINE DEPOSITS. CONTRACTOR SHALL INSTALL A PERFORATED PIPE ALONG THE LOWEST SECTION OF THE EXCAVATION THAT IS FEASIBLE TO MAINTAIN POSITIVE DRAINAGE TO THE EXISTING SDCB #1384 WITH INVERT OUT AT 324.44.
5. DAMAGED PAVEMENT ADJACENT TO BARN FROM EXCAVATOR TO BE RESTORED DURING BUILDING CONSTRUCTION PHASING. CONTRACTOR TO LIMIT ACCESS AND WORK FROM EXISTING PAVEMENT.
6. ASPHALT ADJACENT TO BARN DEMO PROJECT SHALL BE SAWCUT TO ESTABLISH A CLEAN, STRAIGHT EDGE OFFSET/SAWCUT LINE SHOWN 6.0' FROM FACE OF FUTURE BUILDING. PAVEMENT TO BE REMOVED AND STRUCTURAL FILL TO BE SALVAGED FOR REDISTRIBUTION.
7. EXISTING UTILITIES WITHIN THE EXCAVATION ZONE SHALL BE WORKED AROUND AND MAINTAINED TO GREATEST EXTENT PRACTICABLE.
8. ALL DEPTHS REPRESENT COMPACTED THICKNESSES.



E BUILDING DEMOLITION STABILIZATION SECTION
NTS

9-03 *Aggregates*

9-03.9(2) Permeable Ballast

Permeable ballast shall meet the requirements of Section 9-03.9(1) for ballast except for the following special requirements.

The grading and quality requirements are:

Sieve Size	Percent Passing
2½"	99-100
2"	65-100
¾"	40-80
No. 4	5 max.
No. 100	0-2
% Fracture	75 min.

All percentages are by weight.

The sand equivalent value and dust ratio requirements do not apply.

The fracture requirement shall be at least one fractured face and will apply the combined aggregate retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.

9-03.9(3) Crushed Surfacing

Crushed surfacing shall be manufactured from ledge rock, talus, or gravel in accordance with the provisions of Section 4-01. The materials shall be uniform in quality and substantially free from wood, roots, bark, and other extraneous material and shall meet the following quality test requirements:

Los Angeles Wear, 500 Rev.	35 percent max.
Degradation Factor – Top Course	25 min.
Degradation Factor – Base Course	15 min.

Crushed surfacing of the various classes shall meet the following requirements for grading and quality when placed in hauling vehicles for delivery to the roadway, or during manufacture and placement into a temporary stockpile. The exact point of acceptance will be determined by the Engineer.

Sieve Size	Base Course	Top Course and Keystone
	Percent Passing	
1¼"	99-100	
1"	80-100	
¾"		99-100
¾"	50-80	
½"		80-100
No. 4	25-45	46-66
No. 40	3-18	8-24
No. 200	7.5 max.	10.0 max.
% Fracture	75 min.	75 min.
Sand Equivalent	40 min.	40 min.

All percentages are by weight.

The fracture requirement shall be at least one fractured face and will apply to the combined aggregate retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.

The portion of crushed surfacing retained on a No. 4 sieve shall not contain more than 0.15 percent wood waste.

Page 9-18 *2026 Standard Specifications M 41-10*

F CRUSHED SURFACING BASE COURSE (9-03.9(3)
NTS

9-03 *Aggregates*

9-03.12 Gravel Backfill

Gravel backfill shall consist of crushed, partially crushed, or naturally occurring granular material produced in accordance with the provisions of Section 4-01.

9-03.12(1) Gravel Backfill for Foundations

9-03.12(1)A Class A

Gravel backfill for foundations, Class A, shall conform to the requirements of Section 9-03.9(1) for ballast or Section 9-03.9(3) for crushed surfacing base course.

9-03.12(1)B Class B

Gravel backfill for foundations, Class B, shall conform to the requirements of Section 9-03.10 for Gravel Base.

9-03.12(2) Gravel Backfill for Walls

Gravel backfill for walls shall consist of free draining granular material, essentially free from various types of wood waste or other extraneous or objectionable materials. It shall meet the following requirements for grading and quality when placed in hauling vehicles for delivery to the roadway or during manufacture and placement into a temporary stockpile. The exact point of acceptance will be determined by the Engineer.

Sieve Size	Percent Passing
4"	99-100
2"	75-100
No. 4	22-66
No. 200	5.0 max.
Dust Ratio: $\frac{\text{\% Passing No. 200}}{\text{\% Passing No. 40}}$	⅔ max.
Sand Equivalent	60 min.

All percentages are by weight.

That portion of the material retained on a No. 4 sieve shall contain not more than 0.20 percent by weight of wood waste.

9-03.12(3) Gravel Backfill for Pipe Zone Bedding

Gravel backfill for pipe zone bedding shall consist of crushed, processed, or naturally occurring granular material. It shall be free from various types of wood waste or other extraneous or objectionable materials. It shall have such characteristics of size and shape that it will compact and shall meet the following Specifications for grading and quality:

Sieve Size	Percent Passing
1½"	99-100
1"	75-100
¾"	50-100
No. 4	20-80
No. 40	3-24
No. 200	10.0 max.
Sand Equivalent	35 min.

All percentages are by weight.

Page 9-22 *2026 Standard Specifications M 41-10*

G STRUCTURAL FILL (IMPORTED 9-03.12(2))
NTS

9-13 Riprap, Quarry Spalls, Slope Protection, and Rock for Erosion and Scour Protection and Rock Walls

9-13.1(5) Quarry Spalls

Quarry spalls shall meet the following requirements for grading:

Sieve Size	Percent Passing
8"	100
3"	40 max.
¾"	10 max.

9-13.2 Vacant

9-13.3 Vacant

9-13.4 Rock for Erosion and Scour Protection

Rock for Erosion and Scour Protection shall be hard, sound, and durable material, free from seams, cracks, and other defects that tend to destroy its resistance to weather, and it shall consist of broken and/or processed rock. Rock for Erosion and Scour Protection shall meet the quality requirements in Section 9-13 and the grading requirements in Section 9-13.4(2). The use of recycled materials and concrete rubble is not permitted for this application.

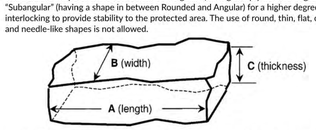
Rock for erosion and scour protection shall meet the grading requirements in Section 9-13.4(2) and the following test requirements for quality:

Aggregate Property	Test Method	Requirement
Bulk Specific Gravity	AASHTO T 85	2.55 minimum
Los Angeles Wear, 500 Rev.	AASHTO T 96	50% maximum
Degradation Factor	WSDOT Test Method T 113	15 minimum
Absorption	AASHTO T 85	3% maximum

Field tests can be performed a the quarry or on the job site by testers that are certified/ qualified in the above specified test procedures, or representative samples can be obtained for laboratory testing, by an AASHTO accredited lab, to ensure that the physical and mechanical properties meet the requirements. The AASHTO lab accreditation shall state the lab is accredited for the above specified test procedures.

9-13.4(1) Suitable Shape of Rock for Erosion and Scour Protection

The Suitable Shape of these rocks shall be "Angular" (having sharply defined edges) to "Subangular" (having a shape in between Rounded and Angular) for a higher degree of interlocking to provide stability to the protected area. The use of round, thin, flat, or long and needle-like shapes is not allowed.



Suitable Shape can be determined by the ratio of the Length/Thickness, where the Length is the longest axis, Width is the second longest axis, and Thickness is the shortest. The Suitable Shape shall be the maximum of 3.0 using the following calculation:

$$\frac{\text{A(Length)}}{\text{C(Thickness)}} \leq 3.0$$

Page 9-84 *2026 Standard Specifications M 41-10*

H QUARRY SPALLS PER WSDOT DIV 9-13.1(5)
NTS

IMPACT DESIGN
5426 BARRETT ROAD, SUITE A103
360-389-8138 WWW.BOLD-IMPACT.COM

JONATHAN GOODALL
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT
DEMOLITION PERMIT - XXXXX
TESC & DEMOLITION DETAILS
CONROL (TESC) DETAILS
10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019
DESIGNED/DRAWN BY: SCR
CHECKED BY: SIG
ISSUE DATE: 06.09.2026

D6
OF: D1-D6

Z:\Shared\PROJECTS\26019 SVCA Barn 6\DWG\26019SP6 SVCA Barn 6 Demo Plan (06.08.2026).dwg Jun 10, 2026-4:05pm

April 24, 2026
Report No.: 26-027 – Revision 1

PNW Services, Inc.
PO Box 30498
Bellingham, WA 98228

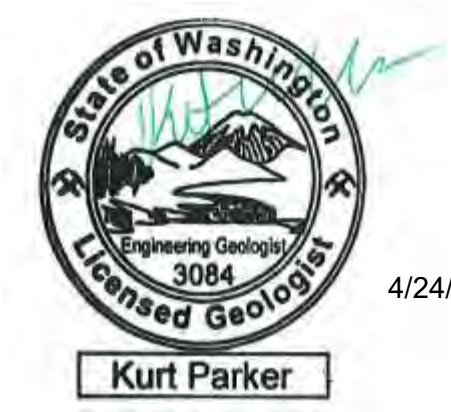
Attn: Tyler Andrews

RE: Subsurface Investigation Report, 6 Barn View Drive, Sudden Valley, Bellingham, Washington
Parcel: 3704083184570000

Dear Mr. Andrews:

NW Geologic, PLLC (NW Geo) thanks you for the opportunity, and respectfully submits the following subsurface investigation report summarizing the results of our evaluation for the proposed barn improvements at the above address in the Sudden Valley community, near Bellingham, Washington. This report has been prepared in general accordance with the terms and conditions established in our Proposal for Services dated March 18, 2026. Should you have any further questions regarding the information contained within the report, or if we may be of service in other regards, please contact the undersigned.

Respectfully Submitted,



4/24/2026

Kurt Parker, Owner
Licensed Engineering Geologist
NW Geologic, PLLC
Ferndale, Washington

PROJECT DESCRIPTION

NW Geologic understands that the Sudden Valley Community Association (SVCA) intends to redevelop the above property with a new barn structure, parking and associated infrastructure. The new building will be in a similar footprint to the existing barn that was built in the 1960s. The existing barn will be demolished in the summer of 2026. We understand that the new structure will be a pre-engineered metal building (PEMB) supported by perimeter footings with an interior slab on grade, thus loading conditions are assumed to be moderate. We were provided with an existing conditions site plan by the design team prior to field work. The final design for the project was not complete at the time of the writing of this report. This report is intended to focus on foundation support, seismic design parameters and new parking and drive lane aspects. After the initial day of exploration, we were asked to evaluate the soils for stormwater management purposes. Because of the existing conditions we also evaluated potential geologic hazards including liquefaction induced settlement, alluvial fan hazard and erosion concerns.

The *Regional Map* and *Vicinity Map* can be found in Figures 1 and 2 at the end of this report. A *Site and Exploration Plan* showing subsurface exploration locations is found as Figures 3A and 3B. A *Geologic Hazard* Map is provided as Figure 4. A USCS chart is provided as Figure 5.

SCOPE OF SERVICES

The purpose of this investigation is to establish general surface and subsurface conditions in the vicinity of the existing barn from which geotechnical recommendations for the proposed development could be formulated. Our scope of services specifically includes the following tasks:

- Review readily available geologic and soils information along with publicly available data. Review the provided site plan showing utility locations prior to exploration.
- Perform a visual reconnaissance of the proposed development site and immediate vicinity to observe existing site topographic and geologic conditions.
- Provide a description of site surface, subsurface, groundwater and mapped geologic conditions.
- Exploration of soil and groundwater conditions underlying the project area by advancing six geotechnical test pits around the building perimeter to evaluate shallow subsurface conditions.
- Advance two additional test pits in locations to the north of the barn and existing asphalt paved parking area to evaluate soil conditions.
- Advance two Wildcat Dynamic Cone Penetrometer (DCP) tests to collect additional soil data at extended depths.
- Include a site and exploration plan showing the approximate location of the explorations accomplished for this project.
- Arrange detailed exploration logs with a Unified Soil Classification System chart explaining the soil classification criteria and the terminology and symbols used on the exploration logs.
- Laboratory testing on representative samples in order to classify and evaluate the engineering characteristics of the soils encountered.
- Provide an assessment of potential geologic hazards per Whatcom County Code (WCC) 16.16 and any mitigation recommendations as applicable. Include an assessment of liquefaction induced settlement using *Liquefy Pro* software by CivilTech Software™.
- Foundation support recommendations for structural design including earthwork, reuse of site soils, stripping depths, relevant soil parameters, allowable soil bearing capacity, bearing elevations, frost penetration and depth and seismic site class determination.
- Provide new pavement recommendations for design.

- Include a determination of the feasibility of stormwater infiltration based on field conditions observed during our site work in conjunction with the Washington State Department of Ecology *Stormwater Management Manual for Western Washington* (2024) and Whatcom County Code. Provide stormwater management recommendations.
- Recommendations for geotechnical consulting during construction.

INVESTIGATION METHODOLOGY

On March 27, 2026, a NW Geologic Licensed Engineering Geologist visited the site to perform visual reconnaissance of the surface and topographic features of the subject property and adjacent terrain for a site characterization in accordance with the contract documents. Relevant site dimensions and topography were estimated and mapped at representative intervals using hand survey equipment as access allowed. Prominent features and existing conditions were documented in order to assess general site conditions and to collect data for this investigation.

Subsurface investigation included the advancement of six geotechnical test pits (TP-1 to TP-6) in representative areas of the parcel with the use of a mini-excavator and operator provided by Stremler Construction. Soils within the test pit excavations were classified per the American Society for Testing and Materials (ASTM) D2487 - *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System*), in conjunction with ASTM D2488 - *Standard Practice For Description And Identification Of Soils (Visual-Manual Procedure)*. Most of the test pits were terminated at a depth of 8.0 feet below present grade (BPG) at planned depth. Test pits TP-4 and TP-5 were terminated short of their planned depths due to underground utility conflicts. Detailed exploration logs can be found at the end of this report.

We implemented the use of a standard ½-inch steel soil probe within the test pit walls to collect shallow subsurface density or consistency data. The probe values are noted on the logs as *Probe: 4-8" penetration at 2-4' BPG*, for example. A pocket penetrometer (PP) was also utilized to collect soil density data in the test pit walls. The values are reported on the logs as *PP: 2.5 tsf* (tons per square foot) *at 3.0' BPG*, for example.

Wildcat Dynamic Cone Penetrometer testing was performed on April 10, 2026, to collect deeper soil data beyond the reach of the test pit excavations. We performed DCP testing at two locations (DCP-1 and DCP-2). Our equipment has the capability to reach depths of approximately 7 meters (~23 feet) BPG. The DCP method includes the advance of a 1-inch steel rod into the subsurface utilizing a 35-pound hammer and 15-inch drop to provide energy for driving a 10 cm^2 projected area cone. The number of blows needed to advance the rod 10 centimeters (approximately 4 inches) is recorded and correlated to the Standard Penetration Resistance ("N") or blow count used in mechanized geotechnical drilling. When a "zero" interval reading is recorded, the DCP operator was able to push the hammer manually a full 10-centimeter increment with relative ease, indicating very soft or very loose conditions. If a total of 50 blows is recorded within one 4-inch interval, the blow count is recorded as the number of blows for the corresponding number of inches of penetration.

The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils. Refusal conditions are attained when 50 blows or more are recorded within one 10-centimeter increment. The DCP tests were advanced to depths of 14.0 to 14.5 feet BPG where dense conditions and refusal of equipment was encountered.

On April 16, 2026, we returned to the site for additional test pit exploration using methods outlined above. We advanced two test pits (TP-7 and TP-8) in areas of grass lawn to the north of the barn and existing paved parking lot. We purpose of this phase of exploration was to confirm soil conditions in areas that may be used for stormwater management. Both test locations were advanced to a planned depth of 8.0 feet BPG.

Please reference Figures 3A and 3B – *Site and Exploration Plan* for approximate locations of our subsurface testing. Detailed logs of the subsurface exploration can be found at the end of this report.

Laboratory testing for general soil classification was performed by Simply Soil Testing of Burlington, WA for general soil classification. Analysis performed includes textural classification that followed ASTM D422 - *Standard Test Method for Particle-Size Analysis of Soils* (Hydrometer Method). The percentages of clay, silt, sand and gravel were determined and reported through the USDA Textural Triangle classification. The material size percentages were then converted to USCS Soil Classification for the purpose of documentation in this report. The USDA textural classification method excludes gravel content. Organic content of soils was analyzed per the American Association of Highway and Transportation Officials (AASHTO) T267 – *Standard Method of Test for Determination of Organic Content in Soils by Loss on Ignition*.

Additional laboratory testing on select samples for stormwater infiltration purposes was performed by Certerra (formerly GeoTest Services) of Bellingham, WA. Analysis performed includes textural classification that followed ASTM C136/C117 - *Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates* and *Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing.* Laboratory analysis data is attached at the end of this report.

We also reviewed geologic literature resources and geologic maps published by the Washington State Department of Natural Resources (DNR), Washington State Department of Ecology (DOE), US Geological Survey, US Department of Agriculture, City of Bellingham, Whatcom County and other public sources, as available.

SITE CONDITIONS

The 11.77-acre, irregular-shaped subject parcel is located on the west side of Barn View Drive and is under the ownership of the SVCA. The project area is located in a northeast to southwest trending valley that extends from Lake Louise in the south to Lake Whatcom in the north and includes most of the Sudden Valley golf course area. The project vicinity includes portions of the golf course to the west and north, a community center to the south and a Whatcom County Library to the northwest. Residential housing is found to the east at higher elevations. Austin Creek is found to the southwest of the site on the golf course perimeter. Lake Whatcom is located approximately 800 feet to the northeast at its closest point.

We do not know the entire history of the existing barn. We are informed that it was used as a hockey rink historically, and well as for community events. The barn is currently in a state of disrepair and is not currently in use for the public.

The barn and immediate vicinity are located at approximately 330 feet above sea level on generally level terrain with little to no elevation change. There is an asphalt-paved perimeter drive lane with some parking stalls around the barn in all directions. Asphalt paved parking extends approximately 150 feet to the north of the barn. Sloping terrain rises to the east of the eastern drive lane toward Barn View Drive with a vertical change of 30 feet over a horizontal distance of 190 feet. An intermediate access road divides Barn View Drive from the access drive adjacent to the east side of the barn. Slopes in this area appear to be cut and graded during original development. There were no signs of landslides or significant erosion during our site work.

Existing stormwater water management includes roof downspouts and catch basins and underground conveyance in the southeast and northeast areas of the barn. A primitive ditch is located to the east of the eastern drive lane, adjacent to the above-mentioned sloping terrain.

Vegetation includes some maintained grass lawn areas to the south and west, along with lawns along the Barn View Drive corridor. Dense evergreen and deciduous trees up to 40 feet tall are found along the western parcel boundary adjacent to the building. Some evergreen trees are found to the east of the barn along the eastern access drive. The barn perimeter was surfaced with short grasses and moss in some locations where pavement was not present.

Underground utilities are found throughout the barn perimeter that include water, storm, sewer, power, irrigation, natural gas and telecom facilities.

There was no surface water within the immediate area of the barn. Austin Creek is found about 120 feet to the southwest of the building at its closest point. The creek contained typical flow volumes for spring conditions.

Field conditions on March 27 were partly sunny and in the 40s Fahrenheit. Field conditions on April 10 were sunny and in the 50s. Field conditions on April 16 were mostly sunny and in the low 40s. Photographs of site conditions are included as Appendix A at the end of this report.

Subsurface Conditions

Subsurface conditions were explored by advancing eight excavator-supported test pits (TP-1 to TP-8) in representative locations around the existing barn and parking lot perimeters. The excavations were performed by Stremler Construction of Lynden, WA with a Deere 35G and Yanmar SV40 rubber track mini excavators. Subsurface exploration was limited at the site due to the existing utilities around the barn perimeter. Test pits TP-1 to TP-3 and TP-6 to TP-8 were advanced to a planned depth of 8.0 feet BPG. Test pit TP-4 was terminated at a depth of 5.0 feet BPG due to the intersection with an unmarked and unknown utility. We were later informed by SVCA staff that the utility is historic irrigation controls for the golf course and not active. Test pit TP-5 was terminated shallowly at 1.5 feet BPG due to potential conflict with an underground water line for the golf course. The test locations are noted on the *Site and Exploration Plan*, Figures 3A and 3B. Overall, the conditions in the test areas varied between locations because of historic development, however they are considered to be representative of conditions within the proposed areas of improvement. The test pits were backfilled with soil tailings after completion to the existing grade.

Our goal was to establish the existing subsurface conditions in the proposed development locations in order to understand the underlying geology and make appropriate recommendations for improvements. The following descriptions summarize the general soil column documented during exploration. Detailed logs are found at the end of this report. We encountered variable soil horizons dependent on location below the existing grade during exploration:

- Topsoil: dark brown, damp, soft, organic silt with grass at the surface and some roots. Extends to 0.25 feet BPG at TP-5 and TP-6 and 0.75 to 1.0 feet at TP-7 and TP-8.

- Import Fill: orange brown, gray brown to light brown, damp, mostly dense, sandy gravel to gravelly sand. Found at or near the surface at the first six locations. The unit commonly extended to depths of 1.0 to 1.5 feet BPG and is interpreted as a component of site grading or trench backfill during prior construction. At TP-2 and TP-4, we intersected a different import fill that was used to support the original foundation. This material was documented to depths of 3.0 to 4.75 feet BPG and was commonly measured to be 1.5 feet thick.

- Native Fill: brown, orange, gray, damp, commonly medium stiff, sandy silt that was documented at TP-2. The unit extended from1.0 to 3.2 feet BPG and is interpreted to be trench backfill to grade fill from historic construction. At TP-3, we recorded a mixed unit of native and import fill that extended from 2.0 to 3.0 feet BPG likely used as trench backfill.

- Lacustrine deposits: varying shades of gray to gray brown to orange gray, damp to wet, soft to medium stiff, sandy silt with generally low clay content. Rarely classified as silty sand. Some organic material and odor present throughout. Interpreted as lacustrine (lake) deposits that underlie the entirety of the barn area. Extended from below the topsoil or import fills to 8.0 feet BPG at all locations that reached this depth. Groundwater seepage and sidewall collapse were common. This unit was not anticipated prior to exploration. However, given the proximity to Lake Whatcom and the likelihood of higher lake elevations during or after deglaciation at the end of the Pleistocene Epoch, the presence of this unit is logical in this valley setting.

The tables below present laboratory data and our interpretations from select samples processed for this project. Because of cost and the project requirements, we ran select samples at both Certerra and Simply Soil Testing for the purposes of soil classification, infiltration feasibility and reuse of the existing import fill.

Certerra:

Test Location	Classification	USCS	Percent Fines
TP-1 @ 2.5’	Sandy silt	ML	69
TP-2 @ 5.0’	Silty sand	SM	43
TP-4 @ 4.0’	Sandy silt	ML	55
TP-6 @ 3.0’	Sandy silt	ML	67

Simply Soil Testing:

Test Location	USCS	USDA	Percent Fines	Organic Content
TP-1 @ 4.0’	Silty sand	Loam	52	3.7
TP-3 @ 4.0’	Sandy silt	Loam	58	2.8
TP-4 @ 1.0’	Gravelly sand	Sandy loam	15	1.0
TP-5 @ 1.0’	Gravelly sand	Sandy loam	16	1.6

DCP exploration was advanced adjacent to TP-1 and TP-3 to further understand the subsurface neighboring to the existing building footprint and collect data for additional calculations. The DCP exploration extended to 14.0 to 14.5 feet BPG where refusal conditions were encountered. Because of structural fill capping the surface, we removed approximately 1.2 to 1.5 feet of material to native soils with hand tools prior to DCP advancement.

At DCP-1, we intersected typically soft to medium stiff conditions down to approximately 5 feet BPG. From 5 to 8 feet, we encountered very soft conditions with mostly zero blow count material. From 8 to 11.5 feet, we intersected soft to medium stiff consistency. From 11.5 feet to 14 feet, stiff to very stiff conditions were documented. Hard conditions were intersected within the last 0.5 feet of exploration where refusal of equipment occurred at 14.5 feet BPG.

At DCP-2, we intersected variable medium stiff to hard conditions down to 3 feet BPG. From 3 to 8 feet BPG, soft to medium stiff conditions were recorded, with medium stiff prevalent. From 8 to 11.5 feet, stiff conditions

were documented. From 11.5 to 14 feet BPG, very stiff to hard conditions were recorded. Refusal of equipment was documented at 14 feet BPG.

The DCP results in the upper 8 feet of the soil column are comparable to the test pit and soil probe exploration program and are representative of subsurface conditions around the building perimeter and vicinity.

Groundwater

Groundwater was encountered as shallow as 4.0 feet BPG at TP-1 and TP-3 to depths of 7.0 to 7.5 feet BPG at TP-2 and TP-6. At TP-7 and TP-8, groundwater was intersected at 3.0 to 3.25 feet BPG, however these test locations are about 3 feet lower in elevation that the other test pits. We typically recorded light seepage in the test pit walls on March 27. Test pits TP-7 and TP-8 had moderate to rapid seepage, with flow rates increasing with depth. We interpret the upper groundwater intersections to be perched conditions with generally light seepage rates. The lower intersections with moderate to rapid seepage are interpreted as the regional groundwater table given the proximity to Lake Whatcom and Austin Creek. Our exploration occurred during the late part of the wet season in our region, when groundwater levels are expected to be elevated and at or near seasonal highs. We consider that the site could be subject to some perched or elevated groundwater conditions during portions of the wet season because of its position within a low-lying valley landform.

A review of the Washington State Department of Ecology (DOE) *Well Report Viewer* indicates one resource protection well within the vicinity of the project site. A review of the well log displayed a water level of 20 feet below grade at the time of installation. The exact location of this well is not known and we therefore cannot compare groundwater elevation data. A wider search area for wells was generally inconclusive in regard to the regional groundwater table.

We consider that shallow perched groundwater may be intersected during construction, depending on the season, depths and locations across the site. We advise that construction occur in the dry summer months to avoid the potential for intersecting a perched or regional groundwater table. The contractor should incorporate a dewatering plan as part of the project documents regardless of the season of construction.

General Geologic Conditions

The mapped geologic conditions in the vicinity of the project site were referenced from the *Geologic Map of the Bellingham 1:100,000 Quadrangle, Washington* (Lapen, 2000). Lapen maps the area geology as the Bellingham Bay Member of the Eocene Chuckanut Formation (Unit Ec_{cb}) bedrock. The unit is described as well-sorted sandstone, conglomerate, and mudstone, with lesser coal. Sandstone is commonly coarse-grained arkose with lesser medium- to fine-grained sandstone composed predominantly of quartz and feldspar (K-feldspar and plagioclase). This member is commonly trough cross-bedded and ripple or flat-laminated. Conglomerate, occurring most notably at the base of the section, contains clasts derived from underlying units (phyllite and vein quartz) as well as clasts from more distant sources. Bedding is generally massive to crudely stratified. Mudstone is commonly massive or laminated and contains plant fossils (palm fronds) and local coal layers. Coarse- to fine-grained lithologies are often interbedded and form upward-fining sequences averaging 29 meters thick near Bellingham Bay. The color is yellowish gray to gray with a salt and pepper appearance for sandstones; color of conglomerates varies with lithologic content. Mudstone ranges from bluish gray to dark gray, and coal is generally black. The thickness is estimated to be 2,700 meters, based on a measured section along Bellingham Bay (Lapen, 2000).

The DNR maps no active faults or landslides within the immediate vicinity of the planned improvements. A syncline is mapped with the identity and existence certain approximately 0.4 miles southwest of the project site.

An anticline is mapped with the identity and existence certain approximately 0.5 miles northeast of the project site. The entirety of the Austin Creek valley in the area of the golf course is mapped as a broad alluvial fan. The landform is described as historic and less than 150 years old. It is part of the Austin Creek alluvial fan with reported activity in January of 1983, and a flooding event reported in 1990. Our recent experience near the project site includes review of areas damaged during the November 2021 atmospheric river flooding events in Whatcom County. The area of Austin Creek in the vicinity of the golf course was subject to bridge and pathway infrastructure damage. The was no damage in 2021 to the barn area. We know of no damages in the vicinity of the barn from the December 2025 flooding events. The area encompassing the site is mapped containing a *N/A* (not applicable) susceptibility to liquefaction-induced settlement because of bedrock conditions (DNR).

Based on the documented geology and subsurface conditions, it is our opinion that the site conditions support the presence of import fill and lacustrine deposits from Lake Whatcom across the site. The lower DCP exploration data indicates the intersection with denser glacial drift deposits that we presume to overlie Chuckanut Formation bedrock at depths below 14 feet BPG.

Our findings are generally discordant with the published mapping. It should be noted that the published soil and rock types are representative of regional conditions and some variation between on-site conditions and mapped geologic units should generally be anticipated.

Web Soil Survey

According to the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) *Web Soil Survey* website, two soil units are mapped within the project area. The parcel and nearby vicinity contains Whatcom silt loam in the north and west areas. The south and east areas contain Squalicum gravelly loam. Please refer to the table below for additional characteristics.

Map Unit Symbol	178	136
Map Unit Name	Whatcom silt loam, 0-3% slopes	Squalicum gravelly loam, 15 to 30% slopes
Soil Description	Ashy silt loam to 16 inches, loam to 60 inches	Gravelly ashy loam to 60 inches
Landform	Hillslopes	Hillslopes
Parent Material	Volcanic ash and loess over glaciomarine deposits	Volcanic ash, loess and slope alluvium over glacial drift
Land Capability Classification	3w	4e
Hydrologic Soil Group	C	B
Depth to Water Table	About 18 to 36 inches	About 39 to 59 inches

Our interpretation of the Web Soil Survey data is that mapping was performed either remotely or on a large scale in that the hillslope landform and some of the slope inclinations are not entirely accurate. We found evidence of denser glacial deposits by DCP methods at the site during subsurface exploration. It is entirely possible that bedrock is mantled with glacially derived deposits that lie at a depth below the documented lake deposits.

Aerial Photo Review

We reviewed historic aerial photos of the subject property from 1943, 1955, 1961 and 1976 in order to determine historic use and any previous development at the project vicinity. Aerial photos were obtained from the Whatcom Conservation District *Historical Scanned Aerials* website. The 1943 photo shows the area in use for what we presume to be agriculture with small buildings included as part of an assumed homestead development. The 1955 picture shows similar development in the area of the parcel. By 1961, the subject barn appears to be constructed, however the image resolution does not allow for interpretation of individual features clearly. The 1976 picture shows site conditions similar to present time. Less vegetation is present around the barn perimeter and in the Austin Creek valley in the 1976 image as compared to our site work. Some realignment of the Austin Creek channel upstream of the barn was noted.

A review of Google Earth Pro™ images from 1998 to 2025 indicates that no significant changes to site conditions were recorded. The satellite images show that part of the building to the south was demolished in 2017-2018 and replaced with grass lawn by 2023. Please note that the aerial and satellite photographs may not fully depict actual surface conditions due to scale and resolution.

Lidar Imagery Review

Light detection and ranging (Lidar) imagery of the site vicinity was reviewed during the research process. Lidar imagery from the DNR *Geologic Information Portal* shows the mapped alluvial fan landform between Lake Louise and Lake Whatcom. Austin Creek is incised within the fan in its present course. There appears to be some channel alignment or improvements of Austin Creek to accommodate the golf course. The cut slopes to the east of the barn are visible. No other signs of landslides or mass-wasting is evident. Based on our review, the conditions observed within Lidar imagery are consistent with the current site conditions observed in the field in March and April of 2026. Please note that not all surface conditions can be observed in Lidar imagery review due to resolution and scale.

GEOLOGICALLY HAZARDOUS AREAS

According to Whatcom County Code (WCC) section 16.16.310(A), geologically hazardous areas *include lands determined to be landslide, seismic, alluvial fan, volcanic, erosion (including channel migration zones), tsunami, seiche and landslide generated waves or mine hazard areas are hereby designated as geologically hazardous areas. Development in these geologic hazard areas can put human life, safety, health, and development at risk, alter geologic processes, adversely affect natural resources, and put the development and surrounding developments and uses at risk.*

Based on the project site location, we have identified potential seismic, alluvial fan and erosion hazards to be relevant to development at the subject parcel. These geologic hazards are discussed below.

Seismic Hazard Areas

Seismic Hazard Areas are classified per WCC 16.16.310(C)(2) as follows: *Whatcom County is located in a seismically active area that will be subject to ground motion during local and regional earthquakes. Seismic hazards and risk are partially addressed in the International Building Code (IBC) or International Residential Code (IRC). Additional seismic hazard areas for the purpose of this article include*:

a. *Areas designated as having a "high" and "moderate to high" risk of liquefaction susceptibility as mapped on the Liquefaction Susceptibility Map by the Washington State Department of Natural Resources.*
b. *Areas that are identified as underlain by liquefiable soils and due to local topography are also subject to or interpreted as being potentially impacted by lateral spreading.*
c. *Areas located within 500 feet of quaternary fault zones with surface offsets.*

The project site does not meet any of the seismic hazard criteria addressed above due to the mapped “N/A” (not applicable) designation by the DNR (Palmer et al., 2004) due to bedrock conditions. It is not mapped as containing liquefiable soils or subject to lateral spreading and is not located within 500 feet of a Quaternary fault zone. Our interpretation of the site is that some risk of liquefaction induced settlement exists because of an elevated groundwater table in conjunction with soft, sandy silt, lacustrine deposits that extend to depths of 11 to 12 feet BPG before reaching more compact, glacially derived soils that are present overlying bedrock. The proposed development includes a moderate PEMB building load. Calculations for liquefaction induced settlement must be performed to determine proper foundation support parameters and mitigate settlement concerns, in our opinion.

Due to the existing soft soil conditions an analysis to assess the potential settlement associated with liquefaction that the subject area may experience during a design level seismic event is necessary. The geotechnical data collected during our subsurface exploration program was analyzed to estimate the factor of safety against liquefaction and associated settlements occurring at the project site. Our analysis was completed using *Liquefy Pro*, Version 5.10, published by CivilTech Software™. The method of analysis was a simplified procedure originally proposed by Seed and Idriss (1971) that has been modified by Youd and Idriss (2001).

The subsurface conditions are topsoil or imported fill over lacustrine deposits that extend to 11 to 12 feet BPG. We interpret that denser glacial deposits form a thin mantle over bedrock that extends to depth below the site. The existing native soil units consist of soft to stiff lake-derived sandy silt overlying generally dense glacial deposits positioned over bedrock based on the test pit and DCP results. Groundwater was interpreted to be 2 feet below existing grade for the purpose of the liquefaction analysis discussed in this section. Fines content was averaged at 57 percent based on laboratory data. Fines content of the glacial drift unit was estimated at 30 percent and a thickness 5 feet. Because of the dense glacial drift soils interpreted to overlie bedrock, we projected the analysis to 20 feet BPG in various seismic scenarios.

The Wildcat DCP software includes the conversion of blow counts to standard penetration resistance or N-values that are equivalent to data obtained during standard penetration test (SPT) hollow-stem auger geotechnical drilling. For this study we used the average N-value collected in each one-foot interval. Resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils. N-values, soil type, unit weight and percent fines were incorporated into the analysis. We ran the program under existing conditions scenarios where 1 to 3 feet of structural fill is in place over lake deposits. We then ran the program under assumed developed condition with 3 feet of structural fill and an additional ground improvement of 1 foot of structural fill capping the site. Development includes removing the existing foundation and supporting structural fill which extended to depth of 4.75 feet BPG at TP-2 and to 3 feet BPG at TP-4.

The liquefaction potential was evaluated for a large design-level earthquake having a 2 percent probability of exceedance in a 50-year period. The liquefaction analyses assume a peak horizontal ground acceleration of 0.497g and an earthquake magnitude of 7.0. Post-liquefaction ground settlements could result in distortion of the proposed structure. Actual ground subsidence will depend on many factors, including the intensity and duration of seismic shaking, and local soil and groundwater conditions. Therefore, the extent of liquefaction, if any, may vary from the estimate below.

The maximum amount of post-liquefaction ground subsidence, assuming no mitigating measures are implemented to improve the soil susceptibility to liquefaction and/or seismically induced ground settlement, can be estimated using an empirical method developed by Robertson et al., (1997). This process is based on field studies of areas that had undergone liquefaction. It is assumed that "acceptable" settlement is defined as 1 inch of total settlement or less under seismic conditions. The average magnitude of settlement under the existing conditions was calculated to range from **2.64 to 2.99** inches at DCP-1 and **1.59 to 1.66** inches at DCP-2. Settlement is expected to be non-uniform with potential differential settlement of up to half of the above values.

Following the initial calculations, we placed 3 feet of structural fill under the foundations and added an additional 1 foot of gravel structural fill ground improvements as a method of mitigation for potential seismic induced settlement. The average magnitude of post-construction settlement under the assumed as-built conditions was calculated to be range from **2.49** inches at DCP-1 to **1.36** inches at DCP-2. This settlement is expected to be non-uniform with potential differential settlement of up 1.25 to 0.68 inches. The results of all scenarios are included as Plates A-1 to A-6 at the end of this report.

Accordingly, our study demonstrates the project area falls within a seismic hazard area based on WCC definitions. Our study has shown that seismic settlement has the potential to impact the new structure. Mitigations associated with earthwork and ground preparation must be implemented to safeguard the building during a seismic event. The amount of projected seismic settlement under the assumed developed conditions is more than 1-inch, which is considered the acceptable industry standard.

The subject property is located within Seismic Design Category D_1, which states that the site may be unstable during a seismic event. In accordance with modern building codes, *development activities are required to conform to the applicable provisions of the International Building Code which contain structural safeguards to reduce the risk from seismic activity.* Outside of the mitigative requirements established in the International Building Code, we consider that additional mitigation measures will be necessary to reduce this potential hazard. Our discussion of seismic hazard mitigations continues below.

The owner and occupants should consider that the Pacific Northwest is seismically active. Large Cascadia subduction zone earthquakes with possible magnitudes of 8 or 9 could produce ground shaking events with the potential to significantly impact the region and subject property. Cascadia subduction zone earthquakes have occurred 6 times in the last 3,500 years with the most recent occurrence in 1700, approximately 326 years ago. They have been determined to have an average reoccurrence interval of approximately 300 to 700 years (Atwater and Haley, 1997). Other fault zones such as the Darrington-Devil's Mountain Fault and Seattle Fault Zones, for example, could also impact the region during an earthquake event.

Alluvial Fan Hazard Areas

Alluvial Fan Hazard Areas are defined in WCC 161.310(C)(3) as: *any area located at the base of a confined mountain channel and determined to be susceptible to clear water flooding, debris-laden flows and floods, and erosional impacts shall be designated as an alluvial fan hazard area. Watershed hydrology, geology, slope conditions, topography, current and historic land uses, roads and road drainage, valley bottom conditions, and channel conditions upstream of an alluvial fan area are all fundamental to potential hazards and risks on alluvial fans. Alluvial fan hazard areas shall include those areas on alluvial fans potentially impacted by:*
a. *Sediment-laden flows (e.g., debris flows and debris floods);*
b. *Clear water floods;*
c. *Stream channel changes (including channel avulsion, incision, aggradation or lateral erosion and migration);*
d. *Erosion.*

Based on the criteria set forth above, it is our opinion that **the subject property is considered to be located within an alluvial fan hazard area** because of its location according to DNR mapping. It is unlikely that Austin Creek will migrate significantly over time, however the potential for alluvial fan hazards exists. The project is located about 0.5 miles from the apex of the fan. The creek flows within the golf course facility, and we presume the SVCA staff monitors the creek for changes in morphology. At the closest location to the proposed building, the eastern creek bank is armored with riprap. We do not know if site grades will need to be raised significantly during new development because of the potential for alluvial fan concerns.

According to the DNR, the Austin Creek alluvial fan is identified as Fan 3409 and has recorded movement historically (less than 150 years). Reported activity includes an event on January 10, 1983, and flooding in 1990. We reviewed the vicinity of the barn area in 2021 following the November atmospheric river flooding events. Damage to golf course bridge and pathways was observed, along with associated erosion within the creek channel. We did not observe channel avulsion, lateral fluctuations or significant debris deposition. The barn area was not impacted. A future event is possible however we cannot predict future creek morphology changes with any accuracy.

Whatcom County geology staff provided additional information about the Austin Creek alluvial fan. The 1983 debris flow event impacted the Lake Whatcom Boulevard bridge and areas downstream. Four bridges on the golf course were washed out, and debris was deposited across an 800-foot-wide area. Flooding is reported to occur every winter with deposition of materials on the golf course. Flood heights reach 2 to 3 feet above the stream bank on the golf course. Austin Creek has a history of debris events as evidenced by depositional features including log jams, berms, debris and colluvium. The golf course is subject to both flooding and debris events. The creek is confined at low water levels, and banks are stable with erosion occurring on cut banks. Beaver Creek is a tributary to Austin Creek and flooded above the confluence with Austin Creek in 1983 and 1990. Beaver Creek typically experiences clear water flooding and erosion as opposed to debris flow events (Whatcom County, pers comm., 2026).

We estimate the likelihood of the creek producing an alluvial fan flooding or debris flow event significant enough to impact the immediate vicinity of the new barn to be **low**, with the consequences being **moderate.** Austin Creek would have to migrate laterally over 100 feet or produce a significant change in channel alignment by avulsion to impact new structures. The barn area could experience overbank flooding. The estimate is based on limited information, the size of the drainage basin and estimated flow rates of the creek. We observed the impacts to the Austin Creek corridor in the vicinity of the barn in 2021. Golf course bridges and pathways were damaged by erosive forces however the creek channel remained in a similar alignment. We advise that clear water flooding or debris flow events are possible at the project site. We understand that the SVCA management understands the risk of redevelopment in this area of Sudden Valley.

Erosion Hazards

Whatcom County Code section 16.16.310(C)(5) defines erosion hazards as: *channel migration zones, also known as riverine erosion areas, are defined as the areas along a river or stream within which the channel(s) can be reasonably predicted to migrate over time. This is a result of natural and normally occurring geomorphic, hydrological, and related processes when considered with the characteristics of the river or stream and its surroundings, and in consideration of river and stream management plans. Channel migration hazard areas shall include potential channel migration, channel avulsion, bank erosion, and stability of slopes along the river or stream. Coastal erosion hazards are defined as erosion areas that are subject to shoreline retreat from wind, wave, and tidal erosion.*

Based on the criteria set forth above, it is our opinion that **the subject property is considered to be located within an erosion hazard area** because it is within 120 feet of Austin Creek. It is unlikely that this small creek located to the west of the proposed building will migrate significantly over time. The creek is located within the golf course facility, and we presume the SVCA staff monitors the creek for changes in morphology. At the closest location to the proposed building, the eastern creek bank is armored with riprap.

We estimate the likelihood of the creek producing erosion significant enough to impact the immediate vicinity of the new barn to be **low**, with the consequences being **moderate.** Austin Creek would have to migrate laterally over 100 feet to impact new structures or have a significant channel avulsion event. The estimate is because of the relative size of the drainage basin, estimated flow rates of the creek and the infrequency of events. We did observe impacts of the Austin Creek corridor in the vicinity of the barn in 2021. Golf course bridges and pathways were damaged by erosive forces. We are not aware of any damages associated with the December 2025 flooding events. We advise that clear water flooding and associated erosion impacts are possible at the project site. We understand that the SVCA management understands the risk of redevelopment in this area of Sudden Valley.

Based on the site topography, the location of Austin Creek and the potential erodible nature of near surface soils we recommend that the following measures be implemented into the project design and construction to mitigate and prevent excessive erosion from occurring at the project site.

- All clearing and grading activities for future construction will need to incorporate Best Management Practices (BMPs) for erosion control in compliance with current Whatcom County codes and standards.
- We recommend that appropriate silt fencing be incorporated into the construction plan for erosion control.
- We recommend that construction occur in the dry summer months when the potential to impact the site slopes and soils is minimal.
- We recommend that onsite BMPs be implemented during construction. Areas of native vegetation left in place, could also be enhanced by adding additional native plant species and/or other vegetation enhancements in mitigation areas as well as on riverine margins.
- Removal of vegetation and trees without proper mitigation may increase the risk of failure for the surficial soils during periods of wet weather. Planting additional vegetation within the subject site and in areas disturbed by excavation activities will help maintain near surface slope stability by providing a stable root base within the near surface soils. The client should consider additional plantings within or adjacent to Austin Creek in the vicinity of the new barn structure.
- Proper drainage controls have a significant effect on erosion. All surface water and any collected drainage water should not be allowed to be concentrated and discharged uncontrolled. All collected stormwater should be directed to an appropriate collection system in accordance with the approved civil stormwater design.
- All areas disturbed by construction practices should be vegetated or otherwise protected to limit the potential for erosion as soon as practical during and after construction. Areas requiring immediate protection from the effects of erosion should be covered with either plastic, mulch or erosion control netting or blankets. Areas requiring permanent stabilization should be seeded with an approved grass seed mixture, hydroseeded with an approved seed-mulch-fertilizer mixture or landscaped with a suitable design.
- The SVCA management team should monitor the Austin Creek corridor for impacts of erosion, especially during times of heavy rainfall, storm events and in the winter months in general. Our office should be contacted if concerns develop.

Mitigation of Geologic Hazards

Seismic Hazards

As discussed, the project site is in proximity to potential seismic hazard areas as described by the WCC in conjunction with this study. NW Geologic considers the potential for liquefaction induced settlement to impact the new development to be **moderate** under earthquake loading conditions post-development. The total settlement after ground preparation methods under seismic loading is more than 1.0 inch. Mitigations specifically for seismic induced settlement such as grade beam support is necessary in our opinion. We consider that the following recommendations to be suitable mitigations that include ground preparation and earthworks, prior to building construction.

We recommend that a geotextile fabric reinforced fill prism in conjunction with grade beam and traditional perimeter or isolated pad foundations and concrete slab on grade be implemented into the project design to support the building. We estimate that stripping depths for structural fill removal will be 3 to 5 feet below existing grade on average. Following removal of the existing foundation and structural fill prism, we recommend the placement of a woven geotextile fabric on native lacustrine soils. We specifically recommend Tencate Mirafi® *RS280i* (or industry equivalent) be placed on the native lacustrine deposits. The woven geotextile provides confinement, filtration, reinforcement and separation of materials. Individual strips of geotextile fabric should have at least one foot of overlap. The geotextile fabric should encompass the entire foundation and slab footprint and extend laterally a distance equal to the depth of excavation.

We recommend the placement and compaction of at least 3 feet of imported structural fill above the basal geotextile fabric to planned bottom of foundation and grade beam elevation. We recommend approximately one foot of quarry spalls be placed upon the *RS280i* geotextile fabric to mitigate groundwater concerns. A second layer of Northwest Linings & Geotextile Products, Inc., *PermeaTex™ 2315* woven geotextile fabric (or industry equivalent) should be placed on the quarry spalls. The existing structural fill can be recycled and incorporated into the fill prism. The structural fill for foundation and grade beam support will likely be a mixture of recycled existing fill and imported fill. We recommend capping the new fill pad with *Crushed Surfacing Base Course* (CSBC) or industry equivalent under WSDOT Standard Specification 9-03.9(3).

The potential for seismic induced settlement will still exist, however the building being reinforced by a geotextile fabric supported structural fill prism and grade beam design will mitigate the potential settlement and allow the building to settle as a unit. Further discussion can be found in the *Conclusions and Recommendations* section below. Our office should be contacted if alternate foundation support methods are considered.

Provided that the previously presented mitigations are implemented, it is our opinion that the geologic hazards that are present on the subject property can be adequately mitigated in conformance with Whatcom County Municipal Code. Assuming appropriate civil and structural design, and that our recommended mitigations have been incorporated into the plan for site development, it is our opinion that risks associated with the hazard areas will be minimized and reduced to within acceptable levels.

Our liquefaction analysis has demonstrated that seismic induced settlement can be mitigated with the use of structural fill, geotextile fabric and grade beam support, however an elevated risk of settlement still exists. It is our professional opinion that the proposal will not increase the threat of geological hazard to adjacent properties beyond predevelopment conditions. The proposal will not adversely impact other critical areas; and the development can be safely accommodated on the site.

Once the final civil and structural plans for development have been prepared, NW Geo recommends that we be allowed to review those plans to verify that the recommendations presented in this report have been incorporated into the final plan for site development.

It should be noted that no amount of engineering can completely mitigate or prevent ground instability. Earthquakes are unpredictable and we cannot reasonably be expected to forecast future events. Mitigation is intended to reduce the risk posed by site conditions and it should not be interpreted that mitigation is representative of eliminating any and all risk that might be present on the site. It is assumed that the SVCA are aware of the geologic hazards that are present on the site and that they have been adequately informed and are accepting of the risks associated with property development in a potential seismic hazard area.

Alluvial Fan Hazards

At present, we do not know if the finished floor of the building will need to be raised above the existing grade or finished floor to mitigate potential alluvial fan hazards at the site. Applicable mitigations include raising the finished floor grade above the existing grade to prevent flooding impacts to the building interior. Elevated stem walls would safeguard the building from debris flow impacts. We consider the risk of alluvial fan events impacting the new building to be low. The owners must understand the risks and accept the potential hazards.

It is our opinion that reasonable measures will be implemented in the building design and construction to minimize risks associated with alluvial fan events. We do not know of a detailed assessment for the Austin Creek alluvial fan beyond the information from the 1992 report that was discussed above.

Erosion Hazards

Potential Erosion hazards can be mitigated as recommended above. The existing setback of 120 feet is considered adequate to avoid erosion from Austin Creek impacting the site. In conjunction with the civil plan for stormwater management, vegetation management and planting and other recommendations for site development. the frequency or magnitude of erosion on or off the site will not be altered and the recommendations are consistent with Whatcom County Code.

It is our opinion that the development of a new barn in a similar footprint to the existing barn will not pose an unreasonable threat to persons or property either on or off site based on the existing conditions and recommended improvements. The proposed development will not impact existing geologic conditions, and the site is adequate for new development. The impacts of the new development are minimal as the project replaces an existing structure with a new structure. We do not anticipate adverse impacts to adjacent properties. The setback from Austin Creek is adequate and will not increase the frequency of erosion on or off the site. We anticipate adequate stormwater management design based on discussions with the civil engineer. We also foresee a suitable vegetation management program included with the project documents.

Geologically hazardous critical area review is often a multi-phase process. Evaluations typically consist of at least two stages; First, the geologic hazards are identified, and applicable mitigations are recommended. Stage two typically consists of a plan review stage in which the final civil and structural plans are reviewed to assess the incorporation of the recommended mitigations, presented herein, into the project plan sets. Our client should be aware that Whatcom County may require formal review and a brief letter from this firm stating that the relevant civil and structural site plans have adequately implemented the recommendations presented in this report.

CONCLUSIONS AND RECOMMENDATIONS

Based on the evaluation of data collected during this investigation, it is our opinion that the conditions at the site are feasible for the proposed building and parking development, provided the recommendations contained herein are included with the project design.

We assume that the building will be supported with a geotextile reinforced structural fill prism, grade beam and traditional foundations. The building is presumed to implement moderate loading conditions upon the structural fill and native soils and include a concrete slab on grade floor. We anticipate that the new structure footprint will occupy a similar footprint and location as the existing barn, with driveway and parking facilities proposed for the perimeter and north areas. The existing native and structural fill soils are not suitable in their present condition for the support of a new building. Removal and replacement of the existing fill with geotextile fabric and structural fill is recommended.

Earthwork

We recommend the removal of the existing foundation, concrete slab and structural fill prism down to the documented lacustrine deposits. We estimate that approximately 3 to 5 feet of material will need to be removed in order to reach the native sandy silt lacustrine horizon. The contractor should have a dewatering plan, and all earthworks should be performed in the summer dry season when groundwater conditions are typically at their lowest and in the seasonal window for earthworks in the Lake Whatcom watershed.

Prior to the placement of a new geotextile reinforced structural fill pad to support building construction, the exposed subgrade under all areas of the site should be verified as suitable by our firm. The suitability of native soil conditions may be accomplished with soil probe or DCP methods, as applicable.

We recommend following the guidelines provided above in the mitigation of geologic hazards section that includes stripping, geotextile fabric and structural fill to planned elevation. The new foundation will require the geotextile fabric and structural fill material to extend at least 3 to 4 feet or more laterally beyond the edge of each side of the foundation footprint for proper structural support. The design team should consider the spatial limitations associated with property boundaries and the existing infrastructure, utilities and driveways.

Fill and Compaction

Structural fill used to obtain final subgrade elevations for the building footprint must be properly placed and compacted. Material containing topsoil, wood, trash, organics or construction debris will not be suitable for use as structural fill and should be properly disposed of offsite or placed in nonstructural areas. Soils containing more than 5 percent fines are considered moisture sensitive and can be difficult to compact to a firm and unyielding condition when over the optimum moisture content by more than approximately 2 percent. The optimum moisture content is that which allows the greatest dry density to be achieved at a given level of compactive effort. Any non-organic, predominantly granular soil may be used for structural fill provided the material is properly moisture conditioned prior to placement and compaction, and the specified degree of compaction is obtained.

For all imported or recycled structural fill, we recommend that 95% or greater compaction by modified proctor per ASTM D1557 is obtained within the structural fill prism supporting any new structural elements. A third party from a materials testing and inspection company would provide these services.

Reuse of Site Soil

Due to the generally fine-grained component of the existing lacustrine deposits, we do not recommend the reuse of this material as structural fill. The existing structural fill found adjacent to buildings and driveways and presumed to exist under all foundations and slabs on grade is suitable for reuse. Fines content from laboratory work demonstrated that the existing structural fill contains 15 to 16 percent fines. While above the recommended fines content for moisture sensitivity, the client can save significant import-export costs by reusing the existing structural fill. This material should be carefully excavated and stockpiled separately from other excavated site materials. The contractor should aerate and moisture condition the existing structural fill prior to placement and compaction.

Any fill placed beneath the building footprint area should conform to the recommendations listed in the *Imported Structural Fill* section listed below. The reuse of site soils may be difficult or impractical under wet conditions and thus we recommend dry season construction. We recommend that a clast size of no greater than 6 inches in diameter be maintained for the structural fill and no organic soil be included in structural fill areas.

Imported Structural Fill

For imported structural fill materials, we recommend referencing the Washington State Department of Transportation, *Standard Specifications for Road, Bridge and Municipal Construction*, publication M 41-10, 2026.

We recommend general structural fill for dry weather construction be similar to Washington State Department of Transportation (WSDOT) Standard Specification 9-03.14(2) for *Select Borrow*. Soil containing more than about 5 percent fines cannot consistently be compacted to a dense, non-yielding condition when the moisture content is greater than optimum.

We recommend that imported structural fill for wet weather construction be similar to WSDOT Standard Specification 9-03.14(1) for *Gravel Borrow* with the added requirement that no more than 5 percent of the fill material pass through the U.S. No. 200 sieve.

Imported structural fill for foundation, driveway and parking support may consist of crushed engineered material. Based on local availability, we recommend the designer utilize *Crushed Surfacing Base Course* (CSBC) or *Crushed Surfacing Top* Course (CSTC) as structural fill under WSDOT Standard Specification 9-03.9(3).

For general backfill behind concrete foundation walls, we recommend utilizing material similar to *Gravel Backfill for Walls*, Specification 9-03.12(2). The drainage curtain immediately behind the wall should consist of 5/8” to 1-1/4” clear crushed rock with no fines content, depending on local availability.

We recommend the use of quarry spalls for structural support in areas such as portions of the building fill prism and construction entrances as applicable. The design team should reference WSDOT Standard Specification 9-13.1(5). Quarry spalls typically are 4 to 8 inches in diameter, however 2-inch by 4-inch spalls or similar material such as railroad ballast may be used for this purpose depending on cost and local availability.

Backfill and Compaction

Structural fill should be placed in horizontal lifts 6 to 8 inches in loose thickness and thoroughly compacted with appropriate machinery. All structural fill placed under load bearing areas should be compacted to at least 95% of the maximum dry density, as determined using test method ASTM D1557. The top of the compacted structural fill should extend outside all foundations and other structural improvements a minimum distance equal to the thickness of the fill placed beneath the footing. We recommend that the owner and project management team contract a local materials testing firm to verify the required densities are attained during the compaction process.

Seismic Design Category

The Pacific Northwest is seismically active, and the site could be subject to ground motion from a moderate to major earthquake. Consequently, moderate levels of earthquake shaking should be anticipated during the design life of the project, and the proposed structure should be designed to resist earthquake loading using appropriate design methodology.

For structures designed using the seismic design provisions of the 2021 International Building Code, the native lacustrine soil interpreted to underlie the site classifies as Site Class E, according to ASCE 7-16 Standard – Table 20.3-1, *Site Class Definitions*. The structural engineer should incorporate the appropriate design response spectrum based on Site Class E soil and the geographic location of the structure.

Foundation Support

Our field exploration indicates that the site subsurface conditions around the building perimeter contain structural fill above lacustrine deposits that extend to a depth of approximately 11 to 12 feet below grade. Glacial drift soils are positioned below lacustrine deposits and over Chuckanut Formation bedrock. Our above recommendations include the removal of existing foundations and structural fill followed by the placement of geotextile fabric on native lake deposits. All foundations and grade beams shall be supported by at least three feet of new structural fill and geotextile fabric to mitigate seismic and static settlement concerns.

For the foundation fill pad, we recommend Tencate Mirafi® *RS280i* (or industry equivalent) be placed on the native lacustrine deposits. One lift of quarry spalls should be placed above the geotextile fabric and compacted as the first layer of structural fill to mitigate any groundwater concerns. We estimate that a one-foot lift will be sufficient for this purpose. On the quarry spalls, we recommend the placement of a second layer of geotextile fabric. This layer of fabric serves as a separation horizon to mitigate fines migration into any quarry spall voids.

We recommend Northwest Linings & Geotextile Products, Inc., *PermeaTex 2315* woven geotextile fabric (or industry equivalent) be placed above the quarry spalls. The remaining structural fill may consist of recycled existing structural fill and import fill. We recommend capping the new structural fill pad with *Crushed Surfacing Base Couse* (or industry equivalent) under WSDOT Standard Specification 9-03.9(3).

Within the structural fill prism, the geotextile and import fill material should extend laterally beyond the edge of each side of the footing, a distance equal to the depth of the excavation below the base of the footing.

We recommend that our firm verify that suitable bearing conditions have been reached prior to placement of structural fill and foundation formwork during construction.

All footings should be placed a minimum of 18 inches below the lowest adjacent final grade for frost protection. The footings should be sized in accordance with the structural engineer's prescribed design criteria and seismic considerations.

New foundations should have adequate footing drains connecting to the civil engineered storm drain system.

Allowable Bearing Capacity

Assuming the above foundation support criteria are satisfied, continuous and isolated footings and grade beams founded on a geotextile reinforced structural fill prism over approved native soils, may be proportioned using a net allowable soil bearing pressure of up to 1,500 pounds per square foot (psf). Our calculations were based on the use of a 36-inch-wide footing for structural support.

The term "net allowable bearing pressure" refers to the pressure that can be imposed on the import and native soil at foundation level resulting from the total of all dead plus live loads, including the weight of the footing or any backfill placed above the footing. The net allowable bearing pressure may be increased by one-third for transient wind or seismic loads. The above net allowable bearing capacity includes a factor of safety of 3, which is considered the industry standard.

Static Foundation Settlement

We utilized Tensar+™ foundation software to determine static settlement estimates based on the existing and prescribed groundwork conditions. Assuming a moderate building load and that construction is accomplished as recommended and for the maximum allowable soil bearing pressure addressed above, we estimate the total settlement of the foundation should be less than one inch and differential settlement between two adjacent load-bearing components supported on a geotextile reinforced import structural fill prism should be less than about one half the total settlement. The above tolerance values are considered industry standards.

The soil response to applied stresses caused by foundation and other loads is expected to be predominantly elastic in nature, with most of the settlement occurring during construction as loads are applied. This settlement estimate assumes that foundations have been located on properly placed and compacted imported structural fill with geotextile fabric support over native soils as detailed above.

Foundation and Site Drainage

To manage hydrostatic forces and mitigate groundwater seepage, we recommend that an exterior footing drain system be constructed around the perimeter of the new foundation. The drain should consist of a minimum 4-inch diameter perforated pipe, surrounded by a minimum 12 inches of filtering media with the discharge sloped to carry water to an approved collection system. The filtering media may consist of clear crushed drain rock with no fines wrapped by a nonwoven geotextile fabric (such as Tencate Mirafi® 140N or equivalent). The drainage backfill behind the foundation walls should be carried up the back of the wall and be at least 12-inches wide. The drainage backfill should extend from the foundation drain to within approximately 1 foot of the finished grade and consist of clear crushed drain rock with no fines. The invert of the footing drainpipe should be placed slightly below the elevation of the footing, so that water will be contained and conveyed away from the structure. The drain system should include cleanouts to allow for periodic maintenance and inspection.

Stormwater Management

Based on the evaluation of the data collected during this investigation, it is our opinion that the subsurface conditions at the site are suitable for the limited infiltration of stormwater, provided the recommendations contained herein are incorporated into the project design. We do not know the overall stormwater management plan at the time of the writing of this report.

There is variable separation from the existing grade to groundwater intersection. Separation generally ranged from 4 to 7.5 feet in the area of the building. We encountered groundwater at approximately 3 feet BPG in the area north of the building and parking lot that is about 3 feet lower that the rest of the site. The actual location, sizing, depth and overall design of facilities was not completed at the time of the writing of this report. Our recommended design rate is based on calculations performed for this report in conjunction with laboratory analysis of samples obtained from test pit sampling. We recommend confirmation of soil conditions and design rates during construction.

The near-surface lacustrine soils are composed of soft to medium stiff, sandy silt with fines content ranging from 43 to 69 percent in select samples. A restrictive horizon in the form of the groundwater table varied by location. The design team should target the native lacustrine deposits when designing an infiltration facility.

Test Pit Gradation Results

From the explorations in the areas of interest, 4 representative soil samples were selected and mechanically tested for grain size distribution and calculation according to the soil Grain Size Analysis method, Volume V, Chapter 5.4 of the Department of Ecology *Stormwater Management Manual for Western Washington,* 2024. The total correction factor applied to initial saturated hydraulic conductivity (Ksat) values was 0.1188 and based on the below variables.

- Site variability and number of locations tested (CF_v) = 0.33
- Test Method – Grain Size Analysis: (CF_t) = 0.4
- Degree of influent control to prevent siltation & bio-buildup (CF_m) = 0.9

The 2024 SMMWW provides guidelines for grain size analysis where the saturated hydraulic conductivity (K_{sat}) is calculated as referenced by Massmann (2008). If the saturated hydraulic conductivity rate is greater than 0.01 centimeter per second (cm/s), recalculate using the saturated hydraulic conductivity for coarse grained soils. If the saturated hydraulic conductivity rate is less than 0.01 cm/s, recalculate using the saturated hydraulic conductivity for fine grained soils. The initial calculations demonstrated that the 4 samples would be calculated under the saturated hydraulic conductivity for fine grained soils.

The corrected, fine-grained infiltration rates for the lacustrine deposits ranged from 0.22 to 0.29 inches per hour. The native soils are consistent in terms of predicted infiltration rate and fines content. The below rate is representative of loose or soft soil conditions, and do not take into account previous soil compaction or development, particle shape, and stratigraphic effects. We recommend the design team target the upper lacustrine horizon when designing the infiltration system.

For infiltration systems designed to target the lacustrine deposits unit, we recommend the use of **0.25 inches per hour** as a final (long-term) infiltration rate for the design process. Any existing fill encountered at the site should be stripped to the documented lacustrine deposits horizon.

If an increased rate is desired or required, a “real-world” determination can be performed via Pilot Infiltration Test (PIT) methods at actual stormwater facility locations.

We also recommend that any new infiltration facilities be protected from construction traffic during the building process to avoid compaction that could negatively influence infiltration rates.

NW Geo is available to consult further or review stormwater design plans once they are developed for the project and is available to confirm conditions during construction. Once the final civil plans for the development have been prepared, NW Geo recommends that we be allowed to review those plans to verify that the recommendations presented in this report have been incorporated into the final plan for site development

Pavement Applications

The final design and lateral extent of new pavements at the project site is unknown at present. We assume that new pavement will replace the existing pavement in a similar footprint as there is little room to expand laterally.

We recommend the client consider the reuse of the existing structural fill for new pavements. The existing pavement subgrade consists of structural fill that may be suitable to remain. We recommend extensive proof rolling with a fully loaded, double axle dump truck to verify suitability during construction. Overall we anticipate light traffic loading conditions, mostly consisting of passenger cars with some heavier truck traffic for deliveries and SVCA golf course maintenance. We do not know of a traffic study conducted for this project.

The following recommendations are meant as a guideline for the design engineer to develop final pavement sections in accordance with current codes and standards. For pavement design purposes we recommend using a California Bearing Ratio (CBR) value of 2 for the near surface native soils. The design of pavement areas will need to be performed by a licensed engineer. We recommend that subgrade soils supporting pavement sections include minor grade changes to allow for passive drainage away from the pavement or that grading directs surface water to catch basins within the footprint of the pavement interior.

Flexible Asphalt Pavement – Light Duty

If utilized within light vehicle parking areas, we recommend a standard, or “light duty”, pavement section consist of 2.5 inches of Class ½-inch Hot Mix Asphalt (HMA) above 2 inches of Crushed Surfacing Top Course (CSTC) meeting criteria set forth in the Washington State Department of Transportation (WSDOT) Standard Specification 9-03.9(3). The base material for the road section should consist of “gravel base” which may include 8 inches of gravel borrow (with 100% passing the 2-inch sieve) or 6 inches of Crushed Surfacing Base Bourse (CSBC) as classified by WSDOT 9-03.9(3) Standards and Specifications.

Flexible Asphalt Pavement – Heavy Duty

New drive lanes, parking or and any other areas that will be accessed by heavy traffic or higher volumes will require a thicker section and should be designed using a paving section consisting of 4 inches of Class ½-inch HMA above 2 inches of Crushed Surfacing Top Course (CSTC) meeting criteria set forth in the WSDOT Standard Specification 9-03.9(3), overlying gravel base. The base material for the road section should consist of “gravel base” which may include 10 inches of gravel borrow (with 100% passing the 2-inch sieve) or 8 inches of Crushed Surfacing Base Bourse (CSBC) as classified by WSDOT 9-03.9(3) Standards and Specifications.

Concrete Pavement

Concrete pavements could be used for access drives, parking areas, sidewalks, aprons and support structures. Design of concrete pavements is a function of concrete strength, reinforcement steel, and the anticipated loading conditions for the roads. For design purposes, a vertical modulus of subgrade reaction of 100 pounds per cubic inch (pci) should be expected for concrete elements constructed over properly placed and compacted imported structural fill. We anticipate that concrete pavement sections, if utilized, will be at least 4 inches thick and be founded on a minimum of 8 inches of compacted gravel base.

Geotechnical Consultation During Construction

NW Geo recommends that we be involved in the project design review process. The purpose of the review is to verify that the recommendations presented in this report are understood and incorporated in the design and specifications. We also recommend that geotechnical construction monitoring services be provided. The purpose of these services is to observe compliance with the design concepts, specifications, and recommendations of this report. In the event that subsurface conditions differ from those anticipated before the start of construction, we would be pleased to provide revised recommendations appropriate to the conditions revealed during construction.

LIMITATIONS AND USE OF THIS REPORT

Recommendations contained in this report are based on our understanding of the proposed development and construction activities, our field observations, exploration and interpreted results. It is possible that soil and groundwater conditions could vary and differ between or beyond the points explored. If soil or groundwater conditions are encountered during construction that vary or differ from those described herein, NW Geo shall be notified immediately in order that a review may be made and supplemental recommendations provided. If the scope of the proposed construction, including the proposed loads or structural locations, changes from that described in this report, our recommendations shall also be reviewed.

We have prepared this report in substantial accordance with the generally accepted geotechnical engineering practice as it exists in the site area at the time of our study. No warranty, expressed or implied, is made. The recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be conducted by NW Geo during the construction phase in order to evaluate compliance with our recommendations. Other standards or documents referenced in any given standard cited in this report, or otherwise relied upon by the author of this report, are only mentioned in the given standard; they are not incorporated into it or “included by reference”, as that latter term is used relative to contracts or other matters of law.

This report may be used only by SVCA and their design consultants and only for the purposes stated within a reasonable time from its issuance, but in no event later than 5 years from the date of the report. Note that if another firm assumes Geotechnical Engineer of Record responsibilities, they need to review this report and either concur with the findings, conclusions, and recommendations or provide alternate findings, conclusions and recommendation under the guidance of a professional engineer registered in the State of Washington. The recommendations of this report are based on the assumption that the Geotechnical Engineer of Record has reviewed and agrees with the findings, conclusion and recommendations of this report.

Land or facility use, on- and off-site conditions, regulations, or other factors may change over time, and additional work may be required with the passage of time. Based on the intended use of the report, NW Geo may recommend that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by SVCA or anyone else will release NW Geo from any liability resulting from the use of this report by any unauthorized party and SVCA agrees to defend, indemnify, and hold NW Geo harmless from any claim or liability associated with such unauthorized use or non-compliance. We recommend that NW Geo be given the opportunity to review the final project plans and specifications to evaluate if our recommendations have been properly interpreted. We assume no responsibility for misinterpretation of our recommendations.

The scope of work for this geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface or groundwater monitoring at this site.

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Figure 1: *Regional Map* showing the general project location in Sudden Valley, near Bellingham, WA. Image courtesy of *USGS National Map Downloader,* 2026.

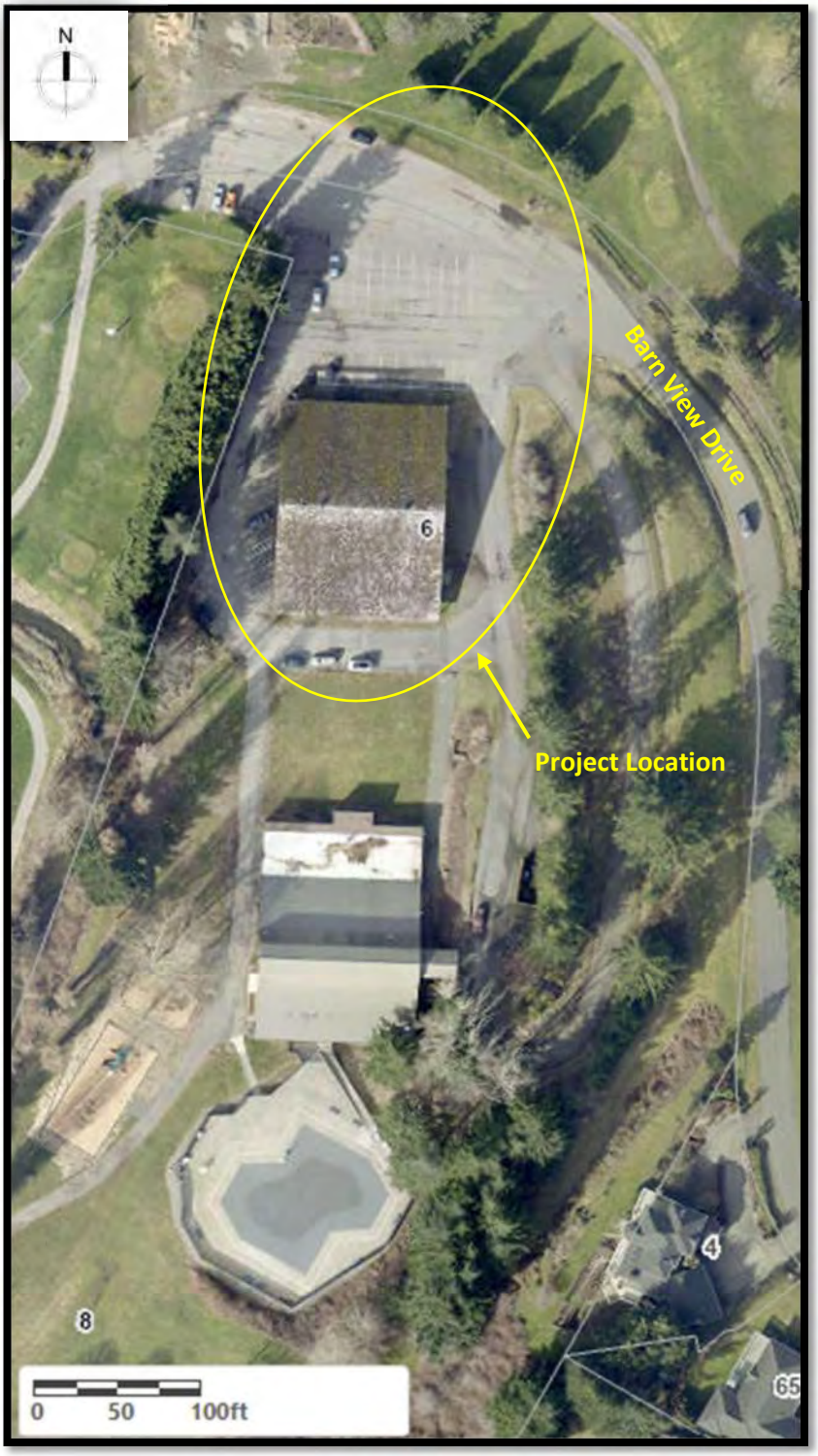


Figure 2: *Vicinity Map* showing the general project location in yellow oval at 6 Barn View Drive, Sudden Valley, WA. Image courtesy of City of Bellingham, *City IQ*, 2026.

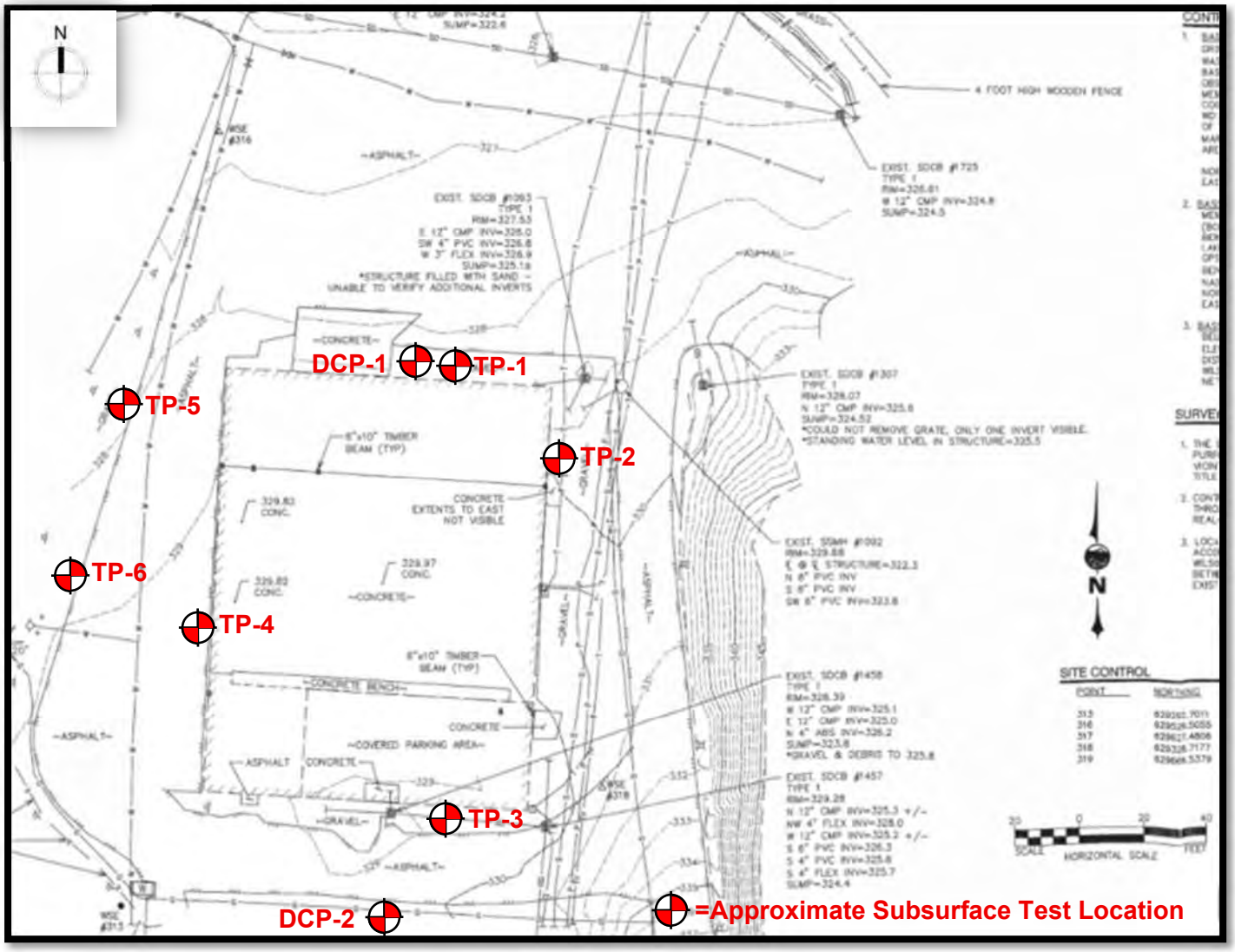


Figure 3A: *Site and Exploration Plan* showing the existing barn, underground utilities and approximate subsurface exploration locations on March 27 and April 10, 2026. Image courtesy of PNW Civil, Inc., 2026.

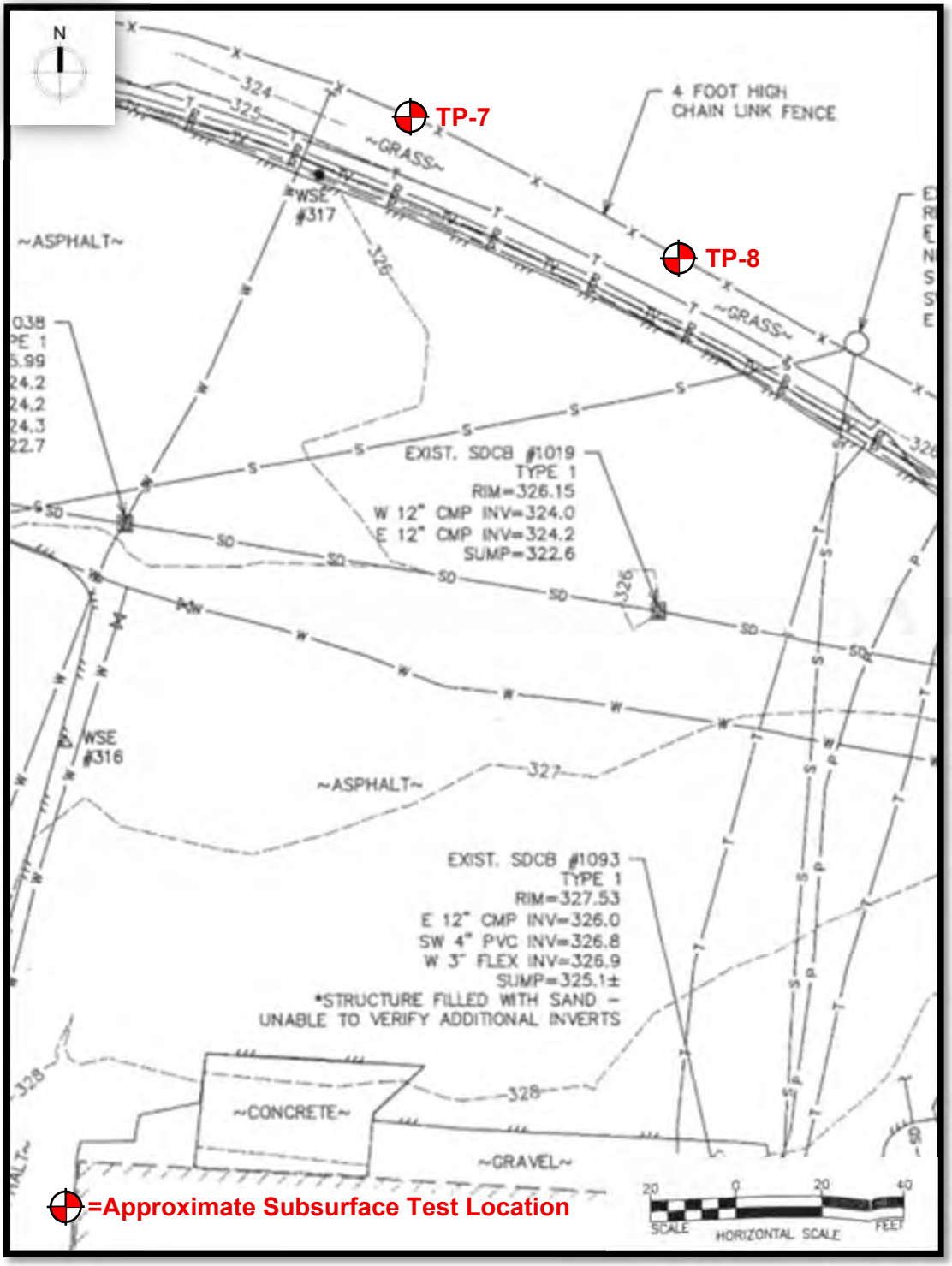


Figure 3B: *Site and Exploration Plan* showing the existing barn margin, northern asphalt parking area and approximate subsurface exploration locations on April 16, 2026. Image courtesy of PNW Civil, Inc., 2026. Scale is approximate.

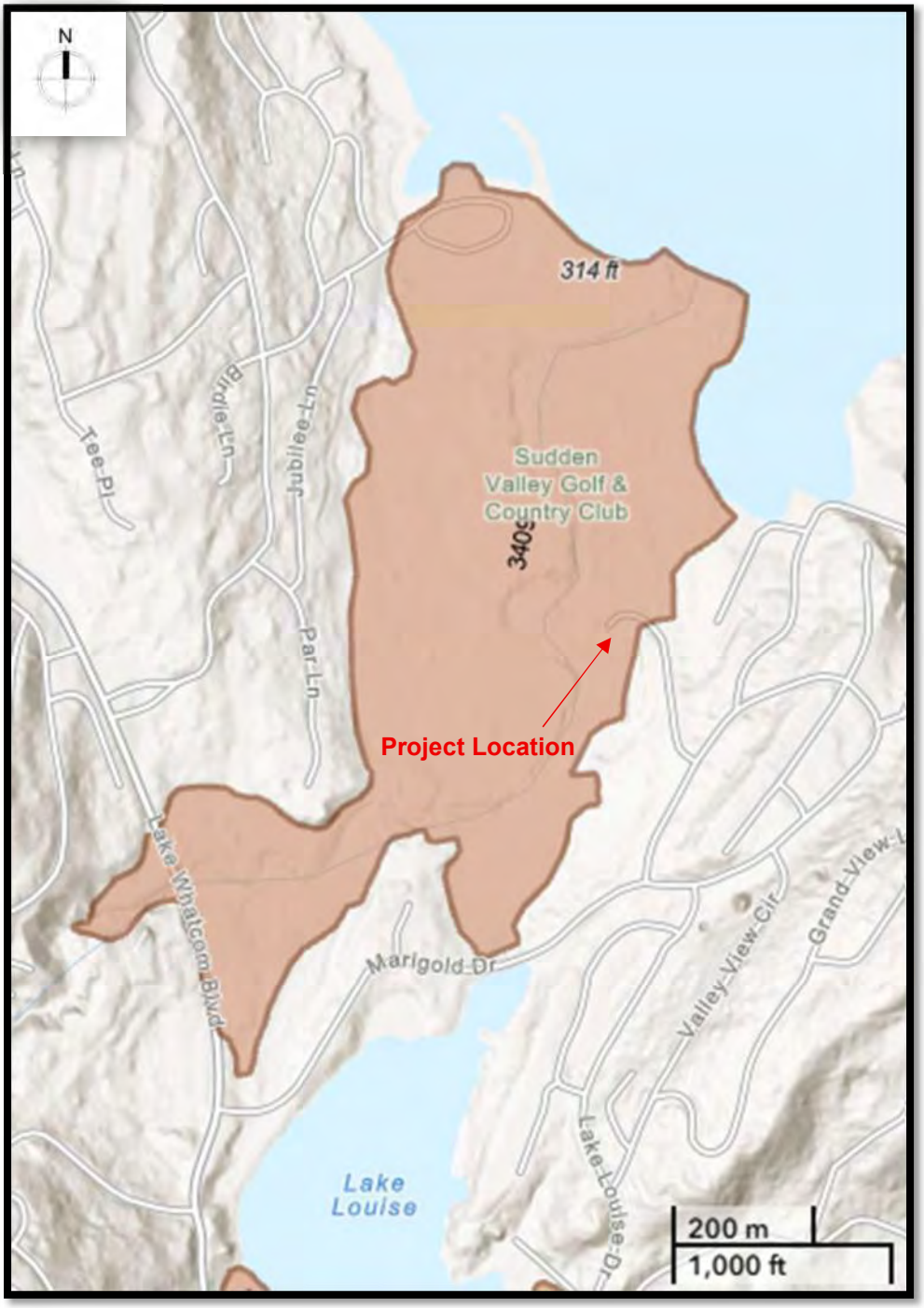


Figure 4: *Geologic Hazard Map* showing the Austin Creek alluvial fan hazard in brown in relation to the project site. Image courtesy DNR *Geologic Information Portal*, 2026.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	
	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	
	GM	Silty gravels, gravel-sand-silt mixtures
	GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	
	SW	Well-graded sands, gravelly sands, little or no fines
	SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	
	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)		
SILTS AND CLAYS Liquid limit less than 50%	ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
	CH	Inorganic clays of high plasticity, fat clays
	OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils

LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART

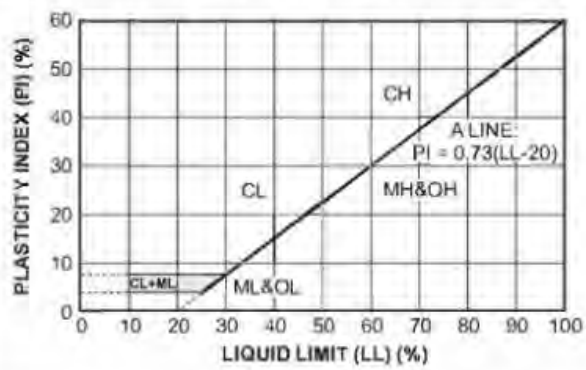


Figure 5: Unified Soil Classification System (USCS) Chart.

Project:	SVCA Barn	**Log #:**	TP-1	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS	Description	
	0	GP	0.0-1.25'	Orange brown, damp, medium dense to dense, sandy GRAVEL, some oxidation (Import Fill)
	1			
	2	ML	1.25-3.2'	Gray brown, damp, stiff to very stiff, sandy SILT, some grass fragments & woody debris, some organic odor (Lacustrine Deposits) Probe: 4-8" penetration at 2.0-3.5' BPG PP: 2.5-3.5 tsf at 2.0-3.5' BPG
1	3			
2	4	SM	3.2-8.0'	Light gray, damp to wet, loose to medium dense, silty SAND, some disseminated organics, some organic odor (Lacustrine Deposits) 4.0' - light seepage of groundwater PP: 0.5 tsf at 4.0' BPG
	5			5.0-6.0' - some sticks and organic fragments, soft conditions continue to TD, light seepage to TD
3	6			
	7			7.0' - moderate sidewall collapse
	8			
	9			Groundwater encountered at 4.0' BPG, light seepage 4.0-8.0' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location
	10			

Project:	SVCA Barn	**Log #:**	TP-2	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0 1	GP	0.0-1.0'	Gray brown, damp, dense, sandy GRAVEL, trace oxidation, some concrete & asphalt fragments (Import Fill)
	2 3	ML	1.0-3.2'	Brown-orange-gray, damp, medium stiff to stiff, sandy SILT, varicolored, some sand and gravel, trace cobble (Native Fill) Probe: 5-10" penetration at 1.0-3.2' BPG PP: 2.5 tsf at 3.0' BPG 3.2' - telecom line in sidewall of excavation
	4	GM	3.2-4.75'	Medium to dark gray, damp, dense, sandy, silty GRAVEL, some cobbles (Import Foundation Fill)
4	5 6	SM	4.75-6.5'	Medium gray, damp, medium dense, silty SAND, fine-grained sand, micaceous, some organic odor (Lacustrine Deposits)
5	7 8	ML	6.5-8.0'	Light gray, damp-wet, medium stiff, sandy SILT, some organic fragments and odor (Lacustrine Deposits) 7.5' - light seepage of groundwater
	9 10			Groundwater encountered at 7.5' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location

Project:	SVCA Barn	**Log #:**	TP-3	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0	GP	0.0-1.0'	Orange brown, damp, dense, sandy GRAVEL, trace oxidation, trace cobble (Import Fill)
	1			
		GP-ML	1.0-3.0'	Medium gray, damp, medium stiff to medium dense, sandy GRAVEL to sandy SILT, some oxidation, trench backfill (Mixed Import and Native Fill)
	2			Probe: 5-10" penetration at 1.0-3.2' BPG
				PP: 2.5 tsf at 3.0' BPG
	3			3.0' - water line in sidewall of excavation
		ML	3.0-8.0'	Light gray, damp-wet, soft, sandy SILT, some organic fragments and odor (Lacustrine Deposits)
6	4			4.0' - light seepage of groundwater
				Probe: 2.5' penetration at 4.0' BPG
				PP: 0.5 tsf at 4.0' BPG
	5			
	6			
				6.5' - light seepage of groundwater, prevalent sidewall collapse, continues to TD
7	7			
	8			
				Groundwater encountered at 4.0 & 6.5' BPG
				Test pit terminated at 8.0' BPG at planned depth
				Please reference *Site and Exploration Plan* for location
	9			
	10			

Project:	SVCA Barn	**Log #:**	TP-4	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0	ASP	0.0-0.25'	Asphalt pavement, 2.5-3" thick, removed with saw
8	1	SW	0.25-1.3'	Light brown, damp, dense, gravelly SAND, some silt, some angular clasts (Import Fill)
	2	SW	1.3-3.0'	Medium brown, damp, medium dense to dense, gravelly SAND, some silt, light oxidation (Import Foundation Fill)
	3			2.75' - unmarked utility cluster - older irrigation conduits
9	4	ML	3.0-5.0'	Orange brown, damp, soft to medium stiff, sandy SILT, some oxidation, charcoal fragments (Lacustrine Deposits)
	5			Probe: 10-18" penetration at 4.0' BPG PP: 0.5-1.5 tsf at 4.0' BPG
	6			No groundwater encountered Test pit terminated at 5.0' BPG due to utilities intersection Please reference *Site and Exploration Plan* for location
	7			
	8			
	9			
	10			

Project:	SVCA Barn	**Log #:**	TP-5	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	**Depth (FT)**	**USCS**	**Description**
	0	OL-ML	0.0-0.25' Dark brown, damp, soft, organic SILT (Topsoil)
10	1	SW	0.25-1.5' Medium brown, damp, dense, gravelly SAND, some silt, some cobble, some asphalt fragments (Import Fill) 1.5' - SVCA staff reports utility conflict on site
	2		No groundwater encountered Test pit terminated at 1.5' BPG due to utilities conflict below Please reference *Site and Exploration Plan* for location
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		

Project:	SVCA Barn	**Log #:**	TP-6	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0	OL-ML	0.0-0.25'	Dark brown, damp, soft, organic SILT (Topsoil)
	1	GP	0.25-1.3'	Gray brown, damp, dense, sandy GRAVEL, some silt, some cobbles (Import Fill)
	2	ML	1.3-8.0'	Gray brown, damp, soft to medium stiff, sandy SILT, fine grained sand, some organic content and odor, light oxidation, micaceous (Lacustrine Deposits) Probe: 8-18" penetration at 2.0-4.0' BPG PP: 0.5-1.0 tsf at 2.0- 4.0' BPG
11	3			
	4			4.0' - prevalent soft conditions continue to TD
	5			
12	6			6.0' - color change to gray orange, increased oxidation
	7			7.0' - light seepage of groundwater encountered
	8			
	9			Groundwater encountered at 7.0' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location
	10			

Project:	SVCA Barn	**Log #:**	TP-7	**Staff:**	KP	**Date:**	4/16/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0	OL-ML	0.0-0.75'	Medium brown, damp, soft, organic SILT, some sand, grass at surface, some roots (Topsoil)
	1	ML	0.75-6.0'	Orange brown, damp, soft to medium stiff, sandy SILT, fine grained sand, some organic content, light oxidation, slightly micaceous, some tree roots (Lacustrine Deposits)
13	2			Probe: 8-20" penetration at 2.0-4.0' BPG PP: 0.5-1.0 tsf at 2.0- 4.0' BPG 2.5' - moderate mottling & oxidation horizon, continues to 3.5' BPG
	3			3.0' - light seepage of groundwater
	4			4.0' - prevalent soft conditions continue to TD
	5			
14	6			6.0' - color change to gray orange
	7	ML	6.0-8.0'	Gray orange, wet, soft to medium stiff, sandy SILT, moderate to strong mottling and oxidation horizon at 6.0-7.0', some disseminated organics, sparse roots, sidewall collapse common, rapid seepage of groundwater (Lacustrine Deposits)
	8			
	9			Groundwater encountered at 3.0' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location
	10			

Project:	SVCA Barn	**Log #:**	TP-8	**Staff:**	KP	**Date:**	4/16/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0 1	ML/SM	0.0-1.0'	Medium brown, damp, soft, organic SILT to silty SAND with gravel, trace cobble, grass at surface, dense roots (Topsoil/Fill)
	2	ML	1.0-5.0'	Orange brown, damp, soft to medium stiff, sandy SILT, fine grained sand, some organic content, light oxidation, micaceous, dense tree roots (Lacustrine Deposits)
15	3			Probe: 10-20" penetration at 2.0-4.0' BPG PP: 0.5-1.0 tsf at 2.0- 4.0' BPG 2.5' - moderate mottling & oxidation horizon, continues to 3.5' BPG
	4			3.25' - light seepage of groundwater 4.0' - prevalent soft conditions continue to TD
16	5			6.0' - color change to brown orange
	6 7 8	ML	5.0-8.0'	Brown orange, wet, soft to medium stiff, sandy SILT, moderate to strong mottling and oxidation horizon at 5.0-7.0', some disseminated organics, sparse roots, sidewall collapse common, rapid seepage of groundwater (Lacustrine Deposits)
	9 10			Groundwater encountered at 3.25' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location

WILDCAT DYNAMIC CONE LOG

NW Geologic, PLLC
Ferndale, WA

PROJECT NUMBER: 26-027
DATE STARTED: 04-10-2026
DATE COMPLETED: 04-10-2026

HOLE #: DCP-1
CREW: NW Geologic, Kurt Parker
PROJECT: SVCA Barn Improvements
ADDRESS: 6 Barn View Drive, Sudden Valley, Bellingham, WA
LOCATION: North side of barn, adjacent to TP-1

SURFACE ELEVATION: Not Determined
WATER ON COMPLETION: Yes
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
-			~1.2 feet of material removed by hand tools prior to DCP advance			
-						
- 1 ft						
-	7	31.1	••••••••	8	LOOSE	MEDIUM STIFF
-	7	31.1	••••••••	8	LOOSE	MEDIUM STIFF
- 2 ft	10	44.4	••••••••••••	12	MEDIUM DENSE	STIFF
-	9	40.0	•••••••••••	11	MEDIUM DENSE	STIFF
-	7	31.1	••••••••	8	LOOSE	MEDIUM STIFF
- 3 ft	4	17.8	•••••	5	LOOSE	MEDIUM STIFF
- 1 m	3	13.3	•••	3	VERY LOOSE	SOFT
-	2	7.7	••	2	VERY LOOSE	SOFT
- 4 ft	5	19.3	•••••	5	LOOSE	MEDIUM STIFF
-	4	15.4	••••	4	VERY LOOSE	SOFT
-	2	7.7	••	2	VERY LOOSE	SOFT
- 5 ft	1	3.9	•	1	VERY LOOSE	VERY SOFT
-	0	0.0		0	VERY LOOSE	VERY SOFT
-	0	0.0		0	VERY LOOSE	VERY SOFT
- 6 ft	0	0.0		0	VERY LOOSE	VERY SOFT
-	0	0.0		0	VERY LOOSE	VERY SOFT
- 2 m	0	0.0		0	VERY LOOSE	VERY SOFT
- 7 ft	0	0.0		0	VERY LOOSE	VERY SOFT
-	0	0.0		0	VERY LOOSE	VERY SOFT
-	1	3.4		0	VERY LOOSE	VERY SOFT
- 8 ft	3	10.3	••	2	VERY LOOSE	SOFT
-	3	10.3	••	2	VERY LOOSE	SOFT
-	3	10.3	••	2	VERY LOOSE	SOFT
- 9 ft	4	13.7	•••	3	VERY LOOSE	SOFT
-	6	20.5	•••••	5	LOOSE	MEDIUM STIFF
-	6	20.5	•••••	5	LOOSE	MEDIUM STIFF
- 3 m 10 ft	5	17.1	••••	4	VERY LOOSE	SOFT
-	5	15.3	••••	4	VERY LOOSE	SOFT
-	7	21.4	••••••	6	LOOSE	MEDIUM STIFF
-	10	30.6	•••••••••	8	LOOSE	MEDIUM STIFF
- 11 ft	7	21.4	••••••	6	LOOSE	MEDIUM STIFF
-	6	18.4	•••••	5	LOOSE	MEDIUM STIFF
-	11	33.7	••••••••••	9	LOOSE	STIFF
- 12 ft	17	52.0	••••••••••••••••	14	MEDIUM DENSE	STIFF
-	11	33.7	••••••••••	9	LOOSE	STIFF
-	21	64.3	••••••••••••••••••••	18	MEDIUM DENSE	VERY STIFF
- 4 m 13 ft	25	76.5	••••••••••••••••••••••••	21	MEDIUM DENSE	VERY STIFF

HOLE #: DCP-1

WILDCAT DYNAMIC CONE LOG

PROJECT: SVCA Barn Improvements

PROJECT NUMBER: 26-027

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
	27	74.8		21	MEDIUM DENSE	VERY STIFF
	33	91.4		25+	MEDIUM DENSE	VERY STIFF
14 ft	42	116.3		25+	DENSE	HARD
	50	138.5		25+	DENSE	HARD
15 ft						
16 ft						
5 m						
17 ft						
18 ft						
19 ft						
6 m						
20 ft						
21 ft						
22 ft						
7 m 23 ft						
24 ft						
25 ft						
26 ft						
8 m						
27 ft						
28 ft						
29 ft						
9 m						

WILDCAT DYNAMIC CONE LOG

NW Geologic, PLLC
Ferndale, WA

PROJECT NUMBER: 26-027
DATE STARTED: 04-10-2026
DATE COMPLETED: 04-10-2026

HOLE #: DCP-2
CREW: NW Geologic, Kurt Parker
PROJECT: SVCA Barn Improvements
ADDRESS: 6 Barn View Drive, Sudden Valley, Bellingham, WA
LOCATION: South side of barn, adjacent to drive lane on grass lawn

SURFACE ELEVATION: Not Determined
WATER ON COMPLETION: Yes
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
1 ft			~1.5 feet of material removed by hand tools prior to DCP advance			
	6	26.6	•••••••	7	LOOSE	MEDIUM STIFF
2 ft	12	53.3	••••••••••••••	15	MEDIUM DENSE	STIFF
	30	133.2	••••••••••••••••••••••••••••••••••••	25+	DENSE	HARD
	24	106.6	••••••••••••••••••••••••••••••	25+	MEDIUM DENSE	VERY STIFF
3 ft	14	62.2	••••••••••••••••••	17	MEDIUM DENSE	VERY STIFF
1 m	6	26.6	•••••••	7	LOOSE	MEDIUM STIFF
	7	27.0	•••••••	7	LOOSE	MEDIUM STIFF
4 ft	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
	5	19.3	•••••	5	LOOSE	MEDIUM STIFF
	2	7.7	••	2	VERY LOOSE	SOFT
5 ft	3	11.6	•••	3	VERY LOOSE	SOFT
	5	19.3	•••••	5	LOOSE	MEDIUM STIFF
	4	15.4	••••	4	VERY LOOSE	SOFT
6 ft	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
	8	30.9	••••••••	8	LOOSE	MEDIUM STIFF
2 m	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
7 ft	6	20.5	•••••	5	LOOSE	MEDIUM STIFF
	9	30.8	••••••••	8	LOOSE	MEDIUM STIFF
	9	30.8	••••••••	8	LOOSE	MEDIUM STIFF
8 ft	8	27.4	•••••••	7	LOOSE	MEDIUM STIFF
	12	41.0	••••••••••••	11	MEDIUM DENSE	STIFF
	14	47.9	••••••••••••••	13	MEDIUM DENSE	STIFF
9 ft	14	47.9	••••••••••••••	13	MEDIUM DENSE	STIFF
	15	51.3	•••••••••••••••	14	MEDIUM DENSE	STIFF
	14	47.9	••••••••••••••	13	MEDIUM DENSE	STIFF
3 m 10 ft	15	51.3	•••••••••••••••	14	MEDIUM DENSE	STIFF
	14	42.8	••••••••••••	12	MEDIUM DENSE	STIFF
	16	49.0	•••••••••••••••	13	MEDIUM DENSE	STIFF
	14	42.8	••••••••••••	12	MEDIUM DENSE	STIFF
11 ft	15	45.9	••••••••••••••	13	MEDIUM DENSE	STIFF
	18	55.1	••••••••••••••••	15	MEDIUM DENSE	STIFF
	23	70.4	••••••••••••••••••••	20	MEDIUM DENSE	VERY STIFF
12 ft	26	79.6	••••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
	36	110.2	••••••••••••••••••••••••••••••	25+	DENSE	HARD
	39	119.3	••••••••••••••••••••••••••••••••••	25+	DENSE	HARD
4 m 13 ft	29	88.7	••••••••••••••••••••••••	25	MEDIUM DENSE	VERY STIFF

HOLE #: DCP-2

WILDCAT DYNAMIC CONE LOG

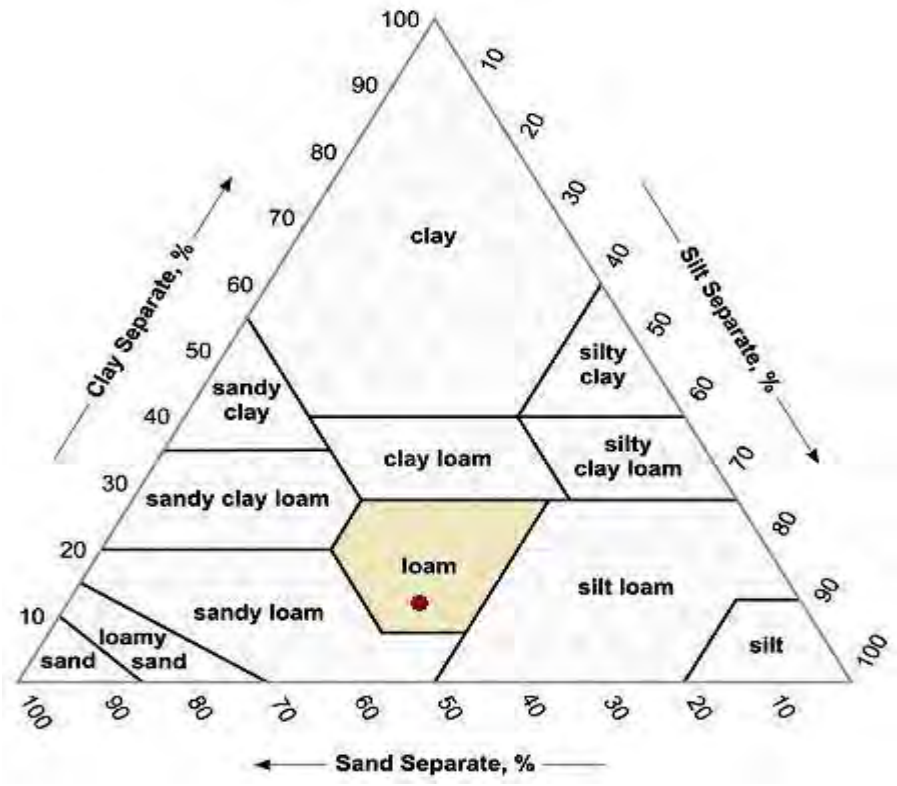
PROJECT: SVCA Barn Improvements

PROJECT NUMBER: 26-027

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
-	37	102.5		25+	MEDIUM DENSE	VERY STIFF
-	33	91.4		25+	MEDIUM DENSE	VERY STIFF
- 14 ft	50	138.5		25+	DENSE	HARD
-						
-						
- 15 ft						
-						
-						
- 16 ft						
- 5 m						
-						
- 17 ft						
-						
-						
- 18 ft						
-						
-						
- 19 ft						
-						
- 6 m						
- 20 ft						
-						
-						
- 21 ft						
-						
-						
- 22 ft						
-						
-						
- 7 m 23 ft						
-						
-						
- 24 ft						
-						
-						
- 25 ft						
-						
-						
- 26 ft						
- 8 m						
-						
- 27 ft						
-						
-						
- 28 ft						
-						
-						
- 29 ft						
-						
- 9 m						

Analytical Results	*Sample: SVCA Barn, TP-1 @ 4'*	Simply Soil Testing

Customer:	NW Geologic PLLC	Date received:	03/31/26
	6131 Venus Pl	Report date:	04/07/26
	Ferndale, WA 98248	Sample reference #	18484
		Plant code:	00 - General / not specified
		Tests requested:	Texture



Soil Texture Classification: Loam

Sand: 46% Silt: 42% Clay: 12%

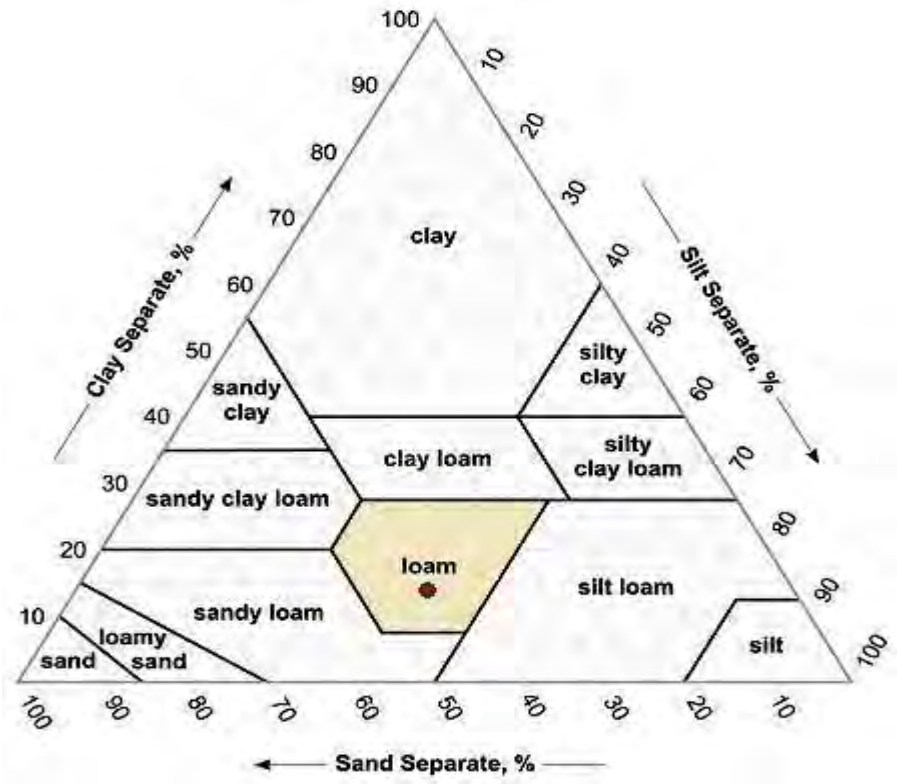
The un-sifted soil contains 3% gravel.

In gardens and lawns, loam soils are the preferred type of soil since they have a combination of desirable characteristics. Loam soils are capable of draining excess water, and are also able to hold substantial amounts of water or nutrients. Loam soils are also workable and resist compaction.

Organic matter: 3.7 %

Analytical Results	Sample: SVCA Barn, TP-3 @ 4'	Simply Soil Testing

Customer:	NW Geologic PLLC 6131 Venus Pl Ferndale, WA 98248	Date received: Report date: Sample reference # Plant code: Tests requested:	03/31/26 04/07/26 18485 00 - General / not specified Texture



Soil Texture Classification: Loam

Sand: 44% Silt: 42% Clay: 14%

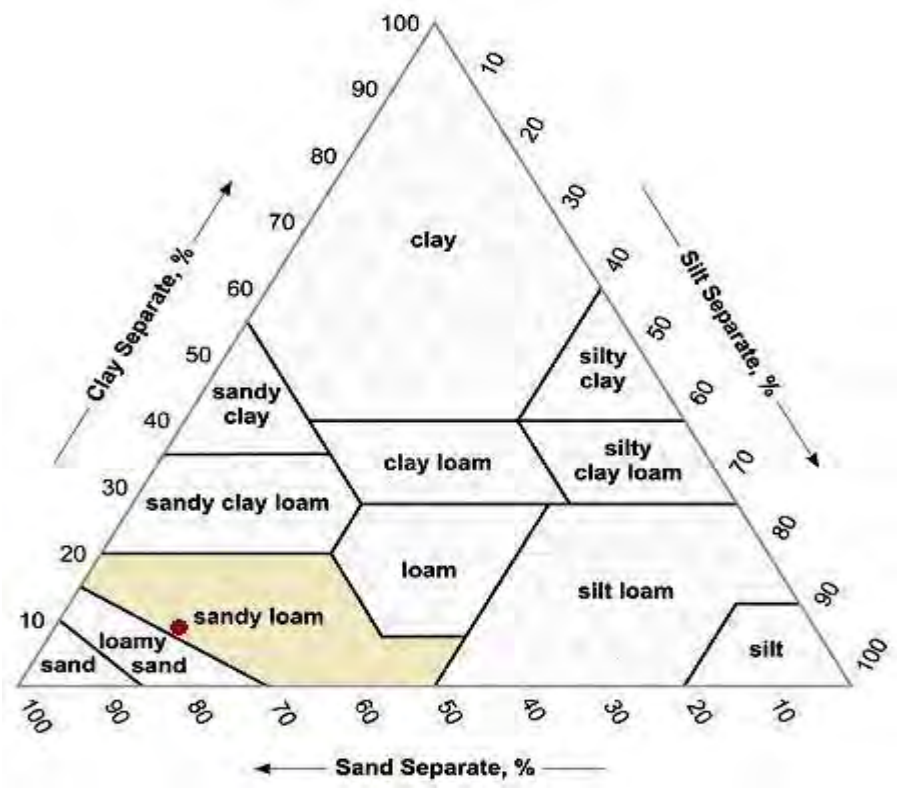
The un-sifted soil contains 0% gravel.

In gardens and lawns, loam soils are the preferred type of soil since they have a combination of desirable characteristics. Loam soils are capable of draining excess water, and are also able to hold substantial amounts of water or nutrients. Loam soils are also workable and resist compaction.

Organic matter: 2.8 %

Analytical Results	*Sample: SVCA Barn, TP-4 @ 1'*	Simply Soil Testing

Customer:	NW Geologic PLLC	Date received:	03/31/26
	6131 Venus Pl	Report date:	04/07/26
	Ferndale, WA 98248	Sample reference #	18486
		Plant code:	00 - General / not specified
		Tests requested:	Texture



Soil Texture Classification: Sandy Loam

Sand: 76% Silt: 15% Clay: 9%

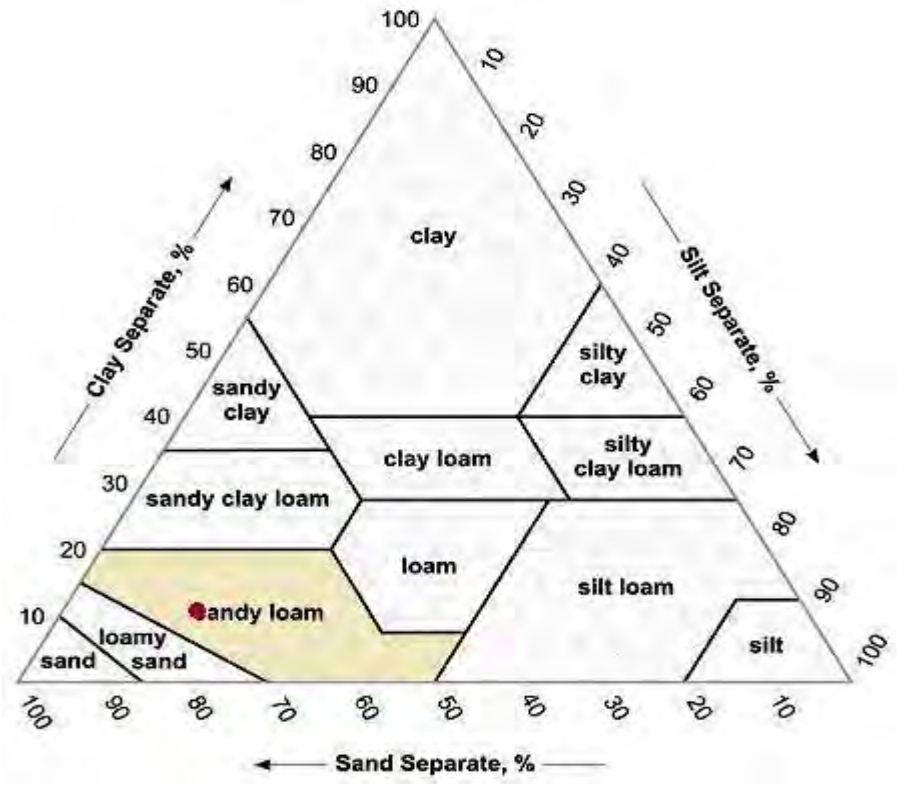
The un-sifted soil contains 61% gravel.

In gardens and lawns, sandy loam soils are capable of quickly draining excess water but cannot hold substantial amounts of water or nutrients. Plants grown in this type of soil will require more frequent watering and fertilization than those grown in soils with a higher concentration of silt and clay. High levels of organic matter improve the ability of the soil to hold water and nutrients.

Organic matter: 1.0 %

Analytical Results	*Sample: SVCA Barn, TP-5 @ 1'*	Simply Soil Testing

Customer:	NW Geologic PLLC	Date received:	03/31/26
	6131 Venus Pl	Report date:	04/07/26
	Ferndale, WA 98248	Sample reference #	18487
		Plant code:	00 - General / not specified
		Tests requested:	Texture



Soil Texture Classification: Sandy Loam

Sand: 73% Silt: 16% Clay: 11%

The un-sifted soil contains 64% gravel.

In gardens and lawns, sandy loam soils are capable of quickly draining excess water but cannot hold substantial amounts of water or nutrients. Plants grown in this type of soil will require more frequent watering and fertilization than those grown in soils with a higher concentration of silt and clay. High levels of organic matter improve the ability of the soil to hold water and nutrients.

Organic matter: 1.6 %

CERTERRA GEOTEST

Materially Better™

Submittal Date: April 2, 2026

Job Number: 26-0154
Job Name: NW Geologic PLLC - General Services 2026
Client: NW Geologic, PLLC
Address: Various
Whatcom County, WA 98225

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 26-002997
Sample Date: March 27, 2026

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	N/A	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

Sincerely,

Tiffani Anderson

Tiffani Anderson, Laboratory Manager
tanderson@rmacompanies.com
253.283.5023 (c)

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Sieve Analysis Test Report

ASTM C117 & C136

% Gravel		% Sand			% Fines
Coarse	Fine	Coarse	Medium	Fine	
0	3	3	8	17	69

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1/2"	100			
3/8"	99			
#4	97			
#10	94			
#20	90			
#40	86			
#60	82			
#100	78			
#200	69			

* (no specification provided)

Material Description

TP-1 @ 2.5'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8631 D_{85}= 0.3643 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

26-027 - SVCA Barn Labs

Location: TP-1 @ 2.5' - Sampled by Client
Sample Number: 26-002997

Sample Date: 3/27/26

CERTERRA GEOTEST

Client: NW Geologic, PLLC
Project: NW Geologic PLLC - General Services 2026
Various, Whatcom County, WA 98225
Project No: 26-0154

Figure 26-002997

Tested By: MFP Checked By: TA

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CERTERRA GEOTEST

Materially Better™

Submittal Date: April 2, 2026

Job Number: 26-0154
Job Name: NW Geologic PLLC - General Services 2026
Client: NW Geologic, PLLC
Address: Various
Whatcom County, WA 98225

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 26-002998
Sample Date: March 27, 2026

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	N/A	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

Sincerely,

Tiffani Anderson

Tiffani Anderson, Laboratory Manager
tanderson@rmacompanies.com
253.283.5023 (c)

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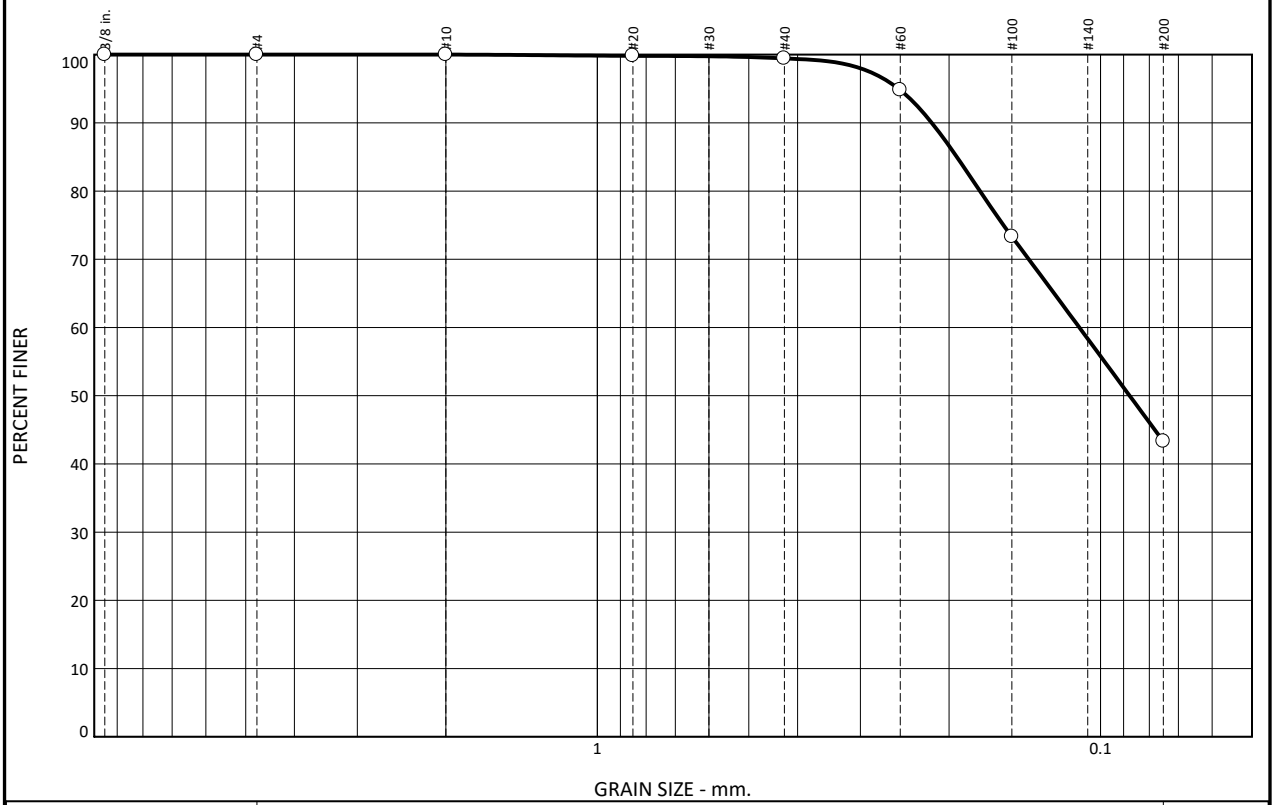
Sieve Analysis Test Report

ASTM C117 & C136



% Gravel	% Sand			% Fines
Fine	Coarse	Medium	Fine	
0	0	1	56	43

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/8"	100			
#4	100			
#10	100			
#20	100			
#40	99			
#60	95			
#100	73			
#200	43			

* (no specification provided)

Material Description

TP-2 @ 5.0'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2165 D_{85}= 0.1930 D_{60}= 0.1102
D_{50}= 0.0875 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

26-027 - SVCA Barn Labs

Location: TP-2 @ 5.0' - Sampled by Client
Sample Number: 26-002998

Sample Date: 3/27/26

CERTERRA GEOTEST

Client: NW Geologic, PLLC
Project: NW Geologic PLLC - General Services 2026
Various, Whatcom County, WA 98225
Project No: 26-0154

Figure 26-002998

Tested By: MFP Checked By: TA

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CERTERRA GEOTEST

Materially Better™

Submittal Date: April 2, 2026

Job Number: 26-0154
Job Name: NW Geologic PLLC - General Services 2026
Client: NW Geologic, PLLC
Address: Various
Whatcom County, WA 98225

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 26-002999
Sample Date: March 27, 2026

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	N/A	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

Sincerely,

Tiffani Anderson

Tiffani Anderson, Laboratory Manager
tanderson@rmacompanies.com
253.283.5023 (c)

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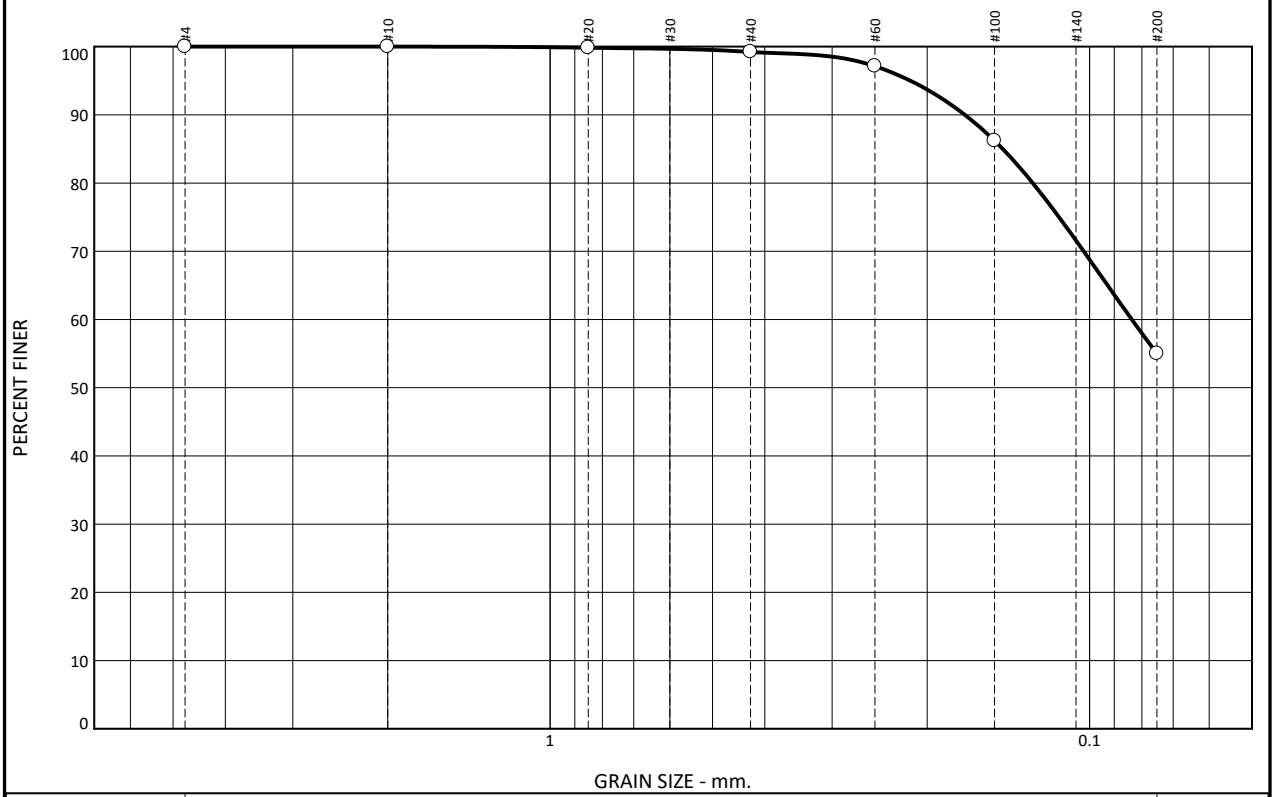
Sieve Analysis Test Report

ASTM C117 & C136



% Gravel	% Sand			% Fines
Fine	Coarse	Medium	Fine	
0	0	1	44	55

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
#4	100			
#10	100			
#20	100			
#40	99			
#60	97			
#100	86			
#200	55			

* (no specification provided)

Material Description

TP-4 @ 4.0'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.1703 D_{85}= 0.1448 D_{60}= 0.0835
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

26-027 - SVCA Barn Labs

Location: TP-4 @ 4.0' - Sampled by Client
Sample Number: 26-002999 Sample Date: 3/27/26

CERTERRA GEOTEST

Client: NW Geologic, PLLC
Project: NW Geologic PLLC - General Services 2026
Various, Whatcom County, WA 98225
Project No: 26-0154 Figure 26-002999

Tested By: MFP Checked By: TA

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CERTERRA GEOTEST

Materially Better™

Submittal Date: April 2, 2026

Job Number: 26-0154
Job Name: NW Geologic PLLC - General Services 2026
Client: NW Geologic, PLLC
Address: Various
Whatcom County, WA 98225

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 26-003000
Sample Date: March 27, 2026

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	N/A	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

Sincerely,

Tiffani Anderson

Tiffani Anderson, Laboratory Manager
tanderson@rmacompanies.com
253.283.5023 (c)

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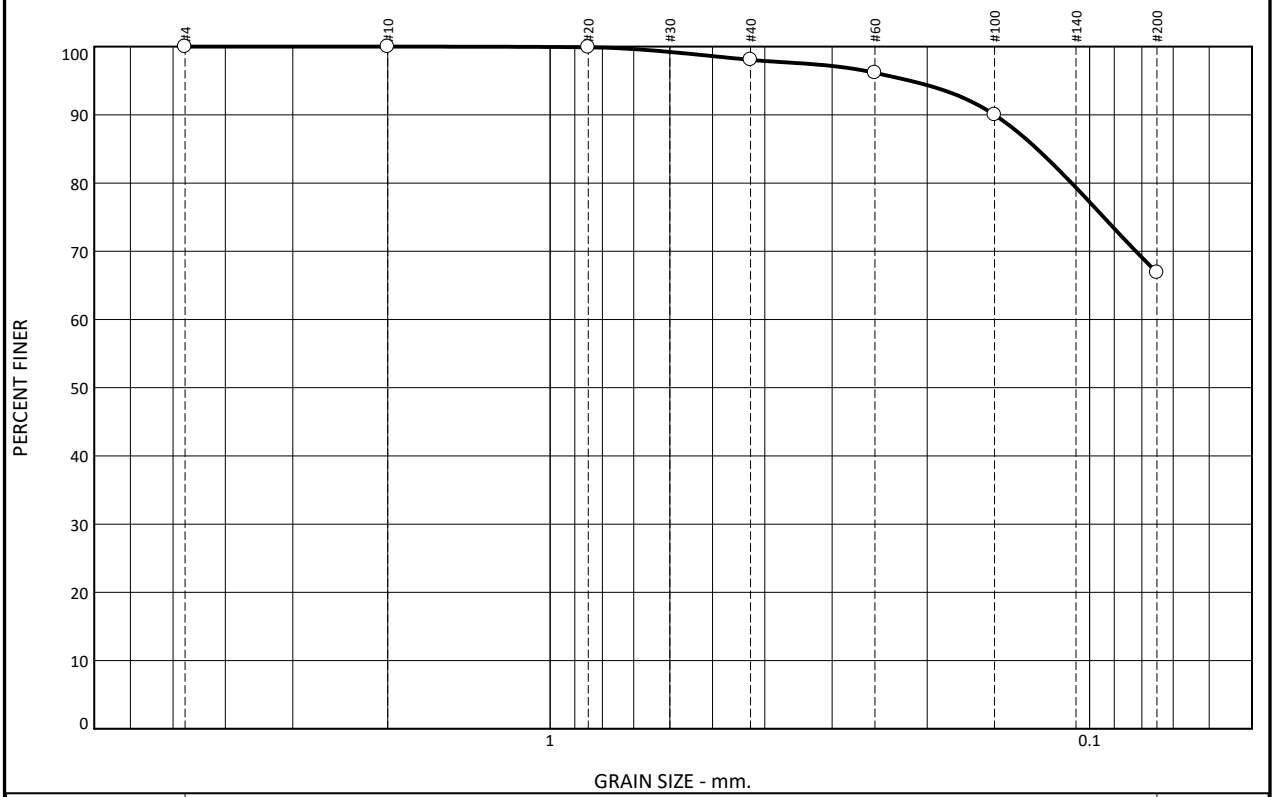
Sieve Analysis Test Report

ASTM C117 & C136



% Gravel	% Sand			% Fines
Fine	Coarse	Medium	Fine	
0	0	2	31	67

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
#4	100			
#10	100			
#20	100			
#40	98			
#60	96			
#100	90			
#200	67			

* (no specification provided)

Material Description

TP-6 @ 3.0'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.1500 D_{85}= 0.1251 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

26-027 - SVCA Barn Labs

Location: TP-6 @ 3.0' - Sampled by Client
Sample Number: 26-003000

Sample Date: 3/27/26

CERTERRA GEOTEST

Client: NW Geologic, PLLC
Project: NW Geologic PLLC - General Services 2026
Various, Whatcom County, WA 98225
Project No: 26-0154

Figure 26-003000

Tested By: MFP Checked By: TA

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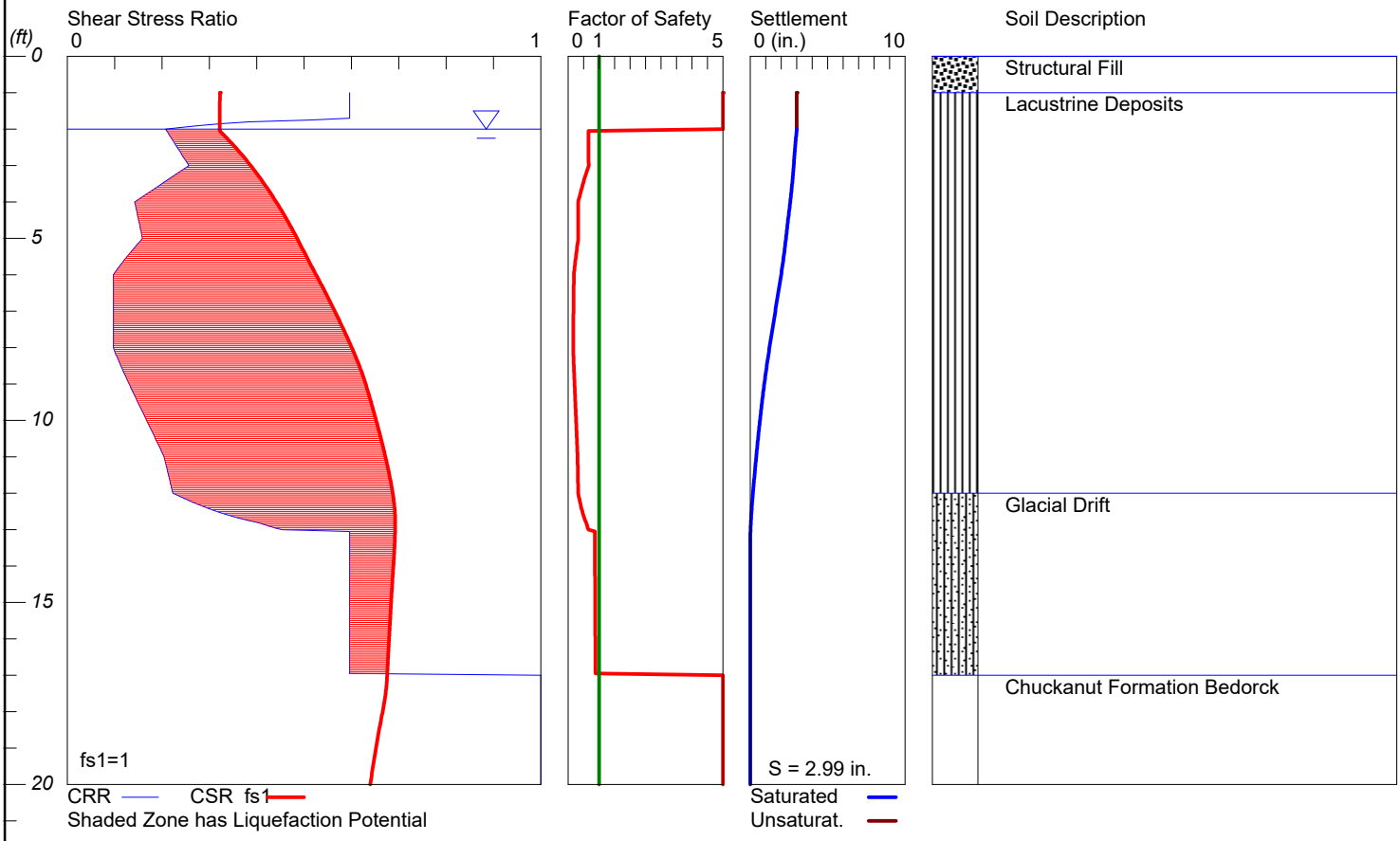
LIQUEFACTION ANALYSIS

SVCA Barn Improvements

Hole No.=DCP-1 Water Depth=2 ft Surface Elev.=328

Magnitude=7
Acceleration=0.497g



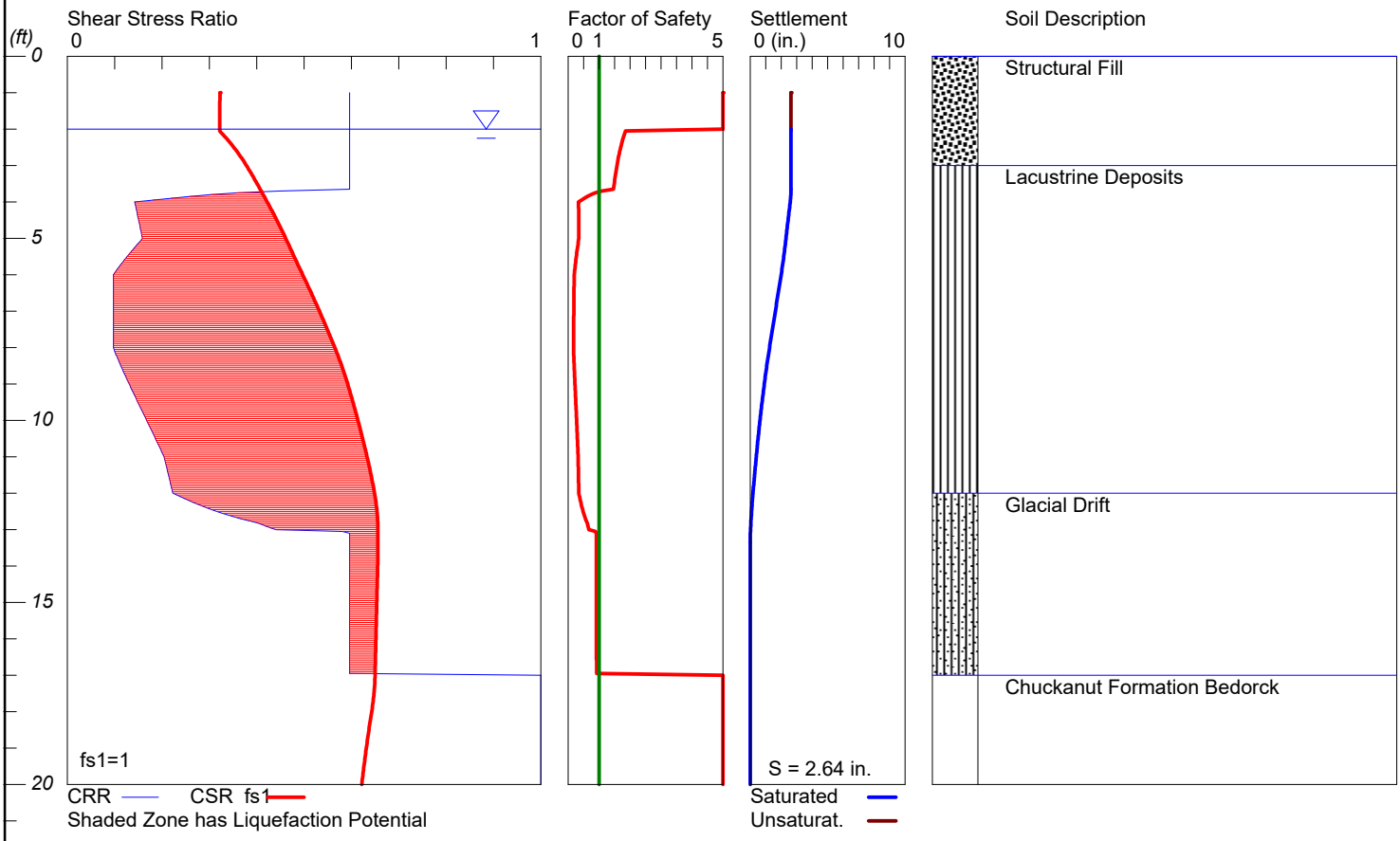
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

SVCA Barn Improvements

Hole No.=DCP-1 Water Depth=2 ft Surface Elev.=328

Magnitude=7
Acceleration=0.497g



LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

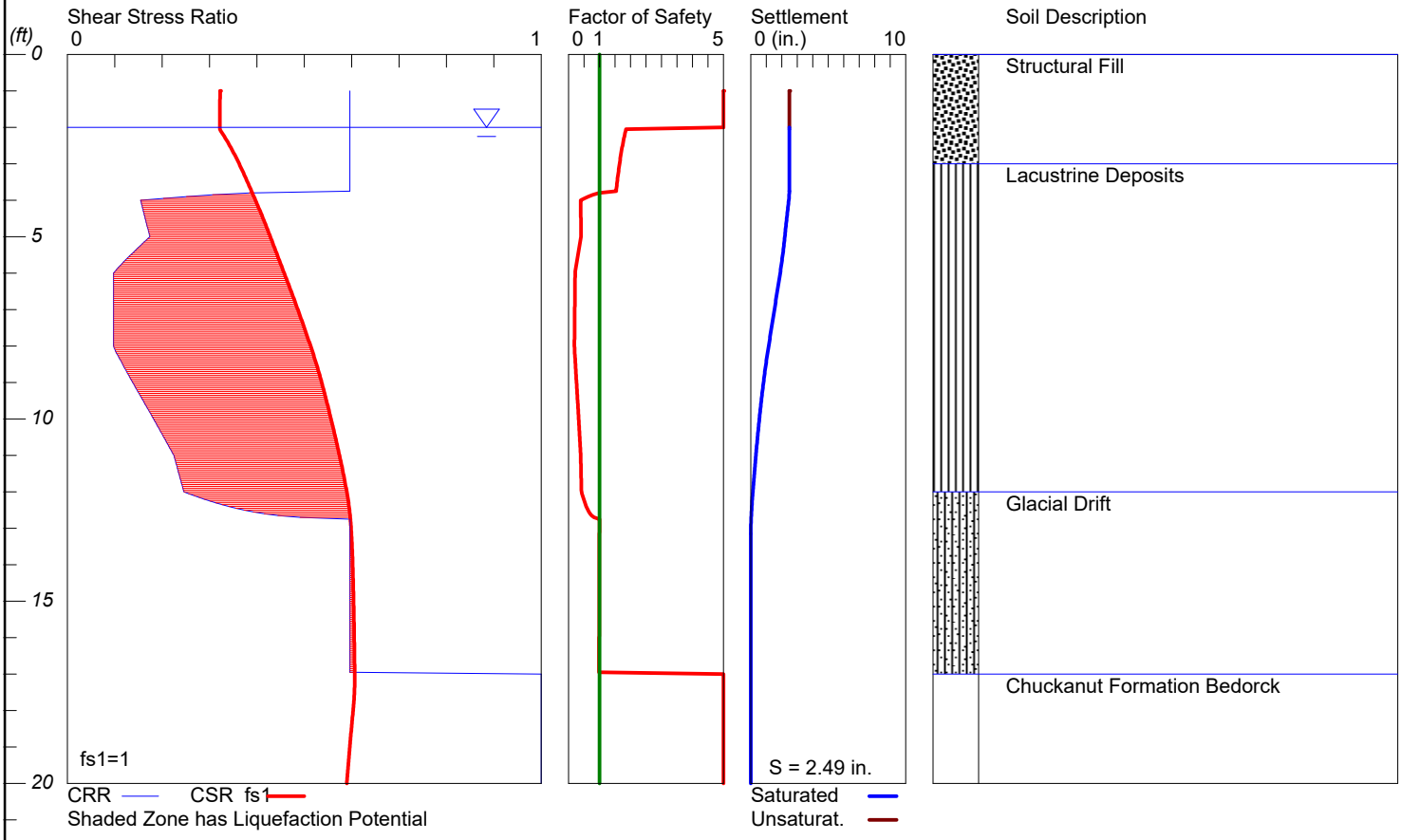
SVCA Barn Improvements

Hole No.=DCP-1 Water Depth=2 ft Surface Elev.=328

Magnitude=7

Ground Improvement of Fill=1 ft

Acceleration=0.497g



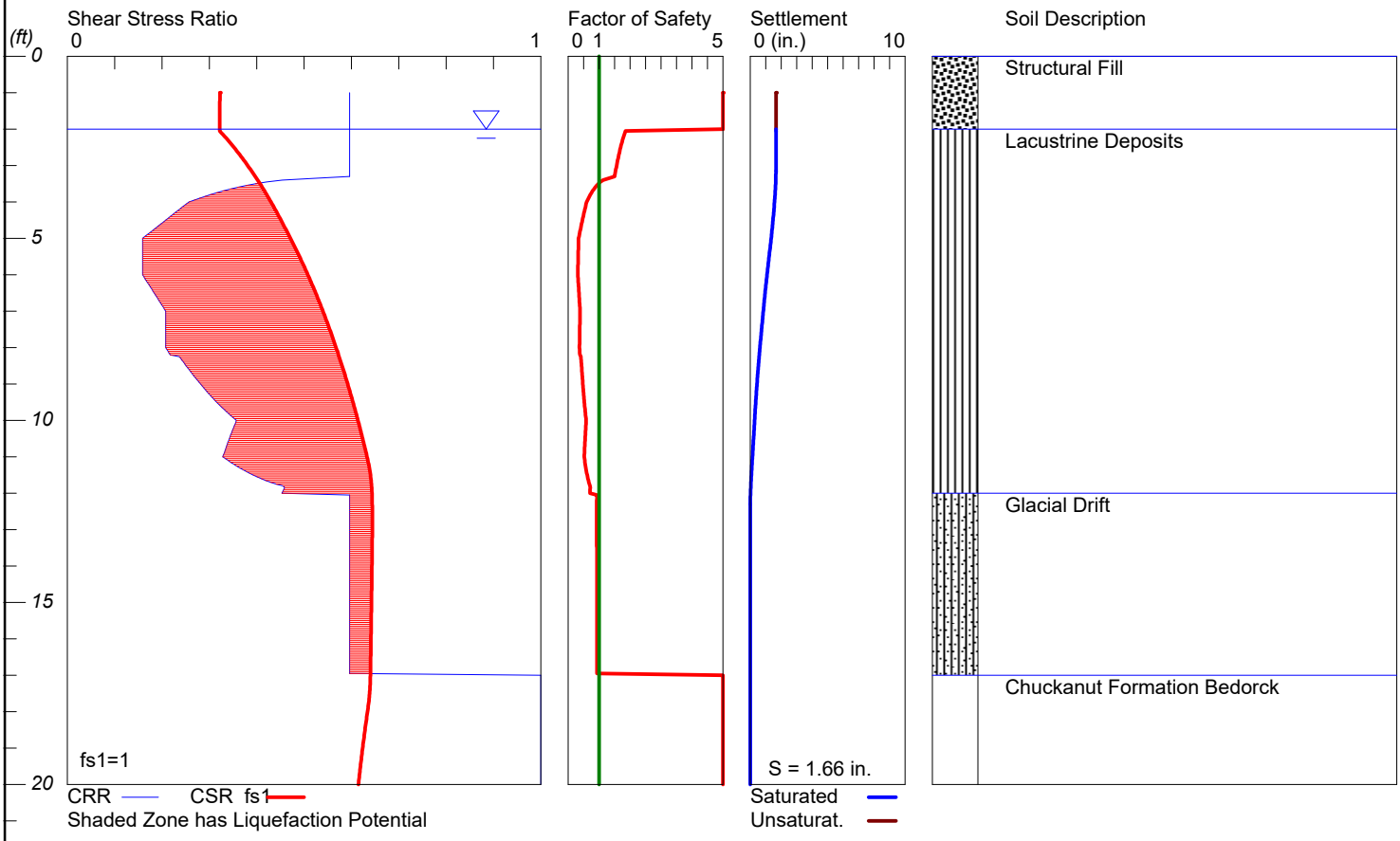
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

SVCA Barn Improvements

Hole No.=DCP-2 Water Depth=2 ft Surface Elev.=328

Magnitude=7
Acceleration=0.497g



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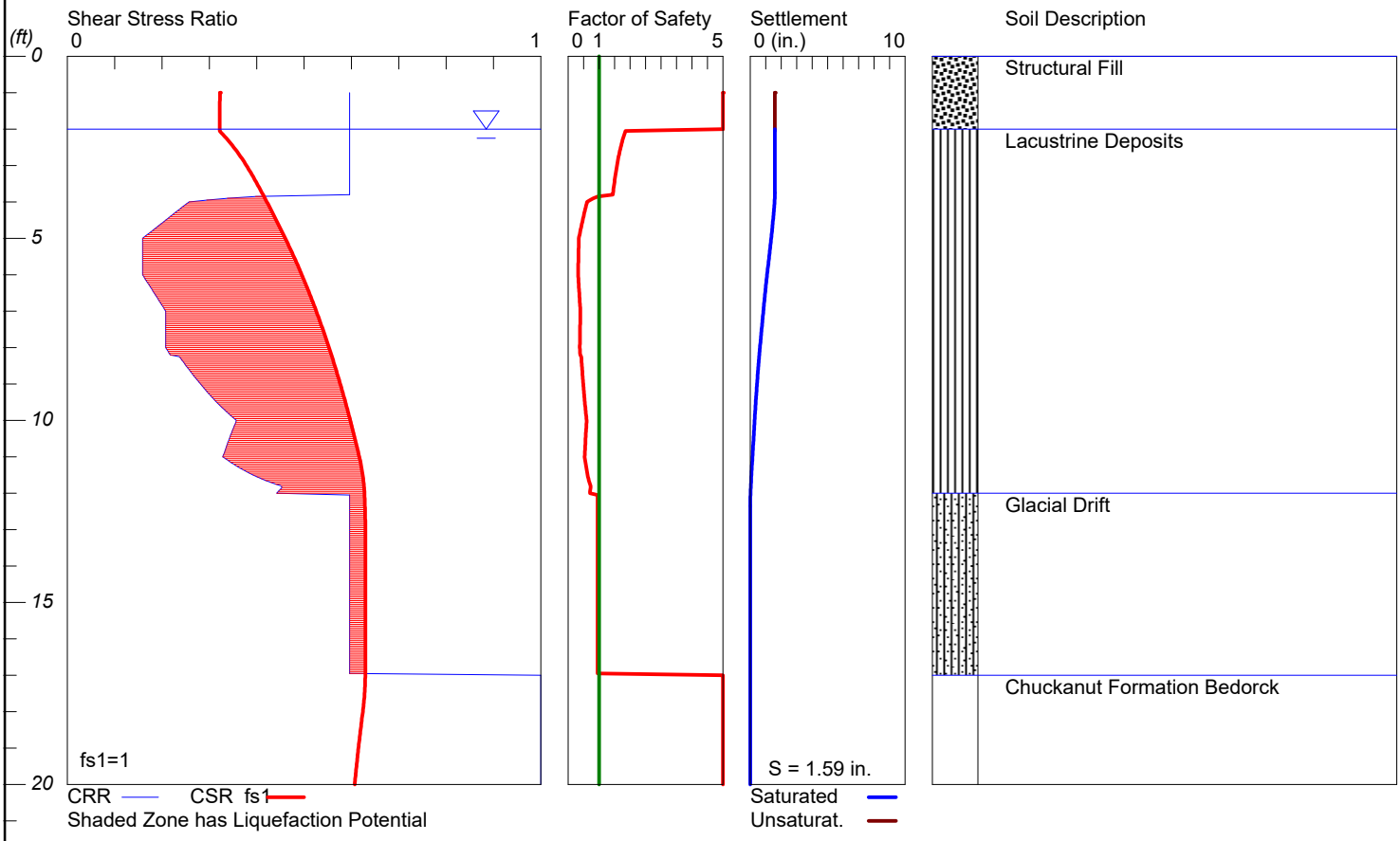
LIQUEFACTION ANALYSIS

SVCA Barn Improvements

Hole No.=DCP-2 Water Depth=2 ft Surface Elev.=328

Magnitude=7
Acceleration=0.497g



LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

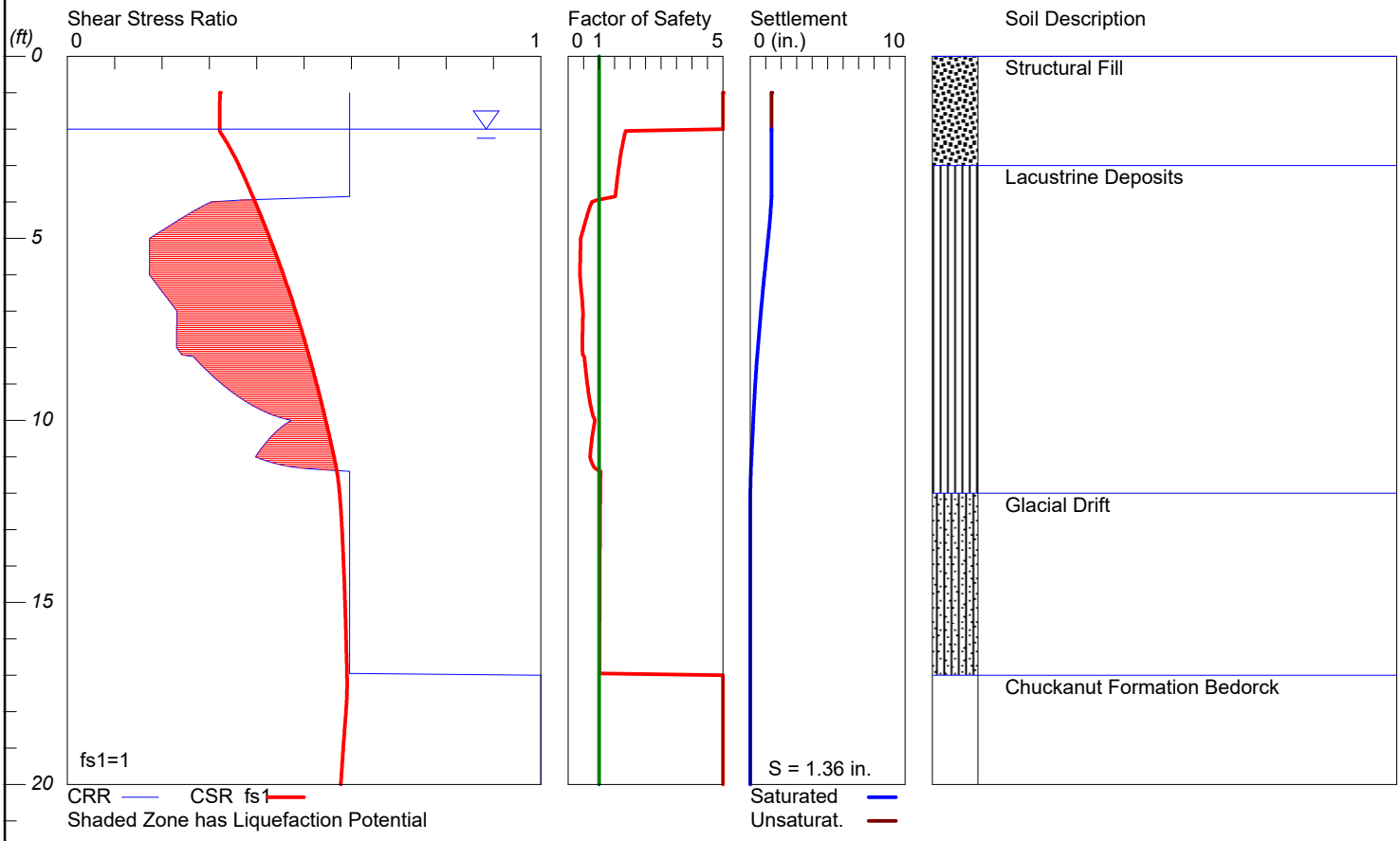
SVCA Barn Improvements

Hole No.=DCP-2 Water Depth=2 ft Surface Elev.=328

Magnitude=7

Ground Improvement of Fill=1 ft

Acceleration=0.497g



LiquefyPro CivilTech Software USA www.civiltech.com

Appendix A: Photographs of Site Conditions

Photo 1: Existing conditions at the barn facing S on March 27, 2026.

Photo 2: The N side of the barn with TP-1 in progress on March 27, 2026.

Photo 3: The S side of the barn, facing W on March 27, 2026.

Photo 4: Test location TP-4 in progress on the W side of the barn. Facing S on March 27, 2026.

Photo 5: Test location DCP-1 in progress adjacent to TP-1. Facing SE on April 10, 2026.

Photo 6: Test location DCP-2 in progress on the S side of the barn. Facing S on April 10, 2026.

Photo 7: Test location TP-7 in progress N of the apshalt pavement and barn facility. Facing W on April 16, 2026.

Photo 8: Test location TP-8 in progress N of the apshalt pavement and barn facility. Facing W on April 16, 2026.

Sudden Valley Community Association

Barn 6 Demolition and Site Work Preparation

PNW Estimate - Bid Package, Permitting, and Construction Management

Task	Description	Hours	Estimated Cost
Design Oversight	Previously Submitted.		
	Total Estimated Design Oversight Hours	0	**$ -**
Permitting	Previously Submitted.		
	Total Estimated Permitting Cost	0	**$ -**
Contractor Bids			
	Prepare and issue demolition bid package.	6	
	Total Estimated Bid Package Hours	6	**$ 810.00**
Construction Management			
	Issue contract, and contract closeout with demolition contractor.	4	
	Building demolition coordination and oversight.	20	
	Site work coordination and oversight - 10 days assumed at 4 hours on Average	40	
	Total Estimated Construction Management Hours	64	**$ 8,640.00**
	Total Estimated		**$ 9,450.00**

PNW SERVICES, INC.

September 9, 2026

Sudden Valley Community Association
Attn: Jo Anne Jensen
1850 Lake Whatcom Blvd
Bellingham, WA 98229

RE: Contract Award
Barn 6 Demolition & Site Work Preparation

PNW issued a bid package to 8 contractors on August 20th, 2026, for demolition of Barn 6 and completing site work to prepare for a new structure's foundation. The bid package is attached for reference. The project is split into 2 phases. Phase 1 will remove the structure in 2026 when the demolition permit is received from Whatcom County. Phase 2 mobilizes to the site June 1st, 2027, and will remove the concrete foundation and complete the site work. Quotes were requested from:

- Western Refinery Services (WRS) – Quote Received
- RAM Construction General Contractors, LLC – Quote Received
- Stremler Gravel, Inc. – Quote Received
- Strider Construction Co., Inc. – Quote Received
- Premium Services Inc. – Quote Received
- Tiger Construction – No Quote
- Dirt Works Bellingham – No Quote
- Granite Construction – No Quote

Attached is the bid tabulation. PNW recommends contract award to WRS with a bid amount of $375,991.90.

Please let me know if you have any questions, or if you would like any further information.

Sincerely,

Tyler Andrews
President

September 8, 2026 - Bid Tabulation

Project: Barn 6 Demo & Site Prep

				WRS		RAM Construction		Stremler Gravel		Strider Construction		Premium Services Inc.	
Item #	**Description**	**Quantity**	**Unit**	**Unit Price**	**Total**	**Unit Price**	**Total**	**Unit Price**	**Total**	**Unit Price**	**Total**	**Unit Price**	**Total**
	Schedule A - Building Demo												
1	Mobilization	1	LS	$ 5,000.00	$ 5,000.00	$ 7,250.00	$ 7,250.00	$ 12,850.00	$ 12,850.00	$ 25,000.00	$ 25,000.00	$21,000.00	$ 21,000.00
2	Traffic & Pedestrian Control	1	LS	$ 3,000.00	$ 3,000.00	$ 5,750.00	$ 5,750.00	$ 6,550.00	$ 6,550.00	$ 5,000.00	$ 5,000.00	$ 9,000.00	$ 9,000.00
3	Temporary Erosion & Sediment Control	1	LS	$ 1,500.00	$ 1,500.00	$ 3,000.00	$ 3,000.00	$ 3,300.00	$ 3,300.00	$ 4,000.00	$ 4,000.00	$ 3,320.00	$ 3,320.00
4	Building Demolition & Disposal w/out Foundation	1	LS	$ 35,000.00	$ 35,000.00	$ 68,500.00	$ 68,500.00	$111,450.00	$ 111,450.00	$105,000.00	$ 105,000.00	$48,000.00	$ 48,000.00
5	Minor Changes	1	EST.	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00	$10,000.00	$ 10,000.00
	Subtotal				**$ 54,500.00**		**$ 94,500.00**		**$ 144,150.00**		**$ 149,000.00**		**$ 91,320.00**
	WSST @ 8.9%				**$ 4,850.50**		**$ 8,410.50**		**$ 12,829.35**		**$ 13,261.00**		**$ 8,127.48**
	Total w/ WSST				**$ 59,350.50**		**$102,910.50**		**$ 156,979.35**		**$ 162,261.00**		**$ 99,447.48**

Item #	**Description**	**Quantity**	**Unit**	**Unit Price**	**Total**	**Unit Price**	**Total**	**Unit Price**	**Total**	**Unit Price**	**Total**	**Unit Price**	**Total**
	Schedule B - Site Prep												
1	Mobilization	1	LS	$ 5,000.00	$ 5,000.00	$ 17,500.00	$ 17,500.00	$ 14,475.00	$ 14,475.00	$ 45,000.00	$ 45,000.00	$40,000.00	$ 40,000.00
2	Survey	1	LS	$ 5,000.00	$ 5,000.00	$ 5,500.00	$ 5,500.00	$ 2,000.00	$ 2,000.00	$ 6,000.00	$ 6,000.00	$ 4,400.00	$ 4,400.00
3	Traffic & Pedestrian Control	1	LS	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 6,750.00	$ 6,750.00	$ 3,000.00	$ 3,000.00	$ 5,000.00	$ 5,000.00
4	Temporary Erosion & Sediment Control	1	LS	$ 1,500.00	$ 1,500.00	$ 5,500.00	$ 5,500.00	$ 1,600.00	$ 1,600.00	$ 700.00	$ 700.00	$ 3,000.00	$ 3,000.00
5	Concrete Foundation Removal	1	LS	$ 43,000.00	$ 43,000.00	$ 32,000.00	$ 32,000.00	$ 53,775.00	$ 53,775.00	$ 95,000.00	$ 95,000.00	$50,000.00	$ 50,000.00
6	Sawcut & Asphalt Removal	1000	SF	$ 3.00	$ 3,000.00	$ 1.50	$ 1,500.00	$ 2.15	$ 2,150.00	$ 3.00	$ 3,000.00	$ 4,000.00	$ 4,000,000.00
7	Utility Work Allowance	1	EST.	$ 15,000.00	$ 15,000.00	$ 15,000.00	$ 15,000.00	$ 15,000.00	$ 15,000.00	$ 15,000.00	$ 15,000.00	$15,000.00	$ 15,000.00
8	Phase 1 to Phase 2 Excavation/Backfill Incidentals	1	LS	$ 3,500.00	$ 3,500.00	$ 100.00	$ 100.00	$ 1,650.00	$ 1,650.00	$ 2,500.00	$ 2,500.00	$ 6,000.00	$ 6,000.00
9	Excavation & Embankment of Existing Structural Material	1350	CY	$ 30.00	$ 40,500.00	$ 19.00	$ 25,650.00	$ 12.15	$ 16,402.50	$ 18.00	$ 24,300.00	$ 25.00	$ 33,750.00
10	Excavation & Export Unsuitable, Import Gravel Backfill for Walls	1180	TONS	$ 42.00	$ 49,560.00	$ 36.50	$ 43,070.00	$ 41.25	$ 48,675.00	$ 57.00	$ 67,260.00	$ 55.00	$ 64,900.00
11	Permeatex 2315 Geotextile Fabric or Equivalent	1767	SY	$ 1.35	$ 2,385.45	$ 1.00	$ 1,767.00	$ 1.45	$ 2,562.15	$ 2.00	$ 3,534.00	$ 3.00	$ 5,301.00
12	Quarry Spalls Import & Place	800	TONS	$ 55.00	$ 44,000.00	$ 41.50	$ 33,200.00	$ 46.10	$ 36,880.00	$ 55.00	$ 44,000.00	$ 48.00	$ 38,400.00
13	Tencate Mirafi RS280I Fabric or Equivalent	1767	SY	$ 6.00	$ 10,602.00	$ 5.00	$ 8,835.00	$ 5.05	$ 8,923.35	$ 5.00	$ 8,835.00	$ 8.00	$ 14,136.00
14	8" Crushed Surfacing Base Course	688	TONS	$ 49.00	$ 33,712.00	$ 38.00	$ 26,144.00	$ 37.30	$ 25,662.40	$ 50.00	$ 34,400.00	$ 40.00	$ 27,520.00
15	Temporary Storm Drainage	1	LS	$ 775.00	$ 775.00	$ 2,800.00	$ 2,800.00	$ 1,650.00	$ 1,650.00	$ 2,500.00	$ 2,500.00	$10,000.00	$ 10,000.00
16	12" Storm Drain, PVC SDR35 Pipe Incl. Backfill	118	LF	$ 48.00	$ 5,664.00	$ 67.00	$ 7,906.00	$ 81.00	$ 9,558.00	$ 73.00	$ 8,614.00	$ 120.00	$ 14,160.00
17	4" PVC SDR35 Perforated Pipe Incl. Fabric & Backfill	140	LF	$ 13.00	$ 1,820.00	$ 27.00	$ 3,780.00	$ 16.15	$ 2,261.00	$ 40.00	$ 5,600.00	$ 44.00	$ 6,160.00

18	4" PVC SDR35 Cleanout	2	EA	$ 480.00	$ 960.00	$ 425.00	$ 850.00	$ 220.00	$ 440.00	$ 1,150.00	$ 2,300.00	$ 1,000.00	$ 2,000.00
19	Catch Basin Type 1 Remove & Replace	3	EA	$ 595.00	$ 1,785.00	$ 1,500.00	$ 4,500.00	$ 1,725.00	$ 5,175.00	$ 2,700.00	$ 8,100.00	$ 1,500.00	$ 4,500.00
20	Minor Changes	1	EST.	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00	$20,000.00	$ 20,000.00
	Subtotal				**$290,763.45**		**$258,602.00**		**$ 275,589.40**		**$ 399,643.00**		**$ 4,364,227.00**
	WSST @ 8.9%				**$ 25,877.95**		**$ 23,015.58**		**$ 24,527.46**		**$ 35,568.23**		**$ 388,416.20**
	Total w/ WSST				**$316,641.40**		**$281,617.58**		**$ 300,116.86**		**$ 435,211.23**		**$ 4,752,643.20**
	Total Schedule A & B w/ WSST				**$375,991.90**		**$384,528.08**		**$ 457,096.21**		**$ 597,472.23**		**$ 4,852,090.68**

Engineer's Estimate **$ 504,121.03**

August 20, 2026

RE: Sudden Valley Community Association (SVCA)
Bid Form - Barn 6 Demolition & Site Work

Bid submissions are due by 5:00pm on Tuesday, 9-8-26. Email bid submissions to tylera@pnwcivil.com.

Firm Name: Western Refinery Services

Schedule A - Building Demolition

Item #	Description	Quantity	Unit	Unit Price	Total
1	Mobilization	1	LS	$5,000.00	$5,000.00
2	Traffic & Pedestrian Control	1	LS	$3,000.00	$3,000.00
3	Temporary Erosion & Sediment Control	1	LS	$1,500.00	$1,500.00
4	Building Demolition & Disposal w/out Foundation	1	LS	$35,000.00	$35,000.00
5	Minor Changes	1	EST.	$ 10,000.00	$ 10,000.00
	Schedule A Subtotal				$54,500.00
	WSST @ 8.9%				$4,850.50
	Schedule A Total w/ WSST				$59,350.50

Schedule B - Foundation Removal & Site Prep

Item #	Description	Quantity	Unit	Unit Price	Total
1	Mobilization	1	LS	$5,000.00	$5,000.00
2	Survey	1	LS	$5,000.00	$5,000.00
3	Traffic & Pedestrian Control	1	LS	$3,000.00	$3,000.00
4	Temporary Erosion & Sediment Control	1	LS	$1,500.00	$1,500.00
5	Concrete Foundation Removal	1	LS	$43,000.00	$43,000.00
6	Sawcut & Asphalt Removal	1000	SF	$3.00	$3,000.00
7	Utility Work Allowance	1	EST.	$ 15,000.00	$ 15,000.00
8	Phase 1 to Phase 2 Excavation/Backfill Incidentals	1	LS	$3,500.00	$3,500.00
9	Excavation & Embankment of Existing Structural Material	1350	CY	$30.00	$40,500.00
10	Excavation & Export Unsuitable, Import Gravel Backfill for Walls	1180	TONS	$42.00	$49,560.00
11	Permeatex 2315 Geotextile Fabric or Equivalent	1767	SY	$1.35	$2,385.45
12	Quarry Spalls Import & Place	800	TONS	$55.00	$44,000.00
13	Tencate Mirafi RS280I Fabric or Equivalent	1767	SY	$6.00	$10,602.00

14	8" Crushed Surfacing Base Course	688	TONS	$49.00	$33,712.00	
15	Temporary Storm Drainage	1	LS	$775.00	$ 775.00	
16	12" Storm Drain, PVC SDR35 Pipe Incl. Backfill	118	LF	$48.00	$5,664.00	
17	4" PVC SDR35 Perforated Pipe Incl. Fabric & Backfill	140	LF	$13.00	$1,820.00	
18	4" PVC SDR35 Cleanout	2	EA	$480.00	$ 960.00	
19	Catch Basin Type 1 Remove & Replace	3	EA	$595.00	$1,785.00	
20	Minor Changes	1	EST.	$ 20,000.00	$ 20,000.00	
	Schedule B Subtotal				~~$290,663.45~~	$290,763.45
	WSST @ 8.9%				~~$ 25,869.05~~	$25,877.95
	Schedule B Total w/ WSST				~~$316,532.50~~	$316,641.40

Schedule A & B Total w/ WSST ~~$375,883.00~~

$375,991.90

Acknowledgement of Addendums: _____

By: Corbin Benson Date: 9/8/26

Signature of Authorized Person

Corbin Benson, Project Manager

Print Name & Title

PNW SERVICES, INC.

August 20, 2026

Attn: Bidders

RE: Sudden Valley Community Association (SVCA)
Quote Request – Barn 6 Demolition & Site Work

SVCA is requesting quotes for the Barn 6 Demolition & Site Work Project. Bid proposals are due by 5:00pm on Tuesday, 9-8-26. Contractor's bid submittal only requires the bid form attached to this quote request to be submitted via email. Bids shall be emailed to tylera@pnwcivil.com. The project includes removal of the existing Barn 6 building, and site work to prepare for a new building. Barn 6 is located at 10 Barn View Ct, Bellingham, WA 98229. The project is split into Schedule A and B. SVCA has applied for a demolition permit with Whatcom County, and that is expected to be issued October, 2026. Schedule A mobilizes to the site, and removes the existing structure leaving the foundation in place. This work is anticipated to be completed in 2026 once the demolition permit is received. Schedule B mobilizes to the site 6-1-27 to remove the foundation and complete the site work.

Summary of Work:

1. The project will go in front of SVCA's Finance Committee on Wednesday, 9-16-26, and then the Board on Thursday, 9-24-26, for contract award. NTP is anticipated 10-5-26, or upon contract execution.
2. All work is assumed to be completed in 2 mobilizations.
   a. Schedule A is to be completed in 2026. Contractor will be allowed 15 working days to complete Schedule A. Work can't begin until the demolition permit is received which is anticipated in October. All work under Schedule A is to be completed by Friday, 12-18-26. Liquidated damages shall be assessed at $200.00 per calendar day for any days incurred after 15 working days or 12-18-26. If the demolition permit is delayed from issuance in October, additional days will be added and a schedule mutually agreed to with the contractor.
   b. Schedule B is to be completed in 2027. Contractor shall mobilize to the site, and begin foundation removal on Tuesday, 6-1-27. Contractor will be allowed 20 working days to complete Schedule B. Liquidated damages shall be assessed at $1,000.00 per calendar day for any days incurred after 20 working days.
   c. Contractor shall follow the Lake Whatcom Watershed soil disturbance requirement to not exceed 500SF from October 1st thru May 31st.
3. SVCA work hours are 8:00am – 7:00pm Monday through Friday, and 8:00am – 6:00pm Saturday.
4. Contractor shall provide a schedule to SVCA within 2 weeks of contract execution.
5. SVCA doesn't have construction drawings for Barn 6. In 2014, Kingworks prepared an assessment of Barn 6, and that report is attached with some information for contractor's review. Contractor shall confirm any measurements shown, and determine disposal quantities.
6. Staging:
   - See attached map.

PNW SERVICES, INC.

- Limited staging is available around Barn 6.
    - Contractor shall install high visibility temporary construction fencing around the staging area shown. Access outside of the identified staging area shall be maintained for vehicles and pedestrians.
    - Barn 8 is on the south side of Barn 6 and houses SVCA's gym, pool, and functions as a regular gathering place. Contractor shall expect the parking lot, drive lanes, and pedestrian access to be regularly used outside of the staging are shown.
- Overflow parking and material staging is assumed in the Gate 5 Staging Area. This is located across from the Gate 5 entrance at the intersection of Lake Louis Road and Tumbling Water Drive. Truck and trailer access is available at this staging area.

7. If contractor needs water, a hydrant is available with a water meter located at Area Z (SVCA's Maintenance Shop). Water fees will be paid direct by SVCA.
8. Vactor trucks may dump onsite at Area Z in SVCA's pit.
9. Traffic / pedestrian control per MUTCD and WSDOT standards.
10. Force account work to receive 15% markup.
11. Owner will hire a testing agency.
12. Contractor shall provide Performance and Payment Bonds. Bid bonds are not required.
13. This is a private project, and prevailing wages are not applicable.
14. Contractor shall warranty work for 1 year from final completion.

Bid Item Clarifications:

Schedule A:

- Item 2 – Traffic & Pedestrian Control
    - Contractor shall install high visibility construction fencing around Barn 6 per the red outline on the Staging Map.
    - Access for pedestrian and vehicles shall be maintained at all times outside of the staging area.
- Item 4 – Building Demolition & Disposal without Foundation
    - Contractor shall remove and dispose of the existing structure. All items currently inside Barn 6 shall be disposed of except the items labeled that SVCA will relocate prior to demolition starting.
    - Asbestos has been abated per attached report, and a metals report is attached for disposal reference.
    - Concrete foundation shall be left until 2027 following Lake Whatcom's Watershed soil disturbance requirements.
    - Upon completion of Schedule A, contractor shall leave the site in a safe manner until work resumes under Schedule B. All utilities and building components shall be cut flush with top of concrete or grade. Construction fencing shall be moved into perimeter of building to open asphalt drive lane around Barn 6.
    - SVCA's maintenance staff will maintain the construction fencing while contractor is demobilized between Schedule A and Schedule B.

Schedule B:

- Item 2 – Survey

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  - Professional survey is required.
  - Contractor shall topo existing grade after removal of foundation.
  - Contractor shall topo subgrade after excavating each phase.
- Item 3 – Traffic & Pedestrian Control
  - Contractor shall install high visibility construction fencing around Barn 6 per the red outline on the Staging Map.
  - Access for pedestrian and vehicles shall be maintained at all times outside of the staging area.
- Item 5 – Concrete Foundation Removal
  - Concrete foundation, and any footings, shall be removed and disposed of.
  - The center of the building used to be an ice rink. The concrete slab in this section is approximately 4.5" thick, contains steel tubing at approximately 6" on-center, 3" rigid insulation, and 6" of drain rock. All concrete, insulation, and drain rock shall be removed under this item.
  - All refrigerant was removed from the system in 2017.
  - Note there is a recessed concrete vault, visible on the inside, that used to house the ice rink cooling equipment.
  - It is assumed the column concrete footings are similar to the Library Barn. These were approximately 3'x3'x1' concrete footings with 12"x12"x18" concrete columns.
- Item 6 – Sawcut & Asphalt Removal
  - Asphalt depth varies. Contractor shall assume an average of 4" thick existing asphalt.
- Item 7 – Utility Work Allowance
  - Contractor shall pothole existing utilities with a vactor truck prior to excavating.
  - Existing utilities are on the perimeter of the excavation. Contractor shall vactor excavate around these to expose, and temporarily support during excavation/backfill.
  - Existing utility services inside the building shall be cut and capped at the perimeter of the excavation. Contractor shall install a 4x4 post marker at each capped utility location.
  - All work described above will be paid under force account.
- Item 8 – Phase 1 to Phase 2 Excavation / Backfill Incidentals
  - This item covers all incidentals relating to excavation and backfilling in 2 phases.
  - Excavation and backfill is covered under items 9 through 12.
- Item 9 – Excavation & Embankment of Existing Structural Material
  - SVCA will hire a testing agency. Native material for embankment is considered structural backfill and 95% density compaction is required. As noted in the soils report, native material is moisture sensitive. Contractor shall cover soil as needed to protect from moisture. Weather days will be added if needed, but no standby expenses due to weather delays.
  - Phase 1 excavation shall be stockpiled within phase 2 limits shown on Drawing D5. Once excavation is complete, contractor shall install the quarry

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spall section shown with fabric above and below, and then backfill with suitable native material.
    - Phase 2 excavation shall be stockpiled within phase 1 limits. CSBC shall not be placed until excavation/embankment in both phases is complete to keep CSBC from becoming contaminated.
- Item 10 – Excavation & Export Unsuitable, Import Gravel Backfill for Walls
    - Unsuitable excavation shall be hauled offsite for disposal. Disposal is incidental to import of Gravel Backfill for walls.
    - The site is intended to be a balanced site except for addition of quarry spall and CSBC layers.
- Item 15 – Temporary Storm Drainage
    - During excavation/backfill, storm drainage infrastructure on the south side of the building will be impacted. The storm drainage needs to remain functional during construction. A temporary system will need to be in place if a rain event is forecasted.
    - Items 16 and 19 replace the existing drainage infrastructure removed for excavation.
- Items 16 – 18 – Storm Drainage Related
    - Excavation and trench backfill is incidental to each item. This includes fabric for Item 17.

Attachments:

1. Bid Form – 2 Pages
2. Staging Map – 1 Page
3. Drawings – 6 Pages
4. Soils Report – 69 Pages
5. Interior Potholing – 2 Pages
6. Kingworks 2014 Report – 16 Pages
    a. Barn 6 is called Ice Barn in this report. The report also contains information on the Library Barn. This was a structure previously removed, and Library Barn information isn't relevant to Barn 6.
7. Permit – Northwest Clean Air – 1 Page
8. Permit – Demolition – To be provided once received from Whatcom County.
9. Asbestos Abatement Confirmation – 1 Page
10. Total Metal Analysis – 4 Pages
11. SVCA Standard Contract – 12 Pages

Questions shall be directed to Tyler Andrews at tylera@pnwcivil.com or 360-739-2072. All questions shall be submitted by 5:00pm on Monday, 8-31-26. Contractors are encouraged to independently visit the site; no formal pre-bid is scheduled. For access inside the building please schedule with Matt Allbaugh, SVCA's Maintenance & Facilities Manager, at matt.allbaugh@suddenvalley.com, and cc Tyler Andrews at tylera@pnwcivil.com.

August 20, 2026

RE: Sudden Valley Community Association (SVCA)
Bid Form - Barn 6 Demolition & Site Work

Bid submissions are due by 5:00pm on Tuesday, 9-8-26. Email bid submissions to tylera@pnwcivil.com.

Firm Name: _____

Schedule A - Building Demolition

Item #	Description	Quantity	Unit	Unit Price	Total
1	Mobilization	1	LS		$ -
2	Traffic & Pedestrian Control	1	LS		$ -
3	Temporary Erosion & Sediment Control	1	LS		$ -
4	Building Demolition & Disposal w/out Foundation	1	LS		$ -
5	Minor Changes	1	EST.	$ 10,000.00	$ 10,000.00
	Schedule A Subtotal				**$**
	WSST @ 8.9%				**$**
	Schedule A Total w/ WSST				**$**

Schedule B - Foundation Removal & Site Prep

Item #	Description	Quantity	Unit	Unit Price	Total
1	Mobilization	1	LS		$ -
2	Survey	1	LS		$ -
3	Traffic & Pedestrian Control	1	LS		$ -
4	Temporary Erosion & Sediment Control	1	LS		$ -
5	Concrete Foundation Removal	1	LS		$ -
6	Sawcut & Asphalt Removal	1000	SF		$ -
7	Utility Work Allowance	1	EST.	$ 15,000.00	$ 15,000.00
8	Phase 1 to Phase 2 Excavation/Backfill Incidentals	1	LS		$ -
9	Excavation & Embankment of Existing Structural Material	1350	CY		$ -
10	Excavation & Export Unsuitable, Import Gravel Backfill for Walls	1180	TONS		$ -
11	Permeatex 2315 Geotextile Fabric or Equivalent	1767	SY		$ -
12	Quarry Spalls Import & Place	800	TONS		$ -
13	Tencate Mirafi RS280I Fabric or Equivalent	1767	SY		$ -

14	8" Crushed Surfacing Base Course	688	TONS		$ -
15	Temporary Storm Drainage	1	LS		$ -
16	12" Storm Drain, PVC SDR35 Pipe Incl. Backfill	118	LF		$ -
17	4" PVC SDR35 Perforated Pipe Incl. Fabric & Backfill	140	LF		$ -
18	4" PVC SDR35 Cleanout	2	EA		$ -
19	Catch Basin Type 1 Remove & Replace	3	EA		$ -
20	Minor Changes	1	EST.	$ 20,000.00	$ 20,000.00
	Schedule B Subtotal				**$**
	WSST @ 8.9%				**$**
	Schedule B Total w/ WSST				**$**

Schedule A & B Total w/ WSST **$**

Acknowledgement of Addendums: _____

By: _____ Date: _____

Signature of Authorized Person

_____

Print Name & Title

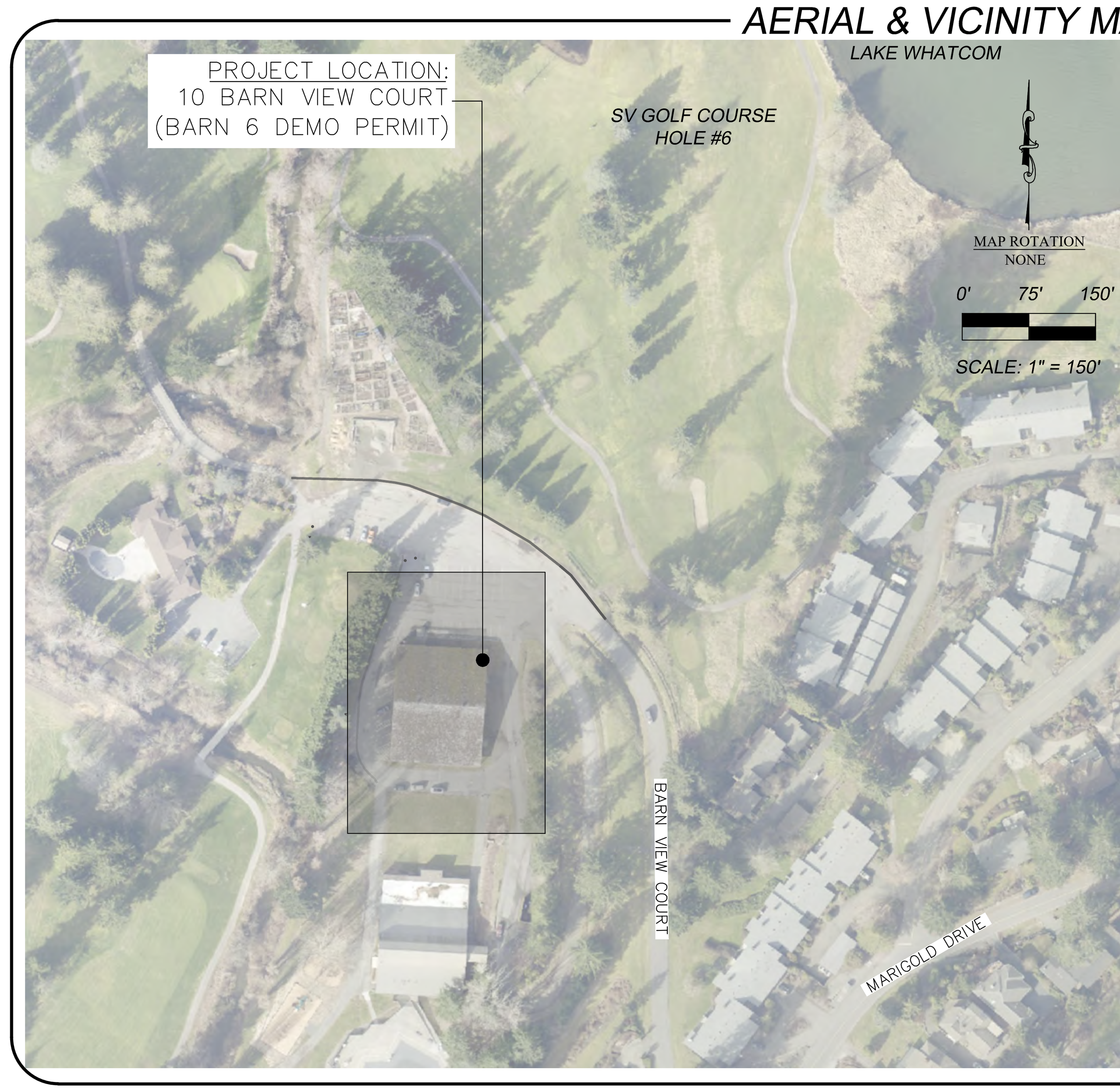
Red Box = Contractor Staging Area - Maintain Pedestrian & Vehicle Access Outside of Red Box

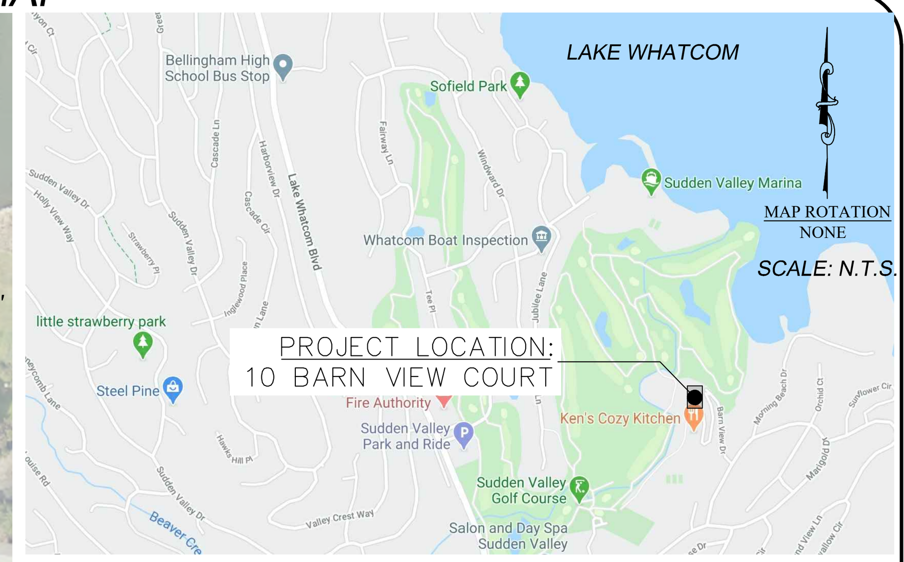
SUDDEN VALLEY COMMUNITY ASSOCIATION (SVCA)

SITUATE IN A PORTION OF THE NE 1/4, SW 1/4 SECTION 5, TOWNSHIP 37 NORTH, RANGE 4 EAST OF W.M. SUDDEN VALLEY, WHATCOM COUNTY, WASHINGTON

10 BARN VIEW COURT (BARN 6) DEMOLITION PERMIT (DEMO-XXXX)

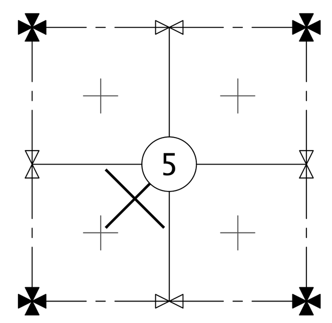
AERIAL & VICINITY MAP





MAPPING/DATA/GIS CREDITS:

- BARN 6 PROJECTED COORDINATE SYSTEM: NAD_1983_HARN_STATEPLANE_WASHINGTON_NORTH_FIPS_4601_FEET
- PARCELS: WASHINGTON GEOSPATIAL OPEN DATA PORTAL [2024]
- LIDAR: WA DNR, NV5 [2023]
- AIR PHOTO: WHATCOM COUNTY [2024]
- PARCEL #: 370408 318457



NE 1/4, SW 1/4 SECTION 5
T. 37 N., R. 4 E. OF W.M.

SURVEY NOTES

1. THIS SURVEY WAS PREPARED IN ACCORDANCE WITH WAC 332–130–145 IN MAY 2026 AT THE REQUEST OF TYLER ANDREWS.
2. FIELD SURVEY PERFORMED WITH TRIMBLE R8–3 GNSS RECEIVER AND LEICA TCRP 1201+ ROBOTIC TOTAL STATION AND MEETS OR EXCEEDS THE STANDARDS SET FORTH WITHIN WAC 332–130–090.
3. BASIS OF BEARINGS PER SUDDEN VALLEY COMMUNITY ASSOCIATION BARN 6 DEMO EXISTING CONDITIONS MAP DATED 10–10–2017 [NAD83(2007)]. INVERSE BETWEEN P–TEK#313 AND P–TEK#316 N07°24'10"E.

P–TEK#313	P–TEK#316
N=629292.7011	N=629529.5055
E=1280730.0428	E=1280760.8099

4. VERTICAL DATUM: ASSUMED (OLD COB)

P–TEK#313	P–TEK#10	P–TEK#20
N=629292.7011	N=629270.8577	N=629583.9857
E=1280730.0428	E=1280895.7434	E=1280906.5802
EL.=329.94	EL.=338.97	EL.=325.97

5. THIS SURVEY WAS COMPLETED WITHOUT THE BENEFIT OF A TITLE REPORT AND DOES NOT PURPORT TO SHOW ANY OR ALL EASEMENTS.
6. POWERTEK SURVEYING ASSUMES NO LIABILITY FOR ANY SUBSURFACE CONDITIONS OR FEATURES THAT MAY EXIST THAT ARE UNDETECTABLE AND/OR NOT VISIBLE.
7. CONTOUR INTERVALS ARE SHOWN AT 1 FOOT AND ARE COMPUTER GENERATED FROM GROUND FIELD TOPOGRAPHY GATHERED FOR THIS SURVEY AND MEET OR EXCEED NATIONAL MAPPING STANDARDS UTILIZING ELECTRONIC DATA COLLECTION.
8. THE TOPOGRAPHIC ELEMENTS SHOWN ON THIS MAP ARE INTENDED TO SUPPORT PLANNING AND DESIGN. UTILITY LOCATIONS DERIVED FROM ABOVE GROUND APPURTENANCES AND/OR UTILITY PAINT MARKS PER WASHINGTON STATE ONE–CALL UNDERGROUND LOCATES (811).
9. OCCUPATIONAL INDICATORS AND EXISTING FENCE LINE NOTE: THIS SURVEY MAY DEPICT EXISTING FENCE LINES AND/OR ENCROACHMENTS IN ACCORDANCE WITH WAC CH 332.130. THESE OCCUPATIONAL INDICATORS MAY INDICATE A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE OWNERSHIP. THIS IS NOT A BOUNDARY SURVEY AND THE LEGAL RESOLUTION OF OWNERSHIP BASED UPON UNWRITTEN TITLE CLAIMS HAS NOT BEEN RESOLVED BY THIS SURVEY.

GENERAL CONSTRUCTION NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
2. NORMAL WORKING HOURS ARE 8:00 AM. TO 7:00 PM., MONDAY THROUGH FRIDAY. WORK DURING HOLIDAYS, WEEKENDS, AND OUTSIDE THE NORMAL WORK HOURS REQUIRES PRIOR ARRANGEMENTS AND APPROVAL.
3. THE CONTRACTOR SHALL CONTACT UTILITY LOCATION SERVICE 48 HOURS PRIOR TO STARTING WORK AT (800) 424–5555 OR 811.
4. A COPY OF THE DRAWINGS MUST BE ON THE JOBS SITE WHENEVER WORK IS IN PROCESS.
5. ALL TESTING REQUIRED FOR THE WORK SHALL BE THE RESPONSIBILITY OF THE OWNER.
6. THE CONTRACTOR SHALL RESTORE ALL PRIVATE AND PUBLIC PROPERTY DISTURBED BY THE WORK IMMEDIATELY AFTER CONSTRUCTION. THE CONTRACTOR SHALL NOT LEAVE ANY PART OF THE ROAD USED BY OTHERS UN–PASSABLE WITHOUT NOTIFICATIONS AND AGREEMENT OF OTHER USERS.
7. ALL CUT AND FILL SLOPES SHALL BE MULCHED AND SEEDED FOR EROSION CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SLOPE EROSION UNTIL VEGETATION IS FIRMLY ESTABLISHED.
8. CONTRACTOR SHALL SWEEP AND REMOVE ALL DEBRIS TRACKED ONTO EXISTING ROADS DURING ALL PHASES OF CONSTRUCTION.
9. THE CONTRACTOR SHALL INFORM THE ENGINEER OF RECORD OR REPRESENTATIVE OF UTILITY CONFLICTS AND OBTAIN APPROVAL FOR ANY PROPOSED CHANGES IN PLANS PRIOR TO IMPLEMENTATION.
10. TRAFFIC CONTROL IS TO BE MAINTAINED IN ACCORDANCE WITH WSDOT/APWA STANDARD SPECIFICATIONS.

SHEET INDEX

D1	**COVER SHEET**
D2	**EXISTING CONDITIONS & UAV AERIAL**
D3	**STORWATER POLLUTION PREVENTION PLAN (SWPPP)**
D4	**TEMPORARY EROSION & SEDIMENTATION CONTROL PLAN**
D5	**DEMOLITIONS SITE PLAN**
D6	**TESC AND DEMOLITION DETAILS**

ABBREVIATIONS

1'/1"	ONE FOOT/ONE INCH
AC	ACRE
AF#	AUDITORS FILE NUMBER
APPROX	APPROXIMATE
ASB/AB	AS–BUILT
ASPH	ASPHALT
BLDG	BUILDING
BMP	BEST MANAGEMENT PRACTICE
BNDRY	BOUNDARY
BVCS	BEGINNING OF VERTICAL CURVE STATION
BVCE	BEGINNING OF VERTICAL CURVE ELEVATION
C	COMPACT PARKING STALL
CC	CURB CUT
CB	CATCH BASIN
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CNTRL	CONTROL
CO	CLEANOUT
COR	CORNER
CPP	CORRUGATED POLYETHYLENE PIPE
CONC	CONCRETE
CSTC	CRUSHED SURFACING TOP COURSE
CULV	CULVERT
ø	DIAMETER
DEMO	DEMOLITION
DI	DUCTILE IRON
DWGS	DRAWINGS
E	EAST
EA	EACH
EL/ELEV	ELEVATION
ENC	REVOCABLE ENCROACHMENT PERMIT
EP/EOP	EDGE OF PAVEMENT
ESMT	EASEMENT
EVCS	END OF VERTICAL CURVE STATION
EVCE	END OF VERTICAL CURVE ELEVATION
EX/EXIST	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FFE/FF	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FH	FIRE HYDRANT
FND	FOUND
GND	GROUND
GUTT	GUTTER
HP	HIGH POINT
INV	INVERT
IE/I.E.	INVERT ELEVATION
IRRIG	IRRIGATION
LF	LINEAR FOOT
L.S.	LAND SURVEYOR
MAX	MAXIMUM
MIN	MINIMUM
MON	MONUMENT
NIC	NOT IN CONTRACT
N	NORTH
NO./#	NUMBER
O.C.	ON CENTER
PC	POINT OF CURVATURE
PCL	PARCEL
PERF	PERFORATED
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
POB	POINT OF BEGINNING
PP	POWER POLE
PROP	PROPERTY
K	LENGTH OF VERTICAL CURVE PER PERCENT GRADE DIFFERENCE
PT/POT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INFLECTION
PWR	POWER
R	RADIUS
R/C	REBAR WITH CAP
RCP	REINFORCED CONCRETE PIPE
RET	RETAINING
RIM	RIM
R/W	RIGHT–OF–WAY (R.O.W.)
RPP	REDUCED PRESSURE PRINCIPAL
S	SOUTH
SAN	SANITARY
SCH	SCHEDULE
SVCA	SUDDEN VALLEY COMMUNITY ASSOCIATION
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDCO	STORM DRAIN CLEANOUT
SDMH	STORM DRAIN MAN HOLE
SERV	SERVICE
STND/STD	STANDARD
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
ST	STREET
TBD	TO BE DETERMINED
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TEL/TELE	TELEPHONE
TESC	TEMPORARY EROSION & SEDIMENTATION CONTROL
TP	TOP OF PAVEMENT
TS	TOP OF SIDEWALK
TW	TOP OF WALL
TYP	TYPICAL
UG	UNDERGROUND
VC	VERTICAL CURVE
VEG	VEGETATION
W	WEST
WA	WATER
W/IN	WITHIN
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

CONTACTS

OWNER
SUDDEN VALLEY COMMUNITY ASSOCIATION
1850 LAKE WHATCOM BLVD
BELLINGHAM, WA 98229

OWNER'S REPRESENTATIVE
TYLER ANDREWS
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PO BOX 30498
BELLINGHAM, WA 98228
(360) 739–2072
tylera@pnwcivil.com

CIVIL ENGINEER/PERMIT AGENT
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(360) 389–8138
scott@bold–impact.com

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POWERTEK SURVEYING
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jdisch@poertek.net

GEOTECHNAL CONSULTANT
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nwgeologicpllc@gmail.com

WATER & SEWER
LAKE WHATCOM WATER & SEWER DISTRICT
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(360) 734–9224
RICH MUNSON
rich.munson@lwwsd.org

POWER
PUGET SOUND ENERGY
PO BOX 91269
BELLEVUE, WA 98009
(888) 225–5773

TELEPHONE
CENTURY LINK
4281 MERIDIAN STREET
BELLINGHAM, WA 98226
(800) 224–1111

NATURAL GAS
CASCADE NATURAL GAS
1520 SOUTH 2ND STREET
MOUNT VERNON, WA 98273
(360) 733–5980

GENERAL SYMBOLS LEGEND

= FOUND CONCRETE MONUMENT
= FOUND REBAR & CAP
= EXISTING STORM DRAIN CATCH BASIN (TYPE I)
= EXIST SANITARY SEWER MANHOLE
= EXISTING FIRE HYDRANT
= EXISTING WATER VALVE
= EXISTING SIGN
= EXISTING POWER/AND OR UTILITY POLE
= EXISTING POWER JBOX/HANDHOLD
15"ø = EXISTING CONIFER TREE
20"ø = EXISTING DECIDUOUS TREE
= EXISTING LOT LINE (PROJECT SITE)
= EXISTING LOT LINE (OFF-SITE)
= EXISTING RIGHT-OF-WAY LINE
= EXISTING ROADWAY CENTERLINE
= EXISTING EASEMENT LINE
W W = EXISTING WATER LINE
S S = EXISTING SANITARY SEWER LINE
D D = EXISTING CULVERT
= EXISTING EDGE OF ASPHALT PAVEMENT
= EXISTING EDGE OF CONCRETE PAVEMENT OR CURB
= EXISTING EDGE OF GRAVEL SURFACING
FO = EXISTING FIBER OPTIC LINE
UCM = EXISTING UNDERGROUND TELECOMMUNICATIONS
P P = EXISTING UNDERGROUND POWER
GAS = EXISTING GAS
OH OH = EXISTING OVERHEAD UTILITY
= EXISTING FENCE
TOP TOP = EXISTING TOP OF BANK
TOE TOE = EXISTING TOE OF BANK
600 = EXISTING CONTOUR (MAJOR)
599 = EXISTING CONTOUR (MINOR)
= EXISTING ASPHALT
= SET MONUMENT
= PROPOSED STORM DRAIN CLEANOUT
= PROPOSED STORM DRAIN CATCH BASIN
= PROPOSED PROTECTION BOLLARD
= PROPOSED SIGN
= PROPOSED SAWCUT LINE (DEMO)
= PROPOSED SAWCUT/ASPHALT REPLACEMENT
= PROPOSED GRAVEL MAINTENANCE

REVIEW APPROVAL

REVIEW IS FOR GENERAL COMPLIANCE AND CONSISTENCY WITH APPLICABLE WHATCOM COUNTY CODES, REGULATIONS, AND/OR STANDARDS

WHATCOM COUNTY WASHINGTON

NO RESPONSIBILITY IS ASSUMED FOR CORRECTNESS OF DATA, DIMENSIONS, OR DETAILS

DEPARTMENT OF PUBLIC WORKS–ENGINEERING SERVICES

BY ______________________ DATE __________

TWO WORKING DAYS BEFORE YOU DIG
1–800–424–5555

UTILITIES ARE KNOWN TO EXIST AND NOT ALL ARE SHOWN. VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.

PARCEL # 370408 318457

IMPACT DESIGN
5426 BARRETT ROAD, SUITE A103
360-389-8138 WWW.BOLD-IMPACT.COM

SCOTT IAN GOODALL
STATE OF WASHINGTON
51077
REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT
DEMOLITION PERMIT - XXXXX
COVER SHEET
10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019
DESIGNED/DRAWN BY: SCR
CHECKED BY: SIG
ISSUE DATE: 06.18.2026

D1
OF: D1-D6

BARN 6 - EXISTING CONDITIONS & UAV AERIAL

IMPACT DESIGN
5426 BARRETT ROAD, SUITE A103
360-389-8138 WWW.BOLD-IMPACT.COM

SCOTTIAN GOODELL
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT
DEMOLITION PERMIT - XXXXX
EXISTING CONDITIONS & UVA AERIAL
10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019

DESIGNED/DRAWN BY: SCR

CHECKED BY: SIG

ISSUE DATE: 06.09.2026

D2

OF: D1-D6

Z:\Shared\PROJECTS\26019 SVCA Barn 6\DWG\26019SP6 SVCA Barn 6 Demo Plan (06.08.2026).dwg Jun 22, 2026-8:41am

ELEMENT 1: PRESERVE VEGETATION / MARK CLEARING LIMITS

A. BEFORE BEGINNING LAND DISTURBING ACTIVITIES, INCLUDING CLEARING AND GRADING, CLEARLY MARK ALL CLEARING LIMITS, SENSITIVE AREAS AND THEIR BUFFERS, AND TREES THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION AREA.

B. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM DEGREE PRACTICABLE.

ADDITIONAL GUIDANCE FOR ELEMENT 1

- PLASTIC, METAL, FABRIC FENCE, OR OTHER PHYSICAL BARRIERS MAY BE USED TO MARK THE CLEARING LIMITS. NOTE THE DIFFERENCE BETWEEN THE PRACTICAL USE AND PROPER INSTALLATION OF BMP C233: SILT FENCE AND THE PROPER USE AND INSTALLATION OF BMP C103: HIGH-VISIBILITY FENCE.
- IF IT IS NOT PRACTICAL TO RETAIN THE DUFF LAYER IN PLACE, THEN STOCKPILE IT ON SITE, COVER IT TO PREVENT EROSION, AND REPLACE IT IMMEDIATELY WHEN YOU FINISH DISTURBING THE SITE.

SUGGESTED BMPS FOR ELEMENT 1

- BMP C101: PRESERVING NATURAL VEGETATION
- BMP C102: BUFFER ZONES
- BMP C103: HIGH-VISIBILITY FENCE
- BMP C233: SILT FENCE

ELEMENT 2: ESTABLISH CONSTRUCTION ACCESS

A. LIMIT CONSTRUCTION VEHICLE ACCESS AND EXIT TO ONE ROUTE, IF POSSIBLE.

B. STABILIZE ACCESS POINTS WITH A PAD OF QUARRY SPALLS, CRUSHED ROCK, OR OTHER EQUIVALENT BMPS, TO MINIMIZE TRACKING OF SEDIMENT ONTO PUBLIC ROADS.

C. LOCATE WHEEL WASH OR TIRE BATHS ON SITE, IF THE STABILIZED CONSTRUCTION ENTRANCE IS NOT EFFECTIVE IN PREVENTING TRACKING SEDIMENT ONTO ROADS.

D. IF SEDIMENT IS TRACKED OFF SITE, CLEAN THE AFFECTED ROADWAY(S) THOROUGHLY AT THE END OF EACH DAY, OR MORE FREQUENTLY AS NECESSARY (FOR EXAMPLE, DURING WET WEATHER). REMOVE SEDIMENT FROM ROADS BY SHOVELING, SWEEPING, OR PICKING UP AND TRANSPORTING THE SEDIMENT TO A CONTROLLED SEDIMENT DISPOSAL AREA.

E. CONDUCT STREET WASHING ONLY AFTER SEDIMENT IS REMOVED IN ACCORDANCE WITH 2.D (ABOVE).

F. CONTROL STREET WASH WASTEWATER BY PUMPING BACK ON SITE, OR OTHERWISE PREVENT IT FROM DIS- CHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.

ADDITIONAL GUIDANCE FOR ELEMENT 2

MINIMIZE CONSTRUCTION SITE ACCESS POINTS ALONG LINEAR PROJECTS, SUCH AS ROADWAYS. STREET WASHING MAY REQUIRE LOCAL JURISDICTION APPROVAL.

SUGGESTED BMPS FOR ELEMENT 2

- BMP C105: STABILIZED CONSTRUCTION ACCESS
- BMP C106: WHEEL WASH
- BMP C107: CONSTRUCTION ROAD / PARKING AREA STABILIZATION

ELEMENT 3: CONTROL FLOW RATES

A. PROTECT PROPERTIES AND WATERWAYS DOWNSTREAM OF DEVELOPMENT SITES FROM EROSION AND THE ASSOCIATED DISCHARGE OF TURBID WATERS DUE TO INCREASES IN THE VELOCITY AND PEAK VOLUMETRIC FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE.

B. WHERE NECESSARY TO COMPLY WITH 3.A (ABOVE), CONSTRUCT STORMWATER INFILTRATION OR DETENTION BMPS AS ONE OF THE FIRST STEPS IN GRADING. ASSURE THAT DETENTION BMPS FUNCTION PROPERLY BEFORE CONSTRUCTING SITE IMPROVEMENTS (E.G., IMPERVIOUS SURFACES).

C. IF PERMANENT INFILTRATION BMPS ARE USED FOR TEMPORARY FLOW CONTROL DURING CONSTRUCTION, PROTECT THESE BMPS FROM SILTATION DURING THE CONSTRUCTION PHASE.

ADDITIONAL GUIDANCE FOR ELEMENT 3

- CONDUCT A DOWNSTREAM ANALYSIS IF CHANGES IN FLOWS COULD IMPAIR OR ALTER CONVEYANCE SYSTEMS, STREAMBANKS, BED SEDIMENT, OR AQUATIC HABITAT. SEE III-3.2 PREPARING A STORMWATER SITE PLAN FOR OFF-SITE ANALYSIS GUIDELINES.
- EVEN GENTLY SLOPED AREAS NEED FLOW CONTROLS SUCH AS BMP C235: WATTLES OR OTHER ENERGY DISSIPATION / FILTRATION STRUCTURES. PLACE DISSIPATION FACILITIES CLOSER TOGETHER ON STEEPER SLOPES. THESE METHODS PREVENT WATER FROM BUILDING HIGHER VELOCITIES AS IT FLOWS DOWNSTREAM WITHIN THE CONSTRUCTION SITE.
- CONTROL STRUCTURES DESIGNED FOR PERMANENT DETENTION BMPS ARE NOT APPROPRIATE FOR USE DURING CONSTRUCTION WITHOUT MODIFICATION. IF USED DURING CONSTRUCTION, MODIFY THE CONTROL STRUCTURE TO ALLOW FOR LONG-TERM STORAGE OF RUNOFF AND ENABLE SEDIMENT TO SETTLE. VERIFY THAT THE BMP IS SIZED APPROPRIATELY FOR THIS PURPOSE. RESTORE BMPS TO THEIR ORIGINAL DESIGN DIMENSIONS, REMOVE SEDIMENT, AND INSTALL A FINAL CONTROL STRUCTURE AT COMPLETION OF THE PROJECT.
- EROSION HAS THE POTENTIAL TO OCCUR BECAUSE OF INCREASES IN THE VOLUME, VELOCITY, AND PEAK FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE. THE LOCAL PERMITTING AGENCY MAY REQUIRE INFILTRATION OR DETENTION BMP DESIGNS THAT PROVIDE ADDITIONAL OR DIFFERENT STORMWATER FLOW CONTROL THAN THE DESIGNS DETAILED IN THIS MANUAL. THESE REQUIREMENTS MAY BE NECESSARY TO ADDRESS LOCAL CONDITIONS OR TO PROTECT PROPERTIES AND WATERWAYS DOWNSTREAM.
- VELOCITY OF WATER LEAVING THE SITE SHOULD NOT EXCEED 3 FEET/SECOND, IF THE DISCHARGE IS TO A STREAM OR DITCH. INSTALL VELOCITY DISSIPATION, SUCH AS BMP C207: CHECK DAMS OR BMP C202: RIPRAP CHANNEL LINING TO ENSURE REDUCTION OF THE FLOW VELOCITY TO A NON-EROSIVE LEVEL.
- IF THE DISCHARGE FROM A PROJECT SITE IS TO A MUNICIPAL STORM DRAINAGE SYSTEM, THE ALLOWABLE DIS- CHARGE RATE MAY BE LIMITED BY THE CAPACITY OF THE PUBLIC SYSTEM. IT MAY BE NECESSARY TO CLEAN THE MUNICIPAL STORM DRAINAGE SYSTEM PRIOR TO THE START OF THE DISCHARGE TO PREVENT SCOURING SOLIDS FROM THE DRAINAGE SYSTEM. OBTAIN PERMISSION FROM THE OWNER OF THE COLLECTION SYSTEM BEFORE DISCHARGING TO IT. ENSURE THAT NO DOWNSTREAM PIPES ARE SURCHARGED AS A RESULT OF INCREASED FLOWS FROM THE PROJECT SITE.
- IF THE DISCHARGE FROM A PROJECT SITE IS DIRECTLY TO A FLOW CONTROL EXEMPT RECEIVING WATER LISTED IN APPENDIX I-A: FLOW CONTROL EXEMPT RECEIVING WATERS OR TO AN INFILTRATION SYSTEM, THERE IS NO DISCHARGE FLOW LIMIT.

SUGGESTED BMPS FOR ELEMENT 3

- BMP C203: WATER BARS
- BMP C207: CHECK DAMS
- BMP C209: OUTLET PROTECTION
- BMP C235: WATTLES
- BMP C240: SEDIMENT TRAP
- BMP C241: SEDIMENT POND (TEMPORARY)

ELEMENT 4: INSTALL SEDIMENT CONTROLS

A. CONSTRUCT SEDIMENT CONTROL BMPS (SEDIMENT PONDS, TRAPS, FILTERS, ETC.) AS ONE OF THE FIRST STEPS IN GRADING. THESE BMPS MUST BE FUNCTIONAL BEFORE OTHER LAND DISTURBING ACTIVITIES TAKE PLACE.

B. MINIMIZE SEDIMENT DISCHARGES FROM THE SITE. THE DESIGN, INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS MUST ADDRESS FACTORS SUCH AS THE AMOUNT, FREQUENCY, INTENSITY AND DURATION OF PRECIPITATION, THE NATURE OF RESULTING STORMWATER RUNOFF, AND SOIL CHARACTERISTICS, INCLUDING THE RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT ON THE SITE.

C. DIRECT STORMWATER RUNOFF FROM DISTURBED AREAS THROUGH BMP C241: SEDIMENT POND (TEMPORARY) OR OTHER APPROPRIATE SEDIMENT REMOVAL BMP, BEFORE THE RUNOFF LEAVES A CONSTRUCTION SITE OR BEFORE DISCHARGE TO AN INFILTRATION FACILITY. RUNOFF FROM FULLY STABILIZED AREAS MAY BE DISCHARGED WITHOUT A SEDIMENT REMOVAL BMP, BUT MUST CONTROL FLOW RATES PER ELEMENT 3: CONTROL FLOW RATES.

D. LOCATE BMPS INTENDED TO TRAP SEDIMENT ON SITE IN A MANNER TO AVOID INTERFERENCE WITH THE MOVEMENT OF JUVENILE SALMONIDS ATTEMPTING TO ENTER OFF-CHANNEL AREAS OR DRAINAGES.

E. PROVIDE AND MAINTAIN NATURAL BUFFERS AROUND SURFACE WATERS, DIRECT STORMWATER TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION, UNLESS INFEASIBLE.

F. WHERE FEASIBLE, DESIGN OUTLET STRUCTURES THAT WITHDRAW IMPOUNDED STORMWATER FROM THE SURFACE TO AVOID DISCHARGING SEDIMENT THAT IS STILL SUSPENDED LOWER IN THE WATER COLUMN.

ADDITIONAL GUIDANCE FOR ELEMENT 4

- OUTLET STRUCTURES THAT WITHDRAW IMPOUNDED STORMWATER FROM THE SURFACE TO AVOID DISCHARGING SEDIMENT THAT IS STILL SUSPENDED LOWER IN THE WATER COLUMN ARE FOR THE CONSTRUCTION PERIOD ONLY. IF INSTALLING A FLOATING PUMP STRUCTURE, INCLUDE A STOPPER TO PREVENT THE PUMP BASKET FROM HITTING THE BOTTOM OF THE POND.
- IF A SEDIMENT TRAPPING BMP UTILIZES A CONTROL STRUCTURE THAT WILL ALSO BE USED IN A PERMANENT DETENTION BMP APPLICATION, THE CONTROL STRUCTURE CONSTRUCTION MUST BE FINALIZED FOR THE PERMANENT BMP APPLICATION UPON PROJECT COMPLETION.
- INSTALL SEDIMENT CONTROLS IN A MANNER THAT PROTECTS THE SENSITIVE AREAS AND THEIR BUFFERS MARKED IN ACCORDANCE WITH ELEMENT 1: PRESERVE VEGETATION / MARK CLEARING LIMITS.
- WHERE FEASIBLE, DIRECT STORMWATER TO VEGETATED AREAS TO INCREASE SEDIMENT REMOVAL AND MAXIMIZE STORMWATER INFILTRATION.
- SEED AND MULCH EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS ACCORDING TO THE TIMING INDICATED IN ELEMENT 5: STABILIZE SOILS.
- FULL STABILIZATION INCLUDES CONCRETE OR ASPHALT PAVING; QUARRY SPALLS USED AS DITCH LINING; OR THE USE OF ROLLED EROSION PRODUCTS, A BONDED FIBER MATRIX PRODUCT, OR VEGETATIVE COVER IN A MANNER THAT WILL FULLY PREVENT SOIL EROSION.
- THE LOCAL PERMITTING AUTHORITY MAY INSPECT AND APPROVE AREAS FULLY STABILIZED BY MEANS OTHER THAN PAVEMENT OR QUARRY SPALLS.

SUGGESTED BMPS FOR ELEMENT 4

- BMP C231: BRUSH BARRIER
- BMP C232: GRAVEL FILTER BERM
- BMP C233: SILT FENCE
- BMP C234: VEGETATED STRIP
- BMP C235: WATTLES
- BMP C240: SEDIMENT TRAP
- BMP C241: SEDIMENT POND (TEMPORARY)
- BMP C250: CONSTRUCTION STORMWATER CHEMICAL TREATMENT
- BMP C251: CONSTRUCTION STORMWATER FILTRATION

ELEMENT 5: STABILIZE SOILS

A. STABILIZE EXPOSED AND UNWORKED SOILS BY APPLICATION OF EFFECTIVE BMPS THAT PREVENT EROSION. APPLICABLE BMPS INCLUDE, BUT ARE NOT LIMITED TO: TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, PLASTIC COVERING, EROSION CONTROL FABRICS AND MATTING, SOIL APPLICATION OF POLYACRYLAMIDE (PAM), THE EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED, AND DUST CONTROL.

B. CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION.

C. CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND TO MINIMIZE DOWNSTREAM CHANNEL AND STREAM BANK EROSION.

D. SOILS MUST NOT REMAIN EXPOSED AND UNWORKED FOR MORE THAN THE TIME PERIODS SET FORTH BELOW TO PREVENT EROSION:

a. DURING THE DRY SEASON (MAY 1 - SEPTEMBER 30): 7 DAYS

b. DURING THE WET SEASON (OCTOBER 1 - APRIL 30): 2 DAYS

E. STABILIZE SOILS AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST.

F. STABILIZE SOIL STOCKPILES FROM EROSION, PROTECT WITH SEDIMENT TRAPPING MEASURES, AND WHERE POSSIBLE, LOCATE AWAY FROM STORM DRAIN INLETS, WATERWAYS AND DRAINAGE CHANNELS.

G. MINIMIZE THE AMOUNT OF SOIL EXPOSED DURING CONSTRUCTION ACTIVITY.

H. MINIMIZE THE DISTURBANCE OF STEEP SLOPES.

I. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

ADDITIONAL GUIDANCE FOR ELEMENT 5

- SOIL STABILIZATION BMPS SHOULD BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, ESTIMATED DURATION OF USE, AND POTENTIAL WATER QUALITY IMPACTS THAT STABILIZATION AGENTS MAY HAVE ON DOWNSTREAM WATERS OR GROUND WATER.
- ENSURE THAT GRAVEL BASE USED FOR STABILIZATION IS CLEAN AND DOES NOT CONTAIN FINES OR SEDIMENT.

SUGGESTED BMPS FOR ELEMENT 5

- BMP C120: TEMPORARY AND PERMANENT SEEDING
- BMP C121: MULCHING
- BMP C122: NETS AND BLANKETS
- BMP C123: PLASTIC COVERING
- BMP C124: SODDING
- BMP C125: TOPSOILING / COMPOSTING
- BMP C126: POLYACRYLAMIDE (PAM) FOR SOIL EROSION PROTECTION
- BMP C130: SURFACE ROUGHENING
- BMP C131: GRADIENT TERRACES
- BMP C140: DUST CONTROL

ELEMENT 6: PROTECT SLOPES

A. DESIGN AND CONSTRUCT CUT-AND-FILL SLOPES IN A MANNER TO MINIMIZE EROSION. APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, REDUCING CONTINUOUS LENGTH OF SLOPE WITH TERRACING AND DIVERSIONS, REDUCING SLOPE STEEPNESS, AND ROUGHENING SLOPE SURFACES (FOR EXAMPLE, TRACK WALKING).

B. DIVERT OFF-SITE STORMWATER (RUN-ON) OR GROUND WATER AWAY FROM SLOPES AND DISTURBED AREAS WITH INTERCEPTOR DIKES, PIPES AND/OR SWALES. OFF-SITE STORMWATER SHOULD BE MAN- AGED SEPARATELY FROM STORMWATER GENERATED ON SITE.

C. AT THE TOP OF SLOPES, COLLECT DRAINAGE IN PIPE SLOPE DRAINS OR PROTECTED CHANNELS TO PREVENT EROSION. TEMPORARY PIPE SLOPE DRAINS MUST BE SIZED TO CONVEY THE FLOW RATE CALCULATED BY ONE OF THE FOLLOWING METHODS:

a. SINGLE EVENT HYDROGRAPH METHOD: THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE TIME STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM.

OR

b. CONTINUOUS SIMULATION METHOD: THE 10-YEAR PEAK FLOW RATE, AS DETERMINED BY AN APPROVED CONTINUOUS RUNOFF MODEL WITH A 15-MINUTE TIME STEP.

D. THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WESTERN WASHINGTON HYDRO- LOGY MODEL (WWHM) TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED" AREA.

E. PLACE EXCAVATED MATERIAL ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.

F. PLACE CHECK DAMS AT REGULAR INTERVALS WITHIN CONSTRUCTED CHANNELS THAT ARE CUT DOWN A SLOPE.

ADDITIONAL GUIDANCE FOR ELEMENT 6

- CONSIDER SOIL TYPE AND ITS POTENTIAL FOR EROSION.
- STABILIZE SOILS ON SLOPES, AS SPECIFIED IN ELEMENT 5: STABILIZE SOILS.
- BMP COMBINATIONS ARE THE MOST EFFECTIVE METHOD OF PROTECTING SLOPES WITH DISTURBED SOILS. FOR EXAMPLE, USE BOTH BMP C121: MULCHING AND BMP C122: NETS AND BLANKETS IN COMBINATION.

SUGGESTED BMPS FOR ELEMENT 6

- BMP C120: TEMPORARY AND PERMANENT SEEDING
- BMP C121: MULCHING
- BMP C122: NETS AND BLANKETS
- BMP C123: PLASTIC COVERING
- BMP C124: SODDING
- BMP C130: SURFACE ROUGHENING
- BMP C131: GRADIENT TERRACES
- BMP C200: INTERCEPTOR DIKE AND SWALE
- BMP C201: GRASS-LINED CHANNELS
- BMP C203: WATER BARS
- BMP C204: PIPE SLOPE DRAINS
- BMP C205: SUBSURFACE DRAINS
- BMP C206: LEVEL SPREADER
- BMP C207: CHECK DAMS
- BMP C208: TRIANGULAR SILT DIKE (TSD)

ELEMENT 7: PROTECT DRAIN INLETS

A. PROTECT ALL STORM DRAIN INLETS MADE OPERABLE DURING CONSTRUCTION SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT.

B. CLEAN OR REMOVE AND REPLACE INLET PROTECTION DEVICES WHEN SEDIMENT HAS FILLED ONE-THIRD OF THE AVAILABLE STORAGE (UNLESS A DIFFERENT STANDARD IS SPECIFIED BY THE PRODUCT MANUFACTURER).

ADDITIONAL GUIDANCE FOR ELEMENT 7

PROTECT ALL EXISTING STORM DRAIN INLETS SO THAT STORMWATER RUNOFF DOES NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT.

- KEEP ALL APPROACH ROADS CLEAN. DO NOT ALLOW SEDIMENT AND STREET WASH WATER TO ENTER STORM DRAINS WITHOUT PRIOR AND ADEQUATE TREATMENT (AS DEFINED ABOVE) UNLESS TREATMENT IS PROVIDED BEFORE THE STORM DRAIN DISCHARGES TO WATERS OF THE STATE.
- INLETS SHOULD BE INSPECTED WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS.

SUGGESTED BMPS FOR ELEMENT 7

- BMP C220: INLET PROTECTION

ELEMENT 8: STABILIZE CHANNELS AND OUTLETS

A. DESIGN, CONSTRUCT, AND STABILIZE ALL ON-SITE CONVEYANCE CHANNELS TO PREVENT EROSION FROM THE FLOW RATE CALCULATED BY ONE OF THE FOLLOWING METHODS:

a. SINGLE EVENT HYDROGRAPH METHOD: THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE TIME STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM.

OR

b. CONTINUOUS SIMULATION METHOD: THE 10-YEAR PEAK FLOW RATE, AS DETERMINED BY AN APPROVED CONTINUOUS RUNOFF MODEL WITH A 15-MINUTE TIME STEP.

THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WESTERN WASHINGTON HYDRO- LOGY MODEL (WWHM) TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED" AREA.

B. PROVIDE STABILIZATION, INCLUDING ARMORING MATERIAL, ADEQUATE TO PREVENT EROSION OF OUTLETS, ADJACENT STREAM BANKS, SLOPES AND DOWNSTREAM REACHES AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.

ADDITIONAL GUIDANCE FOR ELEMENT 8

THE BEST METHOD FOR STABILIZING CHANNELS IS TO COMPLETELY LINE THE CHANNEL WITH BMP C122: NETS AND BLANKETS FIRST, THEN ADD BMP C207: CHECK DAMS AS NECESSARY TO FUNCTION AS AN ANCHOR AND TO SLOW THE FLOW OF WATER.

SUGGESTED BMPS FOR ELEMENT 8

- BMP C122: NETS AND BLANKETS
- BMP C202: RIPRAP CHANNEL LINING
- BMP C207: CHECK DAMS
- BMP C209: OUTLET PROTECTION

ELEMENT 9: CONTROL POLLUTANTS

DESIGN, INSTALL, IMPLEMENT AND MAINTAIN EFFECTIVE POLLUTION PREVENTION MEASURES TO MINIMIZE THE DISCHARGE OF POLLUTANTS. THE PROJECT PROPONENT MUST:

A. HANDLE AND DISPOSE OF ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS THAT OCCUR ON SITE IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER.

B. PROVIDE COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND OTHER MATERIALS THAT HAVE THE POTENTIAL TO POSE A THREAT TO HUMAN HEALTH OR THE ENVIRONMENT. ON-SITE FUELING TANKS MUST INCLUDE SECONDARY CONTAINMENT. SECONDARY CONTAINMENT MEANS PLACING TANKS OR CONTAINERS WITHIN AN IMPERVIOUS STRUCTURE CAPABLE OF CONTAINING 110% OF THE VOLUME CONTAINED IN THE LARGEST TANK WITHIN THE CONTAINMENT STRUCTURE. DOUBLE-WALLED TANKS DO NOT REQUIRE ADDITIONAL SECONDARY CONTAINMENT.

C. CONDUCT MAINTENANCE, FUELING, AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES USING SPILL PREVENTION AND CONTROL MEASURES. CLEAN CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY SPILL INCIDENT.

D. DISCHARGE WHEEL WASH OR TIRE BATH WASTEWATER TO A SEPARATE ON-SITE TREATMENT SYSTEM THAT PREVENTS DISCHARGE TO SURFACE WATER, OR TO THE SANITARY SEWER, WITH LOCAL SEWER DISTRICT APPROVAL.

E. APPLY FERTILIZERS AND PESTICIDES IN A MANNER AND AT APPLICATION RATES THAT WILL NOT RESULT IN LOSS OF CHEMICAL TO STORMWATER RUNOFF. FOLLOW MANUFACTURERS' LABEL REQUIREMENTS FOR APPLICATION RATES AND PROCEDURES.

F. USE BMPS TO PREVENT CONTAMINATION OF STORMWATER RUNOFF BY PH-MODIFYING SOURCES. THE SOURCES FOR THIS CONTAMINATION INCLUDE, BUT ARE NOT LIMITED TO: RECYCLED CONCRETE STOCKPILES, BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHING AND CURING WATERS, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, DEWATERING CONCRETE VAULTS, CONCRETE PUMPING AND MIXER WASHOUT WATERS.

G. ADJUST THE PH OF STORMWATER IF NECESSARY TO PREVENT VIOLATIONS OF WATER QUALITY STANDARDS.

H. ASSURE THAT WASHOUT OF CONCRETE TRUCKS IS PERFORMED OFF SITE OR IN DESIGNATED CONCRETE WASHOUT AREAS ONLY. DO NOT WASH OUT CONCRETE TRUCK DRUMS OR CONCRETE HANDLING EQUIPMENT ONTO THE GROUND, OR INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS. WASHOUT OF SMALL CONCRETE HANDLING EQUIPMENT MAY BE DISPOSED OF IN A FORMED AREA AWAITING CONCRETE WHERE IT WILL NOT CONTAMINATE SURFACE OR GROUND WATER. DO NOT DUMP EXCESS CONCRETE ON SITE, EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. CONCRETE SPILLAGE OR CONCRETE DISCHARGE DIRECTLY TO GROUND WATER OR SURFACE WATERS OF THE STATE IS PROHIBITED. DO NOT WASH OUT TO FORMED AREAS AWAITING INFILTRATION BMPS.

I. OBTAIN WRITTEN APPROVAL FROM ECOLOGY BEFORE USING CHEMICAL TREATMENT OTHER THAN CO_2, DRY ICE, OR FOOD GRADE VINEGAR TO ADJUST PH.

J. UNCONTAMINATED WATER FROM WATER-ONLY BASED SHAFT DRILLING FOR CONSTRUCTION OF BUILDING, ROAD, AND BRIDGE FOUNDATIONS MAY BE INFILTRATED PROVIDED THE WASTEWATER IS MANAGED IN A WAY THAT PROHIBITS DISCHARGE TO SURFACE WATERS. PRIOR TO INFILTRATION, WATER FROM WATER-ONLY BASED SHAFT DRILLING THAT COMES INTO CONTACT WITH CURING CONCRETE MUST BE NEUTRALIZED UNTIL PH IS IN THE RANGE OF 6.5 TO 8.5 (SU).

ADDITIONAL GUIDANCE FOR ELEMENT 9

- WHEEL WASH AND/OR TIRE BATH WASTEWATER CAN BE COMBINED WITH WASTEWATER FROM CONCRETE WASHOUT AREAS IF THE WASTEWATERS WILL BE PROPERLY DISPOSED OF AT AN OFFSITE LOCATION OR TREATMENT FACILITY.
- DO NOT USE UPLAND LAND APPLICATIONS FOR DISCHARGING WASTEWATER FROM CONCRETE WASHOUT AREAS.
- WOODY DEBRIS MAY BE CHOPPED AND SPREAD ON SITE.
- CONDUCT OIL CHANGES, HYDRAULIC SYSTEM DRAIN DOWN, SOLVENT AND DEGREASING CLEANING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES WHICH MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS.
- CLEAN CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. EMERGENCY REPAIRS MAY BE PERFORMED ON-SITE USING TEMPORARY PLASTIC PLACED BENEATH AND, IF RAINING, OVER THE VEHICLE.

SUGGESTED BMPS FOR ELEMENT 9

- BMP C151: CONCRETE HANDLING
- BMP C152: SAWCUTTING AND SURFACING POLLUTION PREVENTION
- BMP C153: MATERIAL DELIVERY, STORAGE, AND CONTAINMENT
- BMP C154: CONCRETE WASHOUT AREA
- BMP C250: CONSTRUCTION STORMWATER CHEMICAL TREATMENT
- BMP C251: CONSTRUCTION STORMWATER FILTRATION
- BMP C252: TREATING AND DISPOSING OF HIGH PH WATER

ALSO SEE THE SOURCE CONTROL BMPS DETAILED IN VOLUME IV

ELEMENT 10: CONTROL DEWATERING

A. DISCHARGE FOUNDATION, VAULT, AND TRENCH DEWATERING WATER, WHICH HAVE SIMILAR CHARACTERISTICS TO STORMWATER RUNOFF AT THE SITE, INTO A CONTROLLED CONVEYANCE SYSTEM BEFORE DISCHARGE TO BMP C240: SEDIMENT TRAP OR BMP C241: SEDIMENT POND (TEMPORARY).

B. DISCHARGE CLEAN, NON-TURBID DEWATERING WATER, SUCH AS WELL-POINT GROUND WATER, TO SYSTEMS TRIBUTARY TO, OR DIRECTLY INTO SURFACE WATERS OF THE STATE, AS SPECIFIED IN ELEMENT 8: STABILIZE CHANNELS AND OUTLETS, PROVIDED THE DEWATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF RECEIVING WATERS. DO NOT ROUTE CLEAN DEWATERING WATER THROUGH STORMWATER SEDIMENT BMPS. NOTE THAT “SURFACE WATERS OF THE STATE” MAY EXIST ON A CONSTRUCTION SITE AS WELL AS OFF SITE; FOR EXAMPLE, A CREEK RUNNING THROUGH A SITE.

C. HANDLE HIGHLY TURBID OR OTHERWISE CONTAMINATED DEWATERING WATER SEPARATELY FROM STORM- WATER.

D. OTHER DEWATERING TREATMENT OR DISPOSAL OPTIONS MAY INCLUDE:

a. INFILTRATION.

b. TRANSPORT OFF SITE IN A VEHICLE, SUCH AS A VACUUM FLUSH TRUCK, FOR LEGAL DISPOSAL IN A MANNER THAT DOES NOT POLLUTE STATE WATERS.

c. ECOLOGY-APPROVED ON-SITE CHEMICAL TREATMENT OR OTHER SUITABLE TREATMENT TECHNOLOGIES.

d. SANITARY OR COMBINED SEWER DISCHARGE WITH LOCAL SEWER DISTRICT APPROVAL, IF THERE IS NO OTHER OPTION.

e. USE OF A SEDIMENTATION BAG THAT DISCHARGES TO A DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DEWATERING.

ADDITIONAL GUIDANCE FOR ELEMENT 10

- CHANNELS MUST BE STABILIZED, AS SPECIFIED IN ELEMENT 8: STABILIZE CHANNELS AND OUTLETS.
- CONSTRUCTION EQUIPMENT OPERATION, CLAMSHELL DIGGING, CONCRETE TREMIE POUR, OR WORK INSIDE A COFFERDAM CAN CREATE HIGHLY TURBID OR CONTAMINATED DEWATERING WATER.
- DISCHARGING SEDIMENT-LADEN (MUDDY) WATER INTO WATERS OF THE STATE LIKELY CONSTITUTES VIOLATION OF WATER QUALITY STANDARDS FOR TURBIDITY. THE EASIEST WAY TO AVOID DISCHARGING MUDDY WATER IS THROUGH INFILTRATION AND PRESERVING VEGETATION.
- DEWATERING WATER FROM CONTAMINATED SITES MUST BE HANDLED SEPARATELY FROM STORMWATER. DIRECT CONTAMINATED STORMWATER TO A SANITARY SEWER WHERE ALLOWED BY THE LOCAL SEWER AUTHORITY, OR TO OTHER APPROVED TREATMENT.

SUGGESTED BMPS FOR ELEMENT 10

- BMP C203: WATER BARS
- BMP C236: VEGETATIVE FILTRATION

ELEMENT 11: MAINTAIN BMPS

A. MAINTAIN AND REPAIR ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION IN ACCORDANCE WITH BMP SPECIFICATIONS.

B. REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS WITHIN 30 DAYS AFTER ACHIEVING FINAL SITE STABILIZATION OR AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED.

ADDITIONAL GUIDANCE FOR ELEMENT 11

- SOME TEMPORARY EROSION AND SEDIMENT CONTROL BMPS ARE BIODEGRADABLE AND DESIGNED TO REMAIN IN PLACE FOLLOWING CONSTRUCTION. BMP C122: NETS AND BLANKETS IS AN EXAMPLE OF A BMP WITH BIODEGRADABLE OPTIONS.
- PROVIDE PROTECTION TO ALL BMPS INSTALLED FOR THE PERMANENT CONTROL OF STORMWATER FROM SEDIMENT AND COMPACTION. ALL BMPS THAT ARE TO REMAIN IN PLACE FOLLOWING COMPLETION OF CONSTRUCTION SHALL BE EXAMINED AND PLACED IN FULL OPERATING CONDITIONS. IF SEDIMENT ENTERS THE BMPS DURING CONSTRUCTION, IT SHALL BE REMOVED AND THE FACILITY SHALL BE RETURNED TO THE CONDITIONS SPECIFIED IN THE CONSTRUCTION DOCUMENTS.
- REMOVE OR STABILIZE TRAPPED SEDIMENT ON SITE. PERMANENTLY STABILIZE DISTURBED SOIL RESULTING FROM REMOVAL OF BMPS OR VEGETATION.

SUGGESTED BMPS FOR ELEMENT 11

- BMP C150: MATERIALS ON HAND
- BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD

ELEMENT 12: MANAGE THE PROJECT

A. PHASE DEVELOPMENT PROJECTS TO THE MAXIMUM DEGREE PRACTICABLE AND TAKE INTO ACCOUNT SEASONAL WORK LIMITATIONS.

B. INSPECT, MAINTAIN AND REPAIR ALL BMPS AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. PROJECTS REGULATED UNDER THE CONSTRUCTION STORMWATER GENERAL PERMIT (CSWGP) MUST CONDUCT SITE INSPECTIONS AND MONITORING IN ACCORDANCE WITH SPECIAL CONDITION S4 OF THE CSWGP.

C. MAINTAIN, UPDATE, AND IMPLEMENT THE CONSTRUCTION SWPPP.

D. PROJECTS THAT DISTURB ONE OR MORE ACRES MUST HAVE SITE INSPECTIONS CONDUCTED BY A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL). PROJECT SITES DISTURBING LESS THAN ONE ACRE MAY HAVE A CESCL OR A PERSON WITHOUT CESCL CERTIFICATION CONDUCT INSPECTIONS. BY THE INITIATION OF CONSTRUCTION, THE CONSTRUCTION SWPPP MUST IDENTIFY THE CESCL OR INSPECTOR, WHO MUST BE PRESENT ON SITE OR ON-CALL AT ALL TIMES.

ADDITIONAL GUIDANCE FOR ELEMENT 12

THE PROJECT MANAGER MUST ENSURE THAT THE PROJECT IS BUILT IN SUCH A WAY TO COMPLY WITH ALL CONSTRUCTION SWPPP ELEMENTS, AS DETAILED IN THIS SECTION. CONSIDERATIONS FOR THE PROJECT MANAGER INCLUDE, BUT ARE NOT LIMITED TO:

- CONSTRUCTION PHASING
- SEASONAL WORK LIMITATIONS
- COORDINATION WITH UTILITIES AND OTHER CONTRACTORS
- INSPECTION
- MONITORING
- MAINTAINING AN UPDATED CONSTRUCTION SWPPP

PHASING OF CONSTRUCTION

PHASE DEVELOPMENT PROJECTS WHERE FEASIBLE IN ORDER TO PREVENT SOIL EROSION AND TRANSPORTING OF SEDIMENT FROM THE SITE DURING CONSTRUCTION. REVEGETATE EXPOSED AREAS AND MAINTAIN THAT VEGETATION AS AN INTEGRAL PART OF THE CLEARING ACTIVITIES FOR ANY PHASE.

CLEARING AND GRADING ACTIVITIES FOR DEVELOPMENTS SHALL BE PERMITTED ONLY IF CONDUCTED USING AN APPROVED SITE DEVELOPMENT PLAN (E.G., SUBDIVISION APPROVAL) THAT ESTABLISHES PERMITTED AREAS OF CLEARING, GRADING, CUTTING, AND FILLING. MINIMIZE REMOVING TREES AND DISTURBING OR COMPACTING NATIVE SOILS WHEN ESTABLISHING PERMITTED CLEARING AND GRADING AREAS. SHOW ON THE SITE PLANS AND THE DEVELOPMENT SITE PERMITTED CLEARING AND GRADING AREAS AND ANY OTHER AREAS REQUIRED TO PRESERVE CRITICAL OR SENSITIVE AREAS, BUFFERS, NATIVE GROWTH PROTECTION EASEMENTS, OR TREE RETENTION AREAS AS MAY BE REQUIRED BY LOCAL JURISDICTIONS.

INSPECTION

ALL BMPS MUST BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. SITE INSPECTIONS MUST BE CONDUCTED BY A PERSON KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROL. THE PERSON MUST HAVE THE SKILLS TO 1) ASSESS THE SITE CONDITIONS AND CONSTRUCTION ACTIVITIES THAT COULD IMPACT THE QUALITY OF STORMWATER, AND 2) ASSESS THE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES USED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES.

FOR CONSTRUCTION SITES ONE ACRE OR LARGER THAT DISCHARGE STORMWATER TO SURFACE WATERS OF THE STATE, A CESCL MUST BE IDENTIFIED IN THE CONSTRUCTION SWPPP; THIS PERSON MUST BE ON-SITE OR ON-CALL AT ALL TIMES. CERTIFICATION MUST BE OBTAINED THROUGH AN APPROVED TRAINING PROGRAM THAT MEETS THE EROSION AND SEDIMENT CONTROL TRAINING STANDARDS ESTABLISHED BY ECOLOGY. SEE BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD.

APPROPRIATE BMPS OR DESIGN CHANGES SHALL BE IMPLEMENTED AS SOON AS POSSIBLE WHENEVER INSPECTION AND/OR MONITORING REVEALS THAT THE BMPS IDENTIFIED IN THE CONSTRUCTION SWPPP ARE INADEQUATE, DUE TO THE ACTUAL DISCHARGE OF /OR POTENTIAL TO DISCHARGE A SIGNIFICANT AMOUNT OF ANY POLLUTANT.

THE CESCL OR INSPECTOR MUST EXAMINE STORMWATER VISUALLY FOR THE PRESENCE OF SUSPENDED SEDIMENT, TURBIDITY, DISCOLORATION, AND OIL SHEEN. THEY MUST EVALUATE THE EFFECTIVENESS OF BMPS AND DETERMINE IF IT IS NECESSARY TO INSTALL, MAINTAIN, OR REPAIR BMPS TO IMPROVE THE QUALITY OF STORMWATER DISCHARGES.

BASED ON THE RESULTS OF THE INSPECTION, CONSTRUCTION SITE OPERATORS MUST CORRECT THE PROBLEMS IDENTIFIED BY:

- REVIEWING THE CONSTRUCTION SWPPP FOR COMPLIANCE WITH THE 13 ELEMENTS AND MAKING APPROPRIATE REVISIONS WITHIN 7 DAYS OF THE INSPECTION.
- IMMEDIATELY BEGINNING THE PROCESS OF FULLY IMPLEMENTING AND MAINTAINING APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPS AS SOON AS POSSIBLE, ADDRESSING THE PROBLEMS NO LATER THAN WITHIN 10 DAYS OF THE INSPECTION. IF INSTALLATION OF NECESSARY TREATMENT BMPS IS NOT FEASIBLE WITHIN 10 DAYS, THE CONSTRUCTION SITE OPERATOR MAY REQUEST AN EXTENSION WITHIN THE INITIAL 10- DAY RESPONSE PERIOD.
- DOCUMENTING BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK (APPLIES ONLY TO SITES THAT HAVE COVERAGE UNDER THE CONSTRUCTION STORMWATER GENERAL PERMIT).

THE CESCL MUST INSPECT ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, ALL BMPS, AND ALL STORMWATER DISCHARGE POINTS AT LEAST ONCE EVERY CALENDAR WEEK AND WITHIN 24 HOURS OF ANY DISCHARGE FROM THE SITE. (FOR PURPOSES OF THIS CONDITION, INDIVIDUAL DISCHARGE EVENTS THAT LAST MORE THAN ONE DAY DO NOT REQUIRE DAILY INSPECTIONS. FOR EXAMPLE, IF A STORMWATER POND DISCHARGES CONTINUOUSLY OVER THE COURSE OF A WEEK, ONLY ONE INSPECTION IS REQUIRED THAT WEEK.) THE CESCL OR INSPECTOR MAY REDUCE THE INSPECTION FREQUENCY FOR TEMPORARY STABILIZED, INACTIVE SITES TO ONCE EVERY CALENDAR MONTH

MAINTAINING AN UPDATED CONSTRUCTION SWPPP

CESCL CONTACT INFORMATION SHALL BE PROVIDED TO THE CITY OF FERNDALE AT OR BEFORE PRE-CONSTRUCION. THE CONSTRUCTION SWPPP WILL BE RETAINED ON-SITE AND WILL BE UPDATED ON A REGULAR BASIS. MODIFICATIONS TO THE CONSTRUCTION SWPPP WILL BE MADE WHENEVER THERE IS A SIGNIFICANT CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF ANY BMP.

RETAIN THE CONSTRUCTION SWPPP ON-SITE OR WITHIN REASONABLE ACCESS TO THE SITE.

MODIFY THE CONSTRUCTION SWPPP WHENEVER THERE IS A CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE AT THE CONSTRUCTION SITE THAT HAS, OR COULD HAVE, A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO WATERS OF THE STATE.

THE CONSTRUCTION SWPPP MUST BE MODIFIED IF, DURING INSPECTIONS OR INVESTIGATIONS CONDUCTED BY THE OWNER/OPERATOR, OR THE APPLICABLE LOCAL OR STATE REGULATORY AUTHORITY, IT IS DETERMINED THAT THE CONSTRUCTION SWPPP IS INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS IN STORMWATER DIS- CHARGES FROM THE SITE. MODIFY THE CONSTRUCTION SWPPP AS NECESSARY TO INCLUDE ADDITIONAL OR MODIFIED BMPS DESIGNED TO CORRECT PROBLEMS IDENTIFIED. COMPLETE REVISIONS TO THE CONSTRUCTION SWPPP WITHIN SEVEN (7) DAYS FOLLOWING THE INSPECTION.

SUGGESTED BMPS FOR ELEMENT 12

- BMP C150: MATERIALS ON HAND
- BMP C160: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD
- BMP C162: SCHEDULING

ELEMENT 13: PROTECT LOW IMPACT DEVELOPMENT BMPS

THE PRIMARY PURPOSE OF ON-SITE STORMWATER MANAGEMENT IS TO REDUCE THE DISRUPTION OF THE NATURAL SITE HYDROLOGY THROUGH INFILTRATION. BMPS USED TO MEET I-3.4.5 MR5: ON-SITE STORMWATER MANAGEMENT (OFTEN CALLED LID BMPS) ARE PERMANENT FACILITIES.

A. PROTECT ALL LID BMPS (INCLUDING, BUT NOT LIMITED TO BMP T7.30: BIORETENTION, BMP T5.14: RAIN GARDENS, AND BMP T5.15: PERMEABLE PAVEMENTS) FROM SEDIMENTATION THROUGH INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL BMPS ON PORTIONS OF THE SITE THAT DRAIN INTO THE LID BMPS. RESTORE THE BMPS TO THEIR FULLY FUNCTIONING CONDITION IF THEY ACCUMULATE SEDIMENT DURING CONSTRUCTION. RESTORING THE BMP MUST INCLUDE REMOVAL OF SEDIMENT AND ANY SEDIMENT-LADEN BIORETENTION/RAIN GARDEN SOILS, AND REPLACING THE REMOVED SOILS WITH SOILS MEETING THE DESIGN SPECIFICATION.

B. MAINTAIN THE INFILTRATION CAPABILITIES OF LID BMPS BY PROTECTING AGAINST COMPACTION BY CONSTRUCTION EQUIPMENT AND FOOT TRAFFIC. PROTECT COMPLETED LAWN AND LANDSCAPED AREAS FROM COMPACTION DUE TO CONSTRUCTION EQUIPMENT.

C. CONTROL EROSION AND AVOID INTRODUCING SEDIMENT FROM SURROUNDING LAND USES ONTO BMP T5.15: PERMEABLE PAVEMENTS. DO NOT ALLOW MUDDY CONSTRUCTION EQUIPMENT ON THE BASE MATERIAL OR PAVEMENT. DO NOT ALLOW SEDIMENT-LADEN RUNOFF ONTO PERMEABLE PAVEMENTS OR BASE MATERIALS.

D. PERMEABLE PAVEMENT FOULED WITH SEDIMENTS OR NO LONGER PASSING AN INITIAL INFILTRATION TEST MUST BE CLEANED USING PROCEDURES IN ACCORDANCE WITH THIS MANUAL OR THE MANUFACTURER'S PROCEDURES.

E. KEEP ALL HEAVY EQUIPMENT OFF EXISTING SOILS UNDER LID BMPS THAT HAVE BEEN EXCAVATED TO FINAL GRADE TO RETAIN THE INFILTRATION RATE OF THE SOILS.

ADDITIONAL GUIDANCE FOR ELEMENT 13

SEE CHAPTER 5: PRECISION SITE PREPARATION, CONSTRUCTION & INSPECTION OF LID FACILITIES IN THE LID TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND (HINMAN AND WULKAN, 2012) FOR MORE DETAIL ON PROTECTING LID INTEGRATED MANAGEMENT PRACTICES.

NOTE THAT THE LID TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND (HINMAN AND WULKAN, 2012) IS FOR ADDITIONAL INFORMATIONAL PURPOSES ONLY. YOU MUST FOLLOW THE GUIDANCE WITHIN THIS MANUAL IF THERE ARE ANY DISCREPANCIES BETWEEN THIS MANUAL AND THE LID TECHNICAL GUIDANCE MANUAL FOR PUGET SOUND

(HINMAN AND WULKAN, 2012).

SUGGESTED BMPS FOR ELEMENT 13

- BMP C102: BUFFER ZONES
- BMP C103: HIGH-VISIBILITY FENCE
- BMP C200: INTERCEPTOR DIKE AND SWALE
- BMP C201: GRASS-LINED CHANNELS
- BMP C207: CHECK DAMS
- BMP C208: TRIANGULAR SILT DIKE (TSD)
- BMP C231: BRUSH BARRIER
- BMP C233: SILT FENCE
- BMP C234: VEGETATED STRIP

(A) STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

NTS

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SCOTT IAN GOODALL
STATE OF WASHINGTON
51077
REGISTERED PROFESSIONAL ENGINEER
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT

DEMOLITION PERMIT - XXXXX

STORMWATER POLLUTION PREVENTION PLAN

10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019

DESIGNED/DRAWN BY: SCR

CHECKED BY: SIG

ISSUE DATE: 06.09.2026

D3

OF: D1-D6

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EMERGENCY CONTACTS:

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LEGEND

ELEMENT #1 – MARK CLEARING LIMITS

- 101 — BMP C101 PRESERVE VEGETATION

ELEMENT #2 – ESTABLISH CONSTRUCTION ACCESS

- 107 — BMP C107 CONSTRUCTION ROAD/PARKING STABILIZATION (GRAVEL MAINTENANCE)

ELEMENT #3 – CONTROL FLOW RATES

- 207 — BMP C207: CHECK DAMS – NOT APPLICABLE
- 209 — BMP C209: OUTLET/INLET PROTECTION – NOT APPLICABLE
- 241 — BMP C241: TEMP SEDIMENT POND – NOT APPLICABLE

ELEMENT #4 – INSTALL SEDIMENT CONTROLS

- 220 — BMP C220 STORM DRAIN INLET PROTECTION
- 233 — BMP 233 SILT FENCE
- 235 — BMP 235 STRAW WATTLES

ELEMENT #5 – STABILIZE SOILS

- 120 — BMP C120 TEMPORARY AND PERMANENT SEEDING
- 121 — BMP C121 MULCHING
- 140 — BMP C140 DUST CONTROL

ELEMENT #6 – PROTECT SLOPES

- 120 — BMP C120 TEMPORARY AND PERMANENT SEEDING
- 121 — BMP C121 MULCHING

ELEMENT #7 – PROTECT DRAIN INLETS

- 220 — BMP C220 STORM DRAIN INLET PROTECTION

ELEMENT #8 – STABILIZE CHANNELS AND OUTLETS

NO CHANNELS OPEN ON THE SITE

ELEMENT #9 – CONTROL POLLUTANTS

- 152 — BMP C152 SAWCUTTING AND SURFACE POLLUTION PREVENTION
- 153 — BMP C153 MATERIAL DELIVERY, STORAGE AND CONTAINMENT

ELEMENT #10 – CONTROL DEWATERING

- 236 — BMP C236 VEGETATIVE FILTRATION – NOT APPLICABLE

ELEMENT #11 – MAINTAIN BMPs

- 160 — BMP C160 CERTIFIED EROSION AND SEDIMENT CONTROL LEAD

ELEMENT #12 – MANAGE THE PROJECT

- 160 — BMP C160 CERTIFIED EROSION AND SEDIMENT CONTROL LEAD

ELEMENT #13 – PROTECT LID BMPs

NO LOW IMPACT DEVELOPMENT BMPs

DEMOLITION SCHEDULE & GENERAL DEMOLITION NOTES:

THE FOLLOWING IS A GENERAL BASELINE AND SCHEDULE FOR INSTALLING EROSION CONTROL BMPS. THE EROSION CONTROL MEASURES LISTED ARE A GENERAL GUIDE AND THE PERMITTED DEMOLITION CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND MODIFICATION OF ALL EROSION CONTROL MEASURES TO ACHIEVE DEMOLITION PLAN AND OUTLINED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

1. IDENTIFY AND PAINT CLEARING SAWCUT AND EXTENT OF WORK LIMITS
3. INSTALL PERIMETER BMP'S
4. INSTALL TEMPORARY CONSTRUCTION PAD EAST OF EXISTING BARN FOR STAGING AND BEGIN IF REMOVING CONCRETE PADS AND EAST SIDE OF BARN (PHASE 1 OF DEMOLITION PERMIT).
5. PRESERVE SURROUNDING NATIVE VEGETATION.
6. DEPENDING ON WEATHER CONDITIONS, EROSION ISSUES MAY ARISE. INSPECT AND MAINTAIN INSTALLED ESC ITEMS AND BE PREPARED FOR THE POSSIBLE NEED FOR ADDITIONAL ESC MEASURES. CONTACT THE ENGINEER FOR ESC RECOMMENDATIONS.
7. MONITOR WEATHER AND ADD ADDITIONAL EROSION CONTROL MEASURES AS REQUIRED, WHETHER SHOWN ON THIS PLAN OR NOT. ADDITIONAL BMP MATERIALS SHALL BE KEPT ON HAND AT ALL TIMES (SUCH AS GRAVEL, STRAW, PLASTIC OR EQUIVALENT).
8. DISCHARGE OF STORMWATER FROM THE SITE IS NOT EXPECTED.

GENERAL DEMOLITION NOTES:

1. VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING WORK. BRING ANY DISCREPANCIES FROM THE DRAWINGS AND NOTES TO THE PROJECT ENGINEER IMMEDIATELY. MINOR CHANGES IN THE SCOPE OF THE DEMOLITION WORK SHALL NOT JUSTIFY AN ADDITIONAL COST.
2. BELOW GRADE POWER & GAS LINES LOCATED EAST OF EXISTING BARN BUILDING. EXTREME CAUTION SHALL BE APPLIED TO ANY WORK WITHIN 10–FEET OF POWER AND GAS.
3. POWER TO BARN 6 (200 AMP SUBPANEL) LOCATED IN BARN 8.
4. EXISTING BUILDING (BARN WITH OLD ICE RINK) 4" SEWER CONNECTION AT NORTHEAST CORNER OF BUILDING AND CONNECTS TO EXISTING MANHOLE. SEWER SERVICE TO BE CAPPED AT END OF SERVICE CONNECTION FOR FUTURE CONNECTION. SEWER SERVICE, PIPE AND MANHOLES HAVE BEEN LOCATED.
5. WATER SERVICE LINE(S) ARE TO BE REMOVED FROM INTERIOR. EXISTING WATER SERVICE TO BUILDING REMOVED. WATER SERVICE CONNECTION TO BUILDING NOT LOCATED/MARKED. CONTRACTOR TO LOCATE WATER SERVICE AND ABANDON AS NEEDED.
6. EXISTING WATERMAIN IS SHOWN ALONG WEST, SOUTH, AND NORTHERN SIDE OF EXISTING BARN. WATERMAIN, VAULT, VALVES, AND METER SHOWN WERE LOCATED PER PROJECT SURVEYOR. WATER METER SHOWN NORTHEAST OF BARN VIEW ROAD APPEARS TO BE SOURCE FOR GOLF COURSE BATHROOM. WATER SERVICE LINE TO BARN IS NOT SHOWN. WATER SERVICE LINE TO BE REMOVED BACK TO WATER METER AND SERVICE LINE TO BE ABANDONED. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS.
7. ALL WORK MUST BE COORDINATED AND SCHEDULED WITH THE OWNER'S REPRESENTATIVE. CONTRACTOR TO PROVIDE THE LEAST AMOUNT OF DISRUPTION OF EXISTING WATERMAIN AND USE ACTIVITIES AS POSSIBLE.
8. DUST CONTROL IS REQUIRED DURING DEMOLITION. CONTRACTOR SHALL ESTABLISH A WATER SOURCE FOR EASY ACCESS TO HOSE AND/OR SPRINKLERS IN ORDER TO LIMIT DUST PARTICLES LEAVING SITE DURING DEMOLITION WORK. EXISTING WATER SERVICE LINE CONNECTED TO TEMPORARY YARD DRAIN IS RECOMMENDED.
9. CONTRACTOR SHALL CLEAN DAILY. ALL AREAS/SURFACES THAT ACCUMULATE CONSTRUCTION DIRT/DEBRIS SHALL BE RAKED, SWEPT, OR VACUUMED UPON COMPLETION OF EACH PARTICULAR DAILY PROJECT. TEMPORARY STORAGE PILES SHALL BE COVERED WITH PLASTIC AT END OF EACH WORK DAY.
10. UPON COMPLETION OF DEMOLITION PROJECT, CONTRACTOR SHALL STABILIZE ALL EXPOSED SURFACES WITH LONG TERM GRAVEL BASE STABILIZATION. SEE DETAIL.
11. EVERYTHING WITHIN THE BUILDING AND ALL BUILDING COMPONENTS SHALL BE REMOVED .
12. ALL CUTTING AND CHANNELING OF EXISTING BUILDING SHALL BE ACCOMPLISHED IN A NEAT AND WORKMANLIKE MANNER WITHOUT REMOVAL OF EXCESS SOILS.
13. CONTRACTOR SHALL REPLACE ANY DAMAGED SURFACING WITHIN THE SUDDEN VALLEY COMMUNITY ASSOCIATION'S PAVED NETWORK OF ROADS, DRIVEWAYS, AND PARKING AREAS THAT THEY ARE RESPONSIBLE FOR DAMAGING, TYPICAL.
14. CONTRACTOR SHALL NOTIFY PROJECT ENGINEER IF PAVEMENT SURFACING WITHIN WORK AREA IS UNAVOIDABLE. PROJECT ENGINEER TO COORDINATE WITH WHATCOM COUNTY PUBLIC WORKS DURING CONSTRUCTION.
15. ALL ACCESSIBLE ABANDONED PIPING AND DUCTWORK SHALL BE REMOVED AND PROPERLY DISPOSED OF.

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JONATHAN GOODELL — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT

DEMOLITION PERMIT - XXXXX

TEMPORARY EROSION & SEDIMENTAITON CONTROL (TESC) PLAN

10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019
DESIGNED/DRAWN BY: SCR
CHECKED BY: SIG
ISSUE DATE: 06.09.2026

D4
OF: D1-D6

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BARN 6 - DEMOLITION SITE PLAN

DEMO NOTES:
- THE BUILDING WAS ABATED IN 2018 FOR LEAD AND ASBESTOS.
- THE REFRIGERANT DRAINED IN 2017 FROM THE OLD ICE SKATING RINK.

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DEMOLITION PERMIT - XXXXX
DEMOLITION SITE PLAN
10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019
DESIGNED/DRAWN BY: SCR
CHECKED BY: SIG
ISSUE DATE: 06.09.2026

D5
OF: D1-D6

Z:\Shared\PROJECTS\26019 SVCA Barn 6\DWG\26019SP6 SVCA Barn 6 Demo Plan (06.08.2026).dwg Jun 22, 2026-8:42am

Table II-3.6: Mulch Standards and Guidelines

Mulch Material	Guideline	Description
Straw	Quality Standards	Air-dried; free from undesirable seed and coarse material.
	Application Rates	2"-3" thick; 5 bales per 1,000 sf or 2-3 tons per acre
	Remarks	Cost-effective protection when applied with adequate thickness. Hand-application generally requires greater thickness than blown straw. The thickness of straw may be reduced by half when used in conjunction with seeding. In windy areas straw must be held in place by crimping, using a tackifier, or covering with netting. Blown straw always has to be held in place with a tackifier as even light winds will blow it away. Straw, however, has several deficiencies that should be considered when selecting mulch materials. It often introduces and/or encourages the propagation of weed species and it has no significant long-term benefits It should also not be used within the ordinary high-water elevation of surface waters (due to flotation).
Chipped Site Vegetation	Quality Standards	Gradations from fines to 6 inches in length for texture, variation, and interlocking properties. Include a mix of various sizes so that the average size is between 2- and 4-inches.
	Application Rates	2" thick min.;
	Remarks	This is a cost-effective way to dispose of debris from clearing and grubbing, and it eliminates the problems associated with burning. Generally, it should not be used on slopes above approx. 10% because of its tendency to be transported by runoff. It is not recommended within 200 feet of surface waters. If permanent seeding or planting is expected shortly after mulch, the decomposition of the chipped vegetation may tie up nutrients important to grass establishment. Note: thick application of this material over existing grass, herbaceous species, and some groundcovers could smother and kill vegetation.

Table II-3.6: Mulch Standards and Guidelines

Mulch Material	Guideline	Description
Wood-Based Mulch	Quality Standards	No visible water or dust during handling. Must be purchased from a supplier with a Solid Waste Handling Permit or one exempt from solid waste regulations.
	Application Rates	2" thick min.; approx. 100 tons per acre (approx. 750 lbs. per cubic yard)
	Remarks	This material is often called "wood straw" or "hog fuel". The use of mulch ultimately improves the organic matter in the soil. Special caution is advised regarding the source and composition of wood-based mulches. Its preparation typically does not provide any weed seed control, so evidence of residual vegetation in its composition or known inclusion of weed plants or seeds should be monitored and prevented (or minimized).
Wood Strand Mulch	Quality Standards	A blend of loose, long, thin wood pieces derived from native conifer or deciduous trees with high length-to-width ratio.
	Application Rates	2" thick min.
	Remarks	Cost-effective protection when applied with adequate thickness. A minimum of 95-percent of the wood strand shall have lengths between 2 and 10-inches, with a width and thickness between 1/16 and 1/2-inches. The mulch shall not contain resin, tannin, or other compounds in quantities that would be detrimental to plant life. Sawdust or wood shavings shall not be used as mulch. [Specification 9-14.4(4) from the *Standard Specifications for Road, Bridge, and Municipal Construction* (WSDOT, 2016)

Washington State Department of Ecology
2019 Stormwater Management Manual for Western Washington (2019 SWMMWW)
Publication No.19-10-021

A TESC (MULCH) APPLICATION TABLE
NTS

BMP C152: SAWCUTTING AND SURFACING POLLUTION PREVENTION

PURPOSE
SAWCUTTING AND SURFACING OPERATIONS GENERATE SLURRY AND PROCESS WATER THAT CONTAINS FINE PARTICLES AND HIGH PH (CONCRETE CUTTING), BOTH OF WHICH CAN VIOLATE THE WATER QUALITY STANDARDS IN THE RECEIVING WATER. CONCRETE SPILLAGE OR CONCRETE DISCHARGE TO WATERS OF THE STATE IS PROHIBITED. USE THIS BMP TO MINIMIZE AND ELIMINATE PROCESS WATER AND SLURRY CREATED THROUGH SAWCUTTING OR SURFACING FROM ENTERING WATERS OF THE STATE.

CONDITIONS OF USE
UTILIZE THESE MANAGEMENT PRACTICES ANYTIME SAWCUTTING OR SURFACING OPERATIONS TAKE PLACE. SAWCUTTING AND SURFACING OPERATIONS INCLUDE, BUT ARE NOT LIMITED TO:

- SAWING
- CORING
- GRINDING
- ROUGHENING
- HYDRO-DEMOLITION
- BRIDGE AND ROAD SURFACING

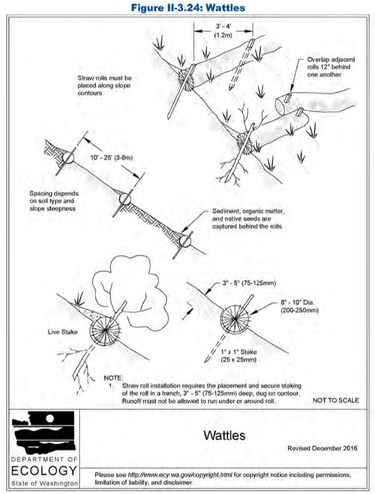
DESIGN AND INSTALLATION SPECIFICATIONS
- VACUUM SLURRY AND CUTTINGS DURING CUTTING AND SURFACING OPERATIONS.
- SLURRY AND CUTTINGS SHALL NOT REMAIN ON PERMANENT CONCRETE OR ASPHALT PAVEMENT OVERNIGHT.
- SLURRY AND CUTTINGS SHALL NOT DRAIN TO ANY NATURAL OR CONSTRUCTED DRAINAGE CONVEYANCE INCLUDING STORMWATER SYSTEMS. THIS MAY REQUIRE TEMPORARILY BLOCKING CATCH BASINS.
- DISPOSE OF COLLECTED SLURRY AND CUTTINGS IN A MANNER THAT DOES NOT VIOLATE GROUND WATER OR SURFACE WATER QUALITY STANDARDS.
- DO NOT ALLOW PROCESS WATER GENERATED DURING HYDRO-DEMOLITION, SURFACE ROUGHENING OR SIMILAR OPERATIONS TO DRAIN TO ANY NATURAL OR CONSTRUCTED DRAINAGE CONVEYANCE INCLUDING STORMWATER SYSTEMS. DISPOSE OF PROCESS WATER IN A MANNER THAT DOES NOT VIOLATE GROUND WATER OR SURFACE WATER QUALITY STANDARDS.
- HANDLE AND DISPOSE OF CLEANING WASTE MATERIAL AND DEMOLITION DEBRIS IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF WATER. DISPOSE OF SWEEPING MATERIAL FROM A PICK-UP SWEEPER AT AN APPROPRIATE DISPOSAL SITE.

MAINTENANCE STANDARDS
CONTINUALLY MONITOR OPERATIONS TO DETERMINE WHETHER SLURRY, CUTTINGS, OR PROCESS WATER COULD ENTER WATERS OF THE STATE. IF INSPECTIONS SHOW THAT A VIOLATION OF WATER QUALITY STANDARDS COULD OCCUR, STOP OPERATIONS AND IMMEDIATELY IMPLEMENT PREVENTIVE MEASURES SUCH AS BERMS, BARRIERS, SECONDARY CONTAINMENT, AND/OR VACUUM TRUCKS.

B SAWCUTTING & SURFACE POLLUTION PREVENTION
NTS

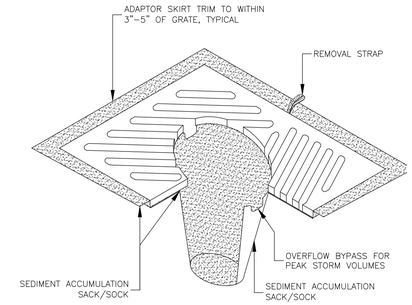
NOTES:
1. STRAW WATTLES/ROLLS SHALL BE INSTALLED IN LIEU OF TRI-ANGULAR SILT DIKE, TYPICALLY USED ADJACENT TO PAVEMENT SAWCUTTING AND/OR SURFACING DEMOLITION.
2. INSTALL SAND BAG ALONG BACK SIDE OF WATTLE EVERY 10 LF AND AT SEAMS. 12" OVERLAP AT WATTLE SEAMS, TYPICAL.
3. INSTALL ALONG DOWNHILL SIDE OF SAWCUT OR SURFACING CONSTRUCTION IF SLOPE IS EVIDENT. INSTALL AROUND THE ENTIRE CUTTING OR SURFACING OPERATION IF RUNOFF TO ALL SIDES OF WORK IS POSSIBLE.
4. REMOVE WATTLE AND CLEAN PAVEMENT AT END OF DAY UNLESS THE WATTLE IS STAKED AND/OR SECURELY FASTENED TO EDGE OF PAVEMENT AREA.
5. IF WATTLE IS FUNCTIONING AS AS PERIMETER SEDIMENTATION BARRIER SUCH AS SILT FENCE ALONG CREEK SIDE OF ASPHALT (WEST SIDE OF DEMOLITION), THEN INCLUDE ORANGE CONSTRUCTION FENCING (HIGH VISIBILITY FENCE) FOR TALLER WORK DELINEATION OF WORK AND WATTLE REINFORCEMENT.

Figure II-3.24: Wattles



C WATTLES
NTS

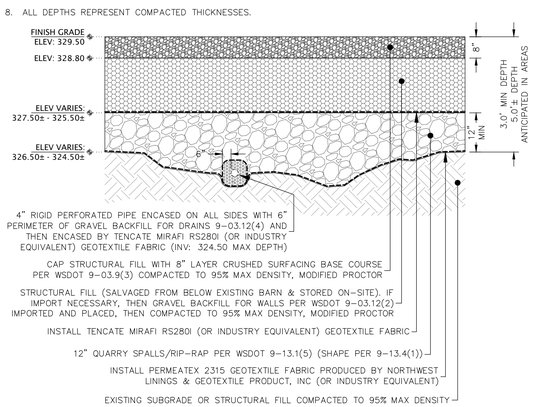
NOTES:
1. INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
2. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL.
3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE-INSERTING IT INTO THE CATCH BASIN.



D CATCH BASIN INLET PROTECTION
NTS

STABILIZED BUILDING ENVELOPE POST DEMOLITION NOTES:

1. PER GEOTECHNIAL REPORT PROVIDED BY NW GEOLOGIC, PLLC DATED APRIL 4TH, 2026. EXISTING FOOTING(S) & GRADE BEAM SHALL BE REMOVED. IN ADDITION THE EXISTING STRUCTURAL FILL IS TO BE REMOVED AND RECYCLED AND REDISTRIBUTED OVER THE FULL EXTENT OF THE EXCAVATED AREA. EXISTING BARN HAS TWO SURVEYED FINISH FLOORS (NORTH END FF=229.30 & SOUTHERN END FF=329.90).
2. WITHIN THE STRUCTURAL FILL PRISM, THE GEOTEXTILE AND IMPORT FILL MATERIAL SHOULD EXTEND LATERALLY BEYOND THE EDGE OF EACH SIDE OF THE SIDE OF THE FOOTING, A DISTANCE EQUAL TO THE DEPTH OF THE EXCAVATION BELOW THE BASE OF THE FOOTING.
3. MINIMUM DEPTH OF EXCAVATION IS 3.0' PER REPORT. FOR FIRST PHASE OF DEMOLITION THE EASTERLY HALF OF THE EXISTING BUILDING IS TO BE REMOVED. THE DEMO INCLUDES REMOVAL OF CONCRETE SLAB AND/OR CONCRETE GRADE BEAMS WITHIN THE INTERIOR OF THE BUILDING.
4. PER THE GEOTECHNICAL REPORT, A LAYER OF QUARRY SPALLS TO BE INSTALLED TO BRIDGE THE LAYER OF LACUSTRINE DEPOSITS. CONTRACTOR SHALL INSTALL A PERFORATED PIPE ALONG THE LOWEST SECTION OF THE EXCAVATION THAT IS FEASIBLE TO MAINTAIN POSITIVE DRAINAGE TO THE EXISTING SDCB #1384 WITH INVERT OUT AT 324.44.
5. DAMAGED PAVEMENT ADJACENT TO BARN FROM EXCAVATOR TO BE RESTORED DURING BUILDING CONSTRUCTION PHASING. CONTRACTOR TO LIMIT ACCESS AND WORK FROM EXISTING PAVEMENT.
6. ASPHALT ADJACENT TO BARN DEMO PROJECT SHALL BE SAWCUT TO ESTABLISH A CLEAN, STRAIGHT EDGE OFFSET/SAWCUT LINE SHOWN 6.0' FROM FACE OF FUTURE BUILDING. PAVEMENT TO BE REMOVED AND STRUCTURAL FILL TO BE SALVAGED FOR REDISTRIBUTION.
7. EXISTING UTILITIES WITHIN THE EXCAVATION ZONE SHALL BE WORKED AROUND AND MAINTAINED TO GREATEST EXTENT PRACTICABLE.
8. ALL DEPTHS REPRESENT COMPACTED THICKNESSES.



E BUILDING DEMOLITION STABILIZATION SECTION
NTS

9-03 *Aggregates*

9-03.9(2) Permeable Ballast

Permeable ballast shall meet the requirements of Section 9-03.9(1) for ballast except for the following special requirements.

The grading and quality requirements are:

Sieve Size	Percent Passing
2½"	99-100
2"	65-100
¾"	40-80
No. 4	5 max.
No. 100	0-2
% Fracture	75 min.

All percentages are by weight.

The sand equivalent value and dust ratio requirements do not apply.

The fracture requirement shall be at least one fractured face and will apply the combined aggregate retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.

9-03.9(3) Crushed Surfacing

Crushed surfacing shall be manufactured from ledge rock, talus, or gravel in accordance with the provisions of Section 4-01. The materials shall be uniform in quality and substantially free from wood, roots, bark, and other extraneous material and shall meet the following quality test requirements:

Los Angeles Wear, 500 Rev.	35 percent max.
Degradation Factor – Top Course	25 min.
Degradation Factor – Base Course	15 min.

Crushed surfacing of the various classes shall meet the following requirements for grading and quality when placed in hauling vehicles for delivery to the roadway, or during manufacture and placement into a temporary stockpile. The exact point of acceptance will be determined by the Engineer.

Sieve Size	Base Course	Top Course and Keystone
	Percent Passing	
1¼"	99-100	
1"	80-100	
¾"		99-100
¾"	50-80	
½"		80-100
No. 4	25-45	46-66
No. 40	3-18	8-24
No. 200	7.5 max.	10.0 max.
% Fracture	75 min.	75 min.
Sand Equivalent	40 min.	40 min.

All percentages are by weight.

The fracture requirement shall be at least one fractured face and will apply to the combined aggregate retained on the No. 4 sieve in accordance with FOP for AASHTO T 335.

The portion of crushed surfacing retained on a No. 4 sieve shall not contain more than 0.15 percent wood waste.

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F CRUSHED SURFACING BASE COURSE (9-03.9(3)
NTS

9-03 *Aggregates*

9-03.12 Gravel Backfill

Gravel backfill shall consist of crushed, partially crushed, or naturally occurring granular material produced in accordance with the provisions of Section 4-01.

9-03.12(1) Gravel Backfill for Foundations

9-03.12(1)A Class A

Gravel backfill for foundations, Class A, shall conform to the requirements of Section 9-03.9(1) for ballast or Section 9-03.9(3) for crushed surfacing base course.

9-03.12(1)B Class B

Gravel backfill for foundations, Class B, shall conform to the requirements of Section 9-03.10 for Gravel Base.

9-03.12(2) Gravel Backfill for Walls

Gravel backfill for walls shall consist of free draining granular material, essentially free from various types of wood waste or other extraneous or objectionable materials. It shall meet the following requirements for grading and quality when placed in hauling vehicles for delivery to the roadway or during manufacture and placement into a temporary stockpile. The exact point of acceptance will be determined by the Engineer.

Sieve Size	Percent Passing
4"	99-100
2"	75-100
No. 4	22-66
No. 200	5.0 max.
Dust Ratio: % Passing No. 200 / % Passing No. 40	⅔ max.
Sand Equivalent	60 min.

All percentages are by weight.

That portion of the material retained on a No. 4 sieve shall contain not more than 0.20 percent by weight of wood waste.

9-03.12(3) Gravel Backfill for Pipe Zone Bedding

Gravel backfill for pipe zone bedding shall consist of crushed, processed, or naturally occurring granular material. It shall be free from various types of wood waste or other extraneous or objectionable materials. It shall have such characteristics of size and shape that it will compact and shall meet the following Specifications for grading and quality:

Sieve Size	Percent Passing
1½"	99-100
1"	75-100
¾"	50-100
No. 4	20-80
No. 40	3-24
No. 200	10.0 max.
Sand Equivalent	35 min.

All percentages are by weight.

Page 9-22 *2026 Standard Specifications M 41-10*

G STRUCTURAL FILL (IMPORTED 9-03.12(2))
NTS

9-13 Riprap, Quarry Spalls, Slope Protection, and Rock for Erosion and Scour Protection and Rock Walls

9-13.1(5) Quarry Spalls

Quarry spalls shall meet the following requirements for grading:

Sieve Size	Percent Passing
8"	100
3"	40 max.
¾"	10 max.

9-13.2 Vacant

9-13.3 Vacant

9-13.4 Rock for Erosion and Scour Protection

Rock for Erosion and Scour Protection shall be hard, sound, and durable material, free from seams, cracks, and other defects that tend to destroy its resistance to weather, and it shall consist of broken and/or processed rock. Rock for Erosion and Scour Protection shall meet the quality requirements in Section 9-13 and the grading requirements in Section 9-13.4(2). The use of recycled materials and concrete rubble is not permitted for this application.

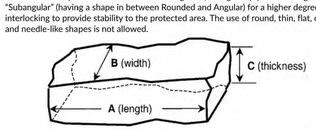
Rock for erosion and scour protection shall meet the grading requirements in Section 9-13.4(2) and the following test requirements for quality:

Aggregate Property	Test Method	Requirement
Bulk Specific Gravity	AASHTO T 85	2.55 minimum
Los Angeles Wear, 500 Rev.	AASHTO T 96	50% maximum
Degradation Factor	WSDOT Test Method T 113	15 minimum
Absorption	AASHTO T 85	3% maximum

Field tests can be performed a the quarry or on the job site by testers that are certified/ qualified in the above specified test procedures, or representative samples can be obtained for laboratory testing, by an AASHTO accredited lab, to ensure that the physical and mechanical properties meet the requirements. The AASHTO lab accreditation shall state the lab is accredited for the above specified test procedures.

9-13.4(1) Suitable Shape of Rock for Erosion and Scour Protection

The Suitable Shape of these rocks shall be "Angular" (having sharply defined edges) to "Subangular" (having a shape in between Rounded and Angular) for a higher degree of interlocking to provide stability to the protected area. The use of round, thin, flat, or long and needle-like shapes is not allowed.



Suitable Shape can be determined by the ratio of the Length/Thickness, where the Length is the longest axis, Width is the second longest axis, and Thickness is the shortest. The Suitable Shape shall be the maximum of 3.0 using the following calculation:

$$\frac{A(\text{Length})}{C(\text{Thickness})} \leq 3.0$$

Page 9-84 *2026 Standard Specifications M 41-10*

H QUARRY SPALLS PER WSDOT DIV 9-13.1(5)
NTS

IMPACT DESIGN
5426 BARRETT ROAD, SUITE A103
360-389-8138 WWW.BOLD-IMPACT.COM

SCOTTIAN GOODALL WOOD
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
06.09.2026

SVCA BARN 6 - DEMOLITION PERMIT
DEMOLITION PERMIT - XXXXX
TESC & DEMOLITION DETAILS
CONROL (TESC) DETAILS
10 BARN VIEW COURT, SUDDEN VALLEY, WASHINGTON

REV	DATE	BY	DESCRIPTION

PROJECT NUMBER: 26019
DESIGNED/DRAWN BY: SCR
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D6
OF: D1-D6

Z:\Shared\PROJECTS\26019 SVCA Barn 6\DWG\26019SP6 SVCA Barn 6 Demo Plan (06.08.2026).dwg Jun 10, 2026-4:05pm

April 24, 2026
Report No.: 26-027 – Revision 1

PNW Services, Inc.
PO Box 30498
Bellingham, WA 98228

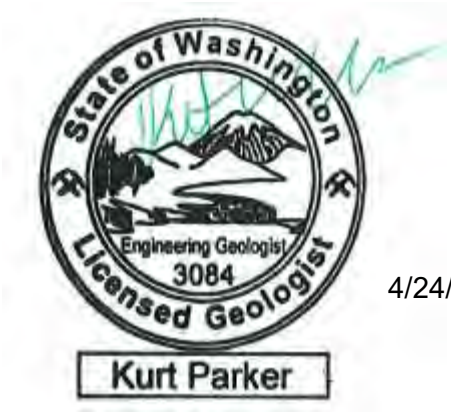
Attn: Tyler Andrews

RE: Subsurface Investigation Report, 6 Barn View Drive, Sudden Valley, Bellingham, Washington
Parcel: 3704083184570000

Dear Mr. Andrews:

NW Geologic, PLLC (NW Geo) thanks you for the opportunity, and respectfully submits the following subsurface investigation report summarizing the results of our evaluation for the proposed barn improvements at the above address in the Sudden Valley community, near Bellingham, Washington. This report has been prepared in general accordance with the terms and conditions established in our Proposal for Services dated March 18, 2026. Should you have any further questions regarding the information contained within the report, or if we may be of service in other regards, please contact the undersigned.

Respectfully Submitted,



4/24/2026

Kurt Parker, Owner
Licensed Engineering Geologist
NW Geologic, PLLC
Ferndale, Washington

PROJECT DESCRIPTION

NW Geologic understands that the Sudden Valley Community Association (SVCA) intends to redevelop the above property with a new barn structure, parking and associated infrastructure. The new building will be in a similar footprint to the existing barn that was built in the 1960s. The existing barn will be demolished in the summer of 2026. We understand that the new structure will be a pre-engineered metal building (PEMB) supported by perimeter footings with an interior slab on grade, thus loading conditions are assumed to be moderate. We were provided with an existing conditions site plan by the design team prior to field work. The final design for the project was not complete at the time of the writing of this report. This report is intended to focus on foundation support, seismic design parameters and new parking and drive lane aspects. After the initial day of exploration, we were asked to evaluate the soils for stormwater management purposes. Because of the existing conditions we also evaluated potential geologic hazards including liquefaction induced settlement, alluvial fan hazard and erosion concerns.

The *Regional Map* and *Vicinity Map* can be found in Figures 1 and 2 at the end of this report. A *Site and Exploration Plan* showing subsurface exploration locations is found as Figures 3A and 3B. A *Geologic Hazard* Map is provided as Figure 4. A USCS chart is provided as Figure 5.

SCOPE OF SERVICES

The purpose of this investigation is to establish general surface and subsurface conditions in the vicinity of the existing barn from which geotechnical recommendations for the proposed development could be formulated. Our scope of services specifically includes the following tasks:

- Review readily available geologic and soils information along with publicly available data. Review the provided site plan showing utility locations prior to exploration.
- Perform a visual reconnaissance of the proposed development site and immediate vicinity to observe existing site topographic and geologic conditions.
- Provide a description of site surface, subsurface, groundwater and mapped geologic conditions.
- Exploration of soil and groundwater conditions underlying the project area by advancing six geotechnical test pits around the building perimeter to evaluate shallow subsurface conditions.
- Advance two additional test pits in locations to the north of the barn and existing asphalt paved parking area to evaluate soil conditions.
- Advance two Wildcat Dynamic Cone Penetrometer (DCP) tests to collect additional soil data at extended depths.
- Include a site and exploration plan showing the approximate location of the explorations accomplished for this project.
- Arrange detailed exploration logs with a Unified Soil Classification System chart explaining the soil classification criteria and the terminology and symbols used on the exploration logs.
- Laboratory testing on representative samples in order to classify and evaluate the engineering characteristics of the soils encountered.
- Provide an assessment of potential geologic hazards per Whatcom County Code (WCC) 16.16 and any mitigation recommendations as applicable. Include an assessment of liquefaction induced settlement using *Liquefy Pro* software by CivilTech Software™.
- Foundation support recommendations for structural design including earthwork, reuse of site soils, stripping depths, relevant soil parameters, allowable soil bearing capacity, bearing elevations, frost penetration and depth and seismic site class determination.
- Provide new pavement recommendations for design.

- Include a determination of the feasibility of stormwater infiltration based on field conditions observed during our site work in conjunction with the Washington State Department of Ecology *Stormwater Management Manual for Western Washington* (2024) and Whatcom County Code. Provide stormwater management recommendations.
- Recommendations for geotechnical consulting during construction.

INVESTIGATION METHODOLOGY

On March 27, 2026, a NW Geologic Licensed Engineering Geologist visited the site to perform visual reconnaissance of the surface and topographic features of the subject property and adjacent terrain for a site characterization in accordance with the contract documents. Relevant site dimensions and topography were estimated and mapped at representative intervals using hand survey equipment as access allowed. Prominent features and existing conditions were documented in order to assess general site conditions and to collect data for this investigation.

Subsurface investigation included the advancement of six geotechnical test pits (TP-1 to TP-6) in representative areas of the parcel with the use of a mini-excavator and operator provided by Stremler Construction. Soils within the test pit excavations were classified per the American Society for Testing and Materials (ASTM) D2487 - *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System*), in conjunction with ASTM D2488 - *Standard Practice For Description And Identification Of Soils (Visual-Manual Procedure)*. Most of the test pits were terminated at a depth of 8.0 feet below present grade (BPG) at planned depth. Test pits TP-4 and TP-5 were terminated short of their planned depths due to underground utility conflicts. Detailed exploration logs can be found at the end of this report.

We implemented the use of a standard ½-inch steel soil probe within the test pit walls to collect shallow subsurface density or consistency data. The probe values are noted on the logs as *Probe: 4-8" penetration at 2-4' BPG*, for example. A pocket penetrometer (PP) was also utilized to collect soil density data in the test pit walls. The values are reported on the logs as *PP: 2.5 tsf* (tons per square foot) *at 3.0' BPG*, for example.

Wildcat Dynamic Cone Penetrometer testing was performed on April 10, 2026, to collect deeper soil data beyond the reach of the test pit excavations. We performed DCP testing at two locations (DCP-1 and DCP-2). Our equipment has the capability to reach depths of approximately 7 meters (~23 feet) BPG. The DCP method includes the advance of a 1-inch steel rod into the subsurface utilizing a 35-pound hammer and 15-inch drop to provide energy for driving a 10 cm^2 projected area cone. The number of blows needed to advance the rod 10 centimeters (approximately 4 inches) is recorded and correlated to the Standard Penetration Resistance ("N") or blow count used in mechanized geotechnical drilling. When a "zero" interval reading is recorded, the DCP operator was able to push the hammer manually a full 10-centimeter increment with relative ease, indicating very soft or very loose conditions. If a total of 50 blows is recorded within one 4-inch interval, the blow count is recorded as the number of blows for the corresponding number of inches of penetration.

The resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils. Refusal conditions are attained when 50 blows or more are recorded within one 10-centimeter increment. The DCP tests were advanced to depths of 14.0 to 14.5 feet BPG where dense conditions and refusal of equipment was encountered.

On April 16, 2026, we returned to the site for additional test pit exploration using methods outlined above. We advanced two test pits (TP-7 and TP-8) in areas of grass lawn to the north of the barn and existing paved parking lot. We purpose of this phase of exploration was to confirm soil conditions in areas that may be used for stormwater management. Both test locations were advanced to a planned depth of 8.0 feet BPG.

Please reference Figures 3A and 3B – *Site and Exploration Plan* for approximate locations of our subsurface testing. Detailed logs of the subsurface exploration can be found at the end of this report.

Laboratory testing for general soil classification was performed by Simply Soil Testing of Burlington, WA for general soil classification. Analysis performed includes textural classification that followed ASTM D422 - *Standard Test Method for Particle-Size Analysis of Soils* (Hydrometer Method). The percentages of clay, silt, sand and gravel were determined and reported through the USDA Textural Triangle classification. The material size percentages were then converted to USCS Soil Classification for the purpose of documentation in this report. The USDA textural classification method excludes gravel content. Organic content of soils was analyzed per the American Association of Highway and Transportation Officials (AASHTO) T267 – *Standard Method of Test for Determination of Organic Content in Soils by Loss on Ignition*.

Additional laboratory testing on select samples for stormwater infiltration purposes was performed by Certerra (formerly GeoTest Services) of Bellingham, WA. Analysis performed includes textural classification that followed ASTM C136/C117 - *Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates* and *Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing.* Laboratory analysis data is attached at the end of this report.

We also reviewed geologic literature resources and geologic maps published by the Washington State Department of Natural Resources (DNR), Washington State Department of Ecology (DOE), US Geological Survey, US Department of Agriculture, City of Bellingham, Whatcom County and other public sources, as available.

SITE CONDITIONS

The 11.77-acre, irregular-shaped subject parcel is located on the west side of Barn View Drive and is under the ownership of the SVCA. The project area is located in a northeast to southwest trending valley that extends from Lake Louise in the south to Lake Whatcom in the north and includes most of the Sudden Valley golf course area. The project vicinity includes portions of the golf course to the west and north, a community center to the south and a Whatcom County Library to the northwest. Residential housing is found to the east at higher elevations. Austin Creek is found to the southwest of the site on the golf course perimeter. Lake Whatcom is located approximately 800 feet to the northeast at its closest point.

We do not know the entire history of the existing barn. We are informed that it was used as a hockey rink historically, and well as for community events. The barn is currently in a state of disrepair and is not currently in use for the public.

The barn and immediate vicinity are located at approximately 330 feet above sea level on generally level terrain with little to no elevation change. There is an asphalt-paved perimeter drive lane with some parking stalls around the barn in all directions. Asphalt paved parking extends approximately 150 feet to the north of the barn. Sloping terrain rises to the east of the eastern drive lane toward Barn View Drive with a vertical change of 30 feet over a horizontal distance of 190 feet. An intermediate access road divides Barn View Drive from the access drive adjacent to the east side of the barn. Slopes in this area appear to be cut and graded during original development. There were no signs of landslides or significant erosion during our site work.

Existing stormwater water management includes roof downspouts and catch basins and underground conveyance in the southeast and northeast areas of the barn. A primitive ditch is located to the east of the eastern drive lane, adjacent to the above-mentioned sloping terrain.

Vegetation includes some maintained grass lawn areas to the south and west, along with lawns along the Barn View Drive corridor. Dense evergreen and deciduous trees up to 40 feet tall are found along the western parcel boundary adjacent to the building. Some evergreen trees are found to the east of the barn along the eastern access drive. The barn perimeter was surfaced with short grasses and moss in some locations where pavement was not present.

Underground utilities are found throughout the barn perimeter that include water, storm, sewer, power, irrigation, natural gas and telecom facilities.

There was no surface water within the immediate area of the barn. Austin Creek is found about 120 feet to the southwest of the building at its closest point. The creek contained typical flow volumes for spring conditions.

Field conditions on March 27 were partly sunny and in the 40s Fahrenheit. Field conditions on April 10 were sunny and in the 50s. Field conditions on April 16 were mostly sunny and in the low 40s. Photographs of site conditions are included as Appendix A at the end of this report.

Subsurface Conditions

Subsurface conditions were explored by advancing eight excavator-supported test pits (TP-1 to TP-8) in representative locations around the existing barn and parking lot perimeters. The excavations were performed by Stremler Construction of Lynden, WA with a Deere 35G and Yanmar SV40 rubber track mini excavators. Subsurface exploration was limited at the site due to the existing utilities around the barn perimeter. Test pits TP-1 to TP-3 and TP-6 to TP-8 were advanced to a planned depth of 8.0 feet BPG. Test pit TP-4 was terminated at a depth of 5.0 feet BPG due to the intersection with an unmarked and unknown utility. We were later informed by SVCA staff that the utility is historic irrigation controls for the golf course and not active. Test pit TP-5 was terminated shallowly at 1.5 feet BPG due to potential conflict with an underground water line for the golf course. The test locations are noted on the *Site and Exploration Plan*, Figures 3A and 3B. Overall, the conditions in the test areas varied between locations because of historic development, however they are considered to be representative of conditions within the proposed areas of improvement. The test pits were backfilled with soil tailings after completion to the existing grade.

Our goal was to establish the existing subsurface conditions in the proposed development locations in order to understand the underlying geology and make appropriate recommendations for improvements. The following descriptions summarize the general soil column documented during exploration. Detailed logs are found at the end of this report. We encountered variable soil horizons dependent on location below the existing grade during exploration:

- Topsoil: dark brown, damp, soft, organic silt with grass at the surface and some roots. Extends to 0.25 feet BPG at TP-5 and TP-6 and 0.75 to 1.0 feet at TP-7 and TP-8.

- Import Fill: orange brown, gray brown to light brown, damp, mostly dense, sandy gravel to gravelly sand. Found at or near the surface at the first six locations. The unit commonly extended to depths of 1.0 to 1.5 feet BPG and is interpreted as a component of site grading or trench backfill during prior construction. At TP-2 and TP-4, we intersected a different import fill that was used to support the original foundation. This material was documented to depths of 3.0 to 4.75 feet BPG and was commonly measured to be 1.5 feet thick.

- Native Fill: brown, orange, gray, damp, commonly medium stiff, sandy silt that was documented at TP-2. The unit extended from1.0 to 3.2 feet BPG and is interpreted to be trench backfill to grade fill from historic construction. At TP-3, we recorded a mixed unit of native and import fill that extended from 2.0 to 3.0 feet BPG likely used as trench backfill.

- Lacustrine deposits: varying shades of gray to gray brown to orange gray, damp to wet, soft to medium stiff, sandy silt with generally low clay content. Rarely classified as silty sand. Some organic material and odor present throughout. Interpreted as lacustrine (lake) deposits that underlie the entirety of the barn area. Extended from below the topsoil or import fills to 8.0 feet BPG at all locations that reached this depth. Groundwater seepage and sidewall collapse were common. This unit was not anticipated prior to exploration. However, given the proximity to Lake Whatcom and the likelihood of higher lake elevations during or after deglaciation at the end of the Pleistocene Epoch, the presence of this unit is logical in this valley setting.

The tables below present laboratory data and our interpretations from select samples processed for this project. Because of cost and the project requirements, we ran select samples at both Certerra and Simply Soil Testing for the purposes of soil classification, infiltration feasibility and reuse of the existing import fill.

Certerra:

Test Location	Classification	USCS	Percent Fines
TP-1 @ 2.5’	Sandy silt	ML	69
TP-2 @ 5.0’	Silty sand	SM	43
TP-4 @ 4.0’	Sandy silt	ML	55
TP-6 @ 3.0’	Sandy silt	ML	67

Simply Soil Testing:

Test Location	USCS	USDA	Percent Fines	Organic Content
TP-1 @ 4.0’	Silty sand	Loam	52	3.7
TP-3 @ 4.0’	Sandy silt	Loam	58	2.8
TP-4 @ 1.0’	Gravelly sand	Sandy loam	15	1.0
TP-5 @ 1.0’	Gravelly sand	Sandy loam	16	1.6

DCP exploration was advanced adjacent to TP-1 and TP-3 to further understand the subsurface neighboring to the existing building footprint and collect data for additional calculations. The DCP exploration extended to 14.0 to 14.5 feet BPG where refusal conditions were encountered. Because of structural fill capping the surface, we removed approximately 1.2 to 1.5 feet of material to native soils with hand tools prior to DCP advancement.

At DCP-1, we intersected typically soft to medium stiff conditions down to approximately 5 feet BPG. From 5 to 8 feet, we encountered very soft conditions with mostly zero blow count material. From 8 to 11.5 feet, we intersected soft to medium stiff consistency. From 11.5 feet to 14 feet, stiff to very stiff conditions were documented. Hard conditions were intersected within the last 0.5 feet of exploration where refusal of equipment occurred at 14.5 feet BPG.

At DCP-2, we intersected variable medium stiff to hard conditions down to 3 feet BPG. From 3 to 8 feet BPG, soft to medium stiff conditions were recorded, with medium stiff prevalent. From 8 to 11.5 feet, stiff conditions

were documented. From 11.5 to 14 feet BPG, very stiff to hard conditions were recorded. Refusal of equipment was documented at 14 feet BPG.

The DCP results in the upper 8 feet of the soil column are comparable to the test pit and soil probe exploration program and are representative of subsurface conditions around the building perimeter and vicinity.

Groundwater

Groundwater was encountered as shallow as 4.0 feet BPG at TP-1 and TP-3 to depths of 7.0 to 7.5 feet BPG at TP-2 and TP-6. At TP-7 and TP-8, groundwater was intersected at 3.0 to 3.25 feet BPG, however these test locations are about 3 feet lower in elevation that the other test pits. We typically recorded light seepage in the test pit walls on March 27. Test pits TP-7 and TP-8 had moderate to rapid seepage, with flow rates increasing with depth. We interpret the upper groundwater intersections to be perched conditions with generally light seepage rates. The lower intersections with moderate to rapid seepage are interpreted as the regional groundwater table given the proximity to Lake Whatcom and Austin Creek. Our exploration occurred during the late part of the wet season in our region, when groundwater levels are expected to be elevated and at or near seasonal highs. We consider that the site could be subject to some perched or elevated groundwater conditions during portions of the wet season because of its position within a low-lying valley landform.

A review of the Washington State Department of Ecology (DOE) *Well Report Viewer* indicates one resource protection well within the vicinity of the project site. A review of the well log displayed a water level of 20 feet below grade at the time of installation. The exact location of this well is not known and we therefore cannot compare groundwater elevation data. A wider search area for wells was generally inconclusive in regard to the regional groundwater table.

We consider that shallow perched groundwater may be intersected during construction, depending on the season, depths and locations across the site. We advise that construction occur in the dry summer months to avoid the potential for intersecting a perched or regional groundwater table. The contractor should incorporate a dewatering plan as part of the project documents regardless of the season of construction.

General Geologic Conditions

The mapped geologic conditions in the vicinity of the project site were referenced from the *Geologic Map of the Bellingham 1:100,000 Quadrangle, Washington* (Lapen, 2000). Lapen maps the area geology as the Bellingham Bay Member of the Eocene Chuckanut Formation (Unit Ec_{cb}) bedrock. The unit is described as well-sorted sandstone, conglomerate, and mudstone, with lesser coal. Sandstone is commonly coarse-grained arkose with lesser medium- to fine-grained sandstone composed predominantly of quartz and feldspar (K-feldspar and plagioclase). This member is commonly trough cross-bedded and ripple or flat-laminated. Conglomerate, occurring most notably at the base of the section, contains clasts derived from underlying units (phyllite and vein quartz) as well as clasts from more distant sources. Bedding is generally massive to crudely stratified. Mudstone is commonly massive or laminated and contains plant fossils (palm fronds) and local coal layers. Coarse- to fine-grained lithologies are often interbedded and form upward-fining sequences averaging 29 meters thick near Bellingham Bay. The color is yellowish gray to gray with a salt and pepper appearance for sandstones; color of conglomerates varies with lithologic content. Mudstone ranges from bluish gray to dark gray, and coal is generally black. The thickness is estimated to be 2,700 meters, based on a measured section along Bellingham Bay (Lapen, 2000).

The DNR maps no active faults or landslides within the immediate vicinity of the planned improvements. A syncline is mapped with the identity and existence certain approximately 0.4 miles southwest of the project site.

An anticline is mapped with the identity and existence certain approximately 0.5 miles northeast of the project site. The entirety of the Austin Creek valley in the area of the golf course is mapped as a broad alluvial fan. The landform is described as historic and less than 150 years old. It is part of the Austin Creek alluvial fan with reported activity in January of 1983, and a flooding event reported in 1990. Our recent experience near the project site includes review of areas damaged during the November 2021 atmospheric river flooding events in Whatcom County. The area of Austin Creek in the vicinity of the golf course was subject to bridge and pathway infrastructure damage. The was no damage in 2021 to the barn area. We know of no damages in the vicinity of the barn from the December 2025 flooding events. The area encompassing the site is mapped containing a *N/A* (not applicable) susceptibility to liquefaction-induced settlement because of bedrock conditions (DNR).

Based on the documented geology and subsurface conditions, it is our opinion that the site conditions support the presence of import fill and lacustrine deposits from Lake Whatcom across the site. The lower DCP exploration data indicates the intersection with denser glacial drift deposits that we presume to overlie Chuckanut Formation bedrock at depths below 14 feet BPG.

Our findings are generally discordant with the published mapping. It should be noted that the published soil and rock types are representative of regional conditions and some variation between on-site conditions and mapped geologic units should generally be anticipated.

Web Soil Survey

According to the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) *Web Soil Survey* website, two soil units are mapped within the project area. The parcel and nearby vicinity contains Whatcom silt loam in the north and west areas. The south and east areas contain Squalicum gravelly loam. Please refer to the table below for additional characteristics.

Map Unit Symbol	178	136
Map Unit Name	Whatcom silt loam, 0-3% slopes	Squalicum gravelly loam, 15 to 30% slopes
Soil Description	Ashy silt loam to 16 inches, loam to 60 inches	Gravelly ashy loam to 60 inches
Landform	Hillslopes	Hillslopes
Parent Material	Volcanic ash and loess over glaciomarine deposits	Volcanic ash, loess and slope alluvium over glacial drift
Land Capability Classification	3w	4e
Hydrologic Soil Group	C	B
Depth to Water Table	About 18 to 36 inches	About 39 to 59 inches

Our interpretation of the Web Soil Survey data is that mapping was performed either remotely or on a large scale in that the hillslope landform and some of the slope inclinations are not entirely accurate. We found evidence of denser glacial deposits by DCP methods at the site during subsurface exploration. It is entirely possible that bedrock is mantled with glacially derived deposits that lie at a depth below the documented lake deposits.

Aerial Photo Review

We reviewed historic aerial photos of the subject property from 1943, 1955, 1961 and 1976 in order to determine historic use and any previous development at the project vicinity. Aerial photos were obtained from the Whatcom Conservation District *Historical Scanned Aerials* website. The 1943 photo shows the area in use for what we presume to be agriculture with small buildings included as part of an assumed homestead development. The 1955 picture shows similar development in the area of the parcel. By 1961, the subject barn appears to be constructed, however the image resolution does not allow for interpretation of individual features clearly. The 1976 picture shows site conditions similar to present time. Less vegetation is present around the barn perimeter and in the Austin Creek valley in the 1976 image as compared to our site work. Some realignment of the Austin Creek channel upstream of the barn was noted.

A review of Google Earth Pro™ images from 1998 to 2025 indicates that no significant changes to site conditions were recorded. The satellite images show that part of the building to the south was demolished in 2017-2018 and replaced with grass lawn by 2023. Please note that the aerial and satellite photographs may not fully depict actual surface conditions due to scale and resolution.

Lidar Imagery Review

Light detection and ranging (Lidar) imagery of the site vicinity was reviewed during the research process. Lidar imagery from the DNR *Geologic Information Portal* shows the mapped alluvial fan landform between Lake Louise and Lake Whatcom. Austin Creek is incised within the fan in its present course. There appears to be some channel alignment or improvements of Austin Creek to accommodate the golf course. The cut slopes to the east of the barn are visible. No other signs of landslides or mass-wasting is evident. Based on our review, the conditions observed within Lidar imagery are consistent with the current site conditions observed in the field in March and April of 2026. Please note that not all surface conditions can be observed in Lidar imagery review due to resolution and scale.

GEOLOGICALLY HAZARDOUS AREAS

According to Whatcom County Code (WCC) section 16.16.310(A), geologically hazardous areas *include lands determined to be landslide, seismic, alluvial fan, volcanic, erosion (including channel migration zones), tsunami, seiche and landslide generated waves or mine hazard areas are hereby designated as geologically hazardous areas. Development in these geologic hazard areas can put human life, safety, health, and development at risk, alter geologic processes, adversely affect natural resources, and put the development and surrounding developments and uses at risk.*

Based on the project site location, we have identified potential seismic, alluvial fan and erosion hazards to be relevant to development at the subject parcel. These geologic hazards are discussed below.

Seismic Hazard Areas

Seismic Hazard Areas are classified per WCC 16.16.310(C)(2) as follows: *Whatcom County is located in a seismically active area that will be subject to ground motion during local and regional earthquakes. Seismic hazards and risk are partially addressed in the International Building Code (IBC) or International Residential Code (IRC). Additional seismic hazard areas for the purpose of this article include*:

a. *Areas designated as having a "high" and "moderate to high" risk of liquefaction susceptibility as mapped on the Liquefaction Susceptibility Map by the Washington State Department of Natural Resources.*
b. *Areas that are identified as underlain by liquefiable soils and due to local topography are also subject to or interpreted as being potentially impacted by lateral spreading.*
c. *Areas located within 500 feet of quaternary fault zones with surface offsets.*

The project site does not meet any of the seismic hazard criteria addressed above due to the mapped “N/A” (not applicable) designation by the DNR (Palmer et al., 2004) due to bedrock conditions. It is not mapped as containing liquefiable soils or subject to lateral spreading and is not located within 500 feet of a Quaternary fault zone. Our interpretation of the site is that some risk of liquefaction induced settlement exists because of an elevated groundwater table in conjunction with soft, sandy silt, lacustrine deposits that extend to depths of 11 to 12 feet BPG before reaching more compact, glacially derived soils that are present overlying bedrock. The proposed development includes a moderate PEMB building load. Calculations for liquefaction induced settlement must be performed to determine proper foundation support parameters and mitigate settlement concerns, in our opinion.

Due to the existing soft soil conditions an analysis to assess the potential settlement associated with liquefaction that the subject area may experience during a design level seismic event is necessary. The geotechnical data collected during our subsurface exploration program was analyzed to estimate the factor of safety against liquefaction and associated settlements occurring at the project site. Our analysis was completed using *Liquefy Pro*, Version 5.10, published by CivilTech Software™. The method of analysis was a simplified procedure originally proposed by Seed and Idriss (1971) that has been modified by Youd and Idriss (2001).

The subsurface conditions are topsoil or imported fill over lacustrine deposits that extend to 11 to 12 feet BPG. We interpret that denser glacial deposits form a thin mantle over bedrock that extends to depth below the site. The existing native soil units consist of soft to stiff lake-derived sandy silt overlying generally dense glacial deposits positioned over bedrock based on the test pit and DCP results. Groundwater was interpreted to be 2 feet below existing grade for the purpose of the liquefaction analysis discussed in this section. Fines content was averaged at 57 percent based on laboratory data. Fines content of the glacial drift unit was estimated at 30 percent and a thickness 5 feet. Because of the dense glacial drift soils interpreted to overlie bedrock, we projected the analysis to 20 feet BPG in various seismic scenarios.

The Wildcat DCP software includes the conversion of blow counts to standard penetration resistance or N-values that are equivalent to data obtained during standard penetration test (SPT) hollow-stem auger geotechnical drilling. For this study we used the average N-value collected in each one-foot interval. Resistance, or N-value, provides a measure of the relative density of granular soils or the relative consistency of cohesive soils. N-values, soil type, unit weight and percent fines were incorporated into the analysis. We ran the program under existing conditions scenarios where 1 to 3 feet of structural fill is in place over lake deposits. We then ran the program under assumed developed condition with 3 feet of structural fill and an additional ground improvement of 1 foot of structural fill capping the site. Development includes removing the existing foundation and supporting structural fill which extended to depth of 4.75 feet BPG at TP-2 and to 3 feet BPG at TP-4.

The liquefaction potential was evaluated for a large design-level earthquake having a 2 percent probability of exceedance in a 50-year period. The liquefaction analyses assume a peak horizontal ground acceleration of 0.497g and an earthquake magnitude of 7.0. Post-liquefaction ground settlements could result in distortion of the proposed structure. Actual ground subsidence will depend on many factors, including the intensity and duration of seismic shaking, and local soil and groundwater conditions. Therefore, the extent of liquefaction, if any, may vary from the estimate below.

The maximum amount of post-liquefaction ground subsidence, assuming no mitigating measures are implemented to improve the soil susceptibility to liquefaction and/or seismically induced ground settlement, can be estimated using an empirical method developed by Robertson et al., (1997). This process is based on field studies of areas that had undergone liquefaction. It is assumed that "acceptable" settlement is defined as 1 inch of total settlement or less under seismic conditions. The average magnitude of settlement under the existing conditions was calculated to range from **2.64 to 2.99** inches at DCP-1 and **1.59 to 1.66** inches at DCP-2. Settlement is expected to be non-uniform with potential differential settlement of up to half of the above values.

Following the initial calculations, we placed 3 feet of structural fill under the foundations and added an additional 1 foot of gravel structural fill ground improvements as a method of mitigation for potential seismic induced settlement. The average magnitude of post-construction settlement under the assumed as-built conditions was calculated to be range from **2.49** inches at DCP-1 to **1.36** inches at DCP-2. This settlement is expected to be non-uniform with potential differential settlement of up 1.25 to 0.68 inches. The results of all scenarios are included as Plates A-1 to A-6 at the end of this report.

Accordingly, our study demonstrates the project area falls within a seismic hazard area based on WCC definitions. Our study has shown that seismic settlement has the potential to impact the new structure. Mitigations associated with earthwork and ground preparation must be implemented to safeguard the building during a seismic event. The amount of projected seismic settlement under the assumed developed conditions is more than 1-inch, which is considered the acceptable industry standard.

The subject property is located within Seismic Design Category D_1, which states that the site may be unstable during a seismic event. In accordance with modern building codes, *development activities are required to conform to the applicable provisions of the International Building Code which contain structural safeguards to reduce the risk from seismic activity.* Outside of the mitigative requirements established in the International Building Code, we consider that additional mitigation measures will be necessary to reduce this potential hazard. Our discussion of seismic hazard mitigations continues below.

The owner and occupants should consider that the Pacific Northwest is seismically active. Large Cascadia subduction zone earthquakes with possible magnitudes of 8 or 9 could produce ground shaking events with the potential to significantly impact the region and subject property. Cascadia subduction zone earthquakes have occurred 6 times in the last 3,500 years with the most recent occurrence in 1700, approximately 326 years ago. They have been determined to have an average reoccurrence interval of approximately 300 to 700 years (Atwater and Haley, 1997). Other fault zones such as the Darrington-Devil's Mountain Fault and Seattle Fault Zones, for example, could also impact the region during an earthquake event.

Alluvial Fan Hazard Areas

Alluvial Fan Hazard Areas are defined in WCC 161.310(C)(3) as: *any area located at the base of a confined mountain channel and determined to be susceptible to clear water flooding, debris-laden flows and floods, and erosional impacts shall be designated as an alluvial fan hazard area. Watershed hydrology, geology, slope conditions, topography, current and historic land uses, roads and road drainage, valley bottom conditions, and channel conditions upstream of an alluvial fan area are all fundamental to potential hazards and risks on alluvial fans. Alluvial fan hazard areas shall include those areas on alluvial fans potentially impacted by:*
a. *Sediment-laden flows (e.g., debris flows and debris floods);*
b. *Clear water floods;*
c. *Stream channel changes (including channel avulsion, incision, aggradation or lateral erosion and migration);*
d. *Erosion.*

Based on the criteria set forth above, it is our opinion that **the subject property is considered to be located within an alluvial fan hazard area** because of its location according to DNR mapping. It is unlikely that Austin Creek will migrate significantly over time, however the potential for alluvial fan hazards exists. The project is located about 0.5 miles from the apex of the fan. The creek flows within the golf course facility, and we presume the SVCA staff monitors the creek for changes in morphology. At the closest location to the proposed building, the eastern creek bank is armored with riprap. We do not know if site grades will need to be raised significantly during new development because of the potential for alluvial fan concerns.

According to the DNR, the Austin Creek alluvial fan is identified as Fan 3409 and has recorded movement historically (less than 150 years). Reported activity includes an event on January 10, 1983, and flooding in 1990. We reviewed the vicinity of the barn area in 2021 following the November atmospheric river flooding events. Damage to golf course bridge and pathways was observed, along with associated erosion within the creek channel. We did not observe channel avulsion, lateral fluctuations or significant debris deposition. The barn area was not impacted. A future event is possible however we cannot predict future creek morphology changes with any accuracy.

Whatcom County geology staff provided additional information about the Austin Creek alluvial fan. The 1983 debris flow event impacted the Lake Whatcom Boulevard bridge and areas downstream. Four bridges on the golf course were washed out, and debris was deposited across an 800-foot-wide area. Flooding is reported to occur every winter with deposition of materials on the golf course. Flood heights reach 2 to 3 feet above the stream bank on the golf course. Austin Creek has a history of debris events as evidenced by depositional features including log jams, berms, debris and colluvium. The golf course is subject to both flooding and debris events. The creek is confined at low water levels, and banks are stable with erosion occurring on cut banks. Beaver Creek is a tributary to Austin Creek and flooded above the confluence with Austin Creek in 1983 and 1990. Beaver Creek typically experiences clear water flooding and erosion as opposed to debris flow events (Whatcom County, pers comm., 2026).

We estimate the likelihood of the creek producing an alluvial fan flooding or debris flow event significant enough to impact the immediate vicinity of the new barn to be **low**, with the consequences being **moderate.** Austin Creek would have to migrate laterally over 100 feet or produce a significant change in channel alignment by avulsion to impact new structures. The barn area could experience overbank flooding. The estimate is based on limited information, the size of the drainage basin and estimated flow rates of the creek. We observed the impacts to the Austin Creek corridor in the vicinity of the barn in 2021. Golf course bridges and pathways were damaged by erosive forces however the creek channel remained in a similar alignment. We advise that clear water flooding or debris flow events are possible at the project site. We understand that the SVCA management understands the risk of redevelopment in this area of Sudden Valley.

Erosion Hazards

Whatcom County Code section 16.16.310(C)(5) defines erosion hazards as: *channel migration zones, also known as riverine erosion areas, are defined as the areas along a river or stream within which the channel(s) can be reasonably predicted to migrate over time. This is a result of natural and normally occurring geomorphic, hydrological, and related processes when considered with the characteristics of the river or stream and its surroundings, and in consideration of river and stream management plans. Channel migration hazard areas shall include potential channel migration, channel avulsion, bank erosion, and stability of slopes along the river or stream. Coastal erosion hazards are defined as erosion areas that are subject to shoreline retreat from wind, wave, and tidal erosion.*

Based on the criteria set forth above, it is our opinion that **the subject property is considered to be located within an erosion hazard area** because it is within 120 feet of Austin Creek. It is unlikely that this small creek located to the west of the proposed building will migrate significantly over time. The creek is located within the golf course facility, and we presume the SVCA staff monitors the creek for changes in morphology. At the closest location to the proposed building, the eastern creek bank is armored with riprap.

We estimate the likelihood of the creek producing erosion significant enough to impact the immediate vicinity of the new barn to be **low**, with the consequences being **moderate.** Austin Creek would have to migrate laterally over 100 feet to impact new structures or have a significant channel avulsion event. The estimate is because of the relative size of the drainage basin, estimated flow rates of the creek and the infrequency of events. We did observe impacts of the Austin Creek corridor in the vicinity of the barn in 2021. Golf course bridges and pathways were damaged by erosive forces. We are not aware of any damages associated with the December 2025 flooding events. We advise that clear water flooding and associated erosion impacts are possible at the project site. We understand that the SVCA management understands the risk of redevelopment in this area of Sudden Valley.

Based on the site topography, the location of Austin Creek and the potential erodible nature of near surface soils we recommend that the following measures be implemented into the project design and construction to mitigate and prevent excessive erosion from occurring at the project site.

- All clearing and grading activities for future construction will need to incorporate Best Management Practices (BMPs) for erosion control in compliance with current Whatcom County codes and standards.
- We recommend that appropriate silt fencing be incorporated into the construction plan for erosion control.
- We recommend that construction occur in the dry summer months when the potential to impact the site slopes and soils is minimal.
- We recommend that onsite BMPs be implemented during construction. Areas of native vegetation left in place, could also be enhanced by adding additional native plant species and/or other vegetation enhancements in mitigation areas as well as on riverine margins.
- Removal of vegetation and trees without proper mitigation may increase the risk of failure for the surficial soils during periods of wet weather. Planting additional vegetation within the subject site and in areas disturbed by excavation activities will help maintain near surface slope stability by providing a stable root base within the near surface soils. The client should consider additional plantings within or adjacent to Austin Creek in the vicinity of the new barn structure.
- Proper drainage controls have a significant effect on erosion. All surface water and any collected drainage water should not be allowed to be concentrated and discharged uncontrolled. All collected stormwater should be directed to an appropriate collection system in accordance with the approved civil stormwater design.
- All areas disturbed by construction practices should be vegetated or otherwise protected to limit the potential for erosion as soon as practical during and after construction. Areas requiring immediate protection from the effects of erosion should be covered with either plastic, mulch or erosion control netting or blankets. Areas requiring permanent stabilization should be seeded with an approved grass seed mixture, hydroseeded with an approved seed-mulch-fertilizer mixture or landscaped with a suitable design.
- The SVCA management team should monitor the Austin Creek corridor for impacts of erosion, especially during times of heavy rainfall, storm events and in the winter months in general. Our office should be contacted if concerns develop.

Mitigation of Geologic Hazards

Seismic Hazards

As discussed, the project site is in proximity to potential seismic hazard areas as described by the WCC in conjunction with this study. NW Geologic considers the potential for liquefaction induced settlement to impact the new development to be **moderate** under earthquake loading conditions post-development. The total settlement after ground preparation methods under seismic loading is more than 1.0 inch. Mitigations specifically for seismic induced settlement such as grade beam support is necessary in our opinion. We consider that the following recommendations to be suitable mitigations that include ground preparation and earthworks, prior to building construction.

We recommend that a geotextile fabric reinforced fill prism in conjunction with grade beam and traditional perimeter or isolated pad foundations and concrete slab on grade be implemented into the project design to support the building. We estimate that stripping depths for structural fill removal will be 3 to 5 feet below existing grade on average. Following removal of the existing foundation and structural fill prism, we recommend the placement of a woven geotextile fabric on native lacustrine soils. We specifically recommend Tencate Mirafi® *RS280i* (or industry equivalent) be placed on the native lacustrine deposits. The woven geotextile provides confinement, filtration, reinforcement and separation of materials. Individual strips of geotextile fabric should have at least one foot of overlap. The geotextile fabric should encompass the entire foundation and slab footprint and extend laterally a distance equal to the depth of excavation.

We recommend the placement and compaction of at least 3 feet of imported structural fill above the basal geotextile fabric to planned bottom of foundation and grade beam elevation. We recommend approximately one foot of quarry spalls be placed upon the *RS280i* geotextile fabric to mitigate groundwater concerns. A second layer of Northwest Linings & Geotextile Products, Inc., *PermeaTex™ 2315* woven geotextile fabric (or industry equivalent) should be placed on the quarry spalls. The existing structural fill can be recycled and incorporated into the fill prism. The structural fill for foundation and grade beam support will likely be a mixture of recycled existing fill and imported fill. We recommend capping the new fill pad with *Crushed Surfacing Base Course* (CSBC) or industry equivalent under WSDOT Standard Specification 9-03.9(3).

The potential for seismic induced settlement will still exist, however the building being reinforced by a geotextile fabric supported structural fill prism and grade beam design will mitigate the potential settlement and allow the building to settle as a unit. Further discussion can be found in the *Conclusions and Recommendations* section below. Our office should be contacted if alternate foundation support methods are considered.

Provided that the previously presented mitigations are implemented, it is our opinion that the geologic hazards that are present on the subject property can be adequately mitigated in conformance with Whatcom County Municipal Code. Assuming appropriate civil and structural design, and that our recommended mitigations have been incorporated into the plan for site development, it is our opinion that risks associated with the hazard areas will be minimized and reduced to within acceptable levels.

Our liquefaction analysis has demonstrated that seismic induced settlement can be mitigated with the use of structural fill, geotextile fabric and grade beam support, however an elevated risk of settlement still exists. It is our professional opinion that the proposal will not increase the threat of geological hazard to adjacent properties beyond predevelopment conditions. The proposal will not adversely impact other critical areas; and the development can be safely accommodated on the site.

Once the final civil and structural plans for development have been prepared, NW Geo recommends that we be allowed to review those plans to verify that the recommendations presented in this report have been incorporated into the final plan for site development.

It should be noted that no amount of engineering can completely mitigate or prevent ground instability. Earthquakes are unpredictable and we cannot reasonably be expected to forecast future events. Mitigation is intended to reduce the risk posed by site conditions and it should not be interpreted that mitigation is representative of eliminating any and all risk that might be present on the site. It is assumed that the SVCA are aware of the geologic hazards that are present on the site and that they have been adequately informed and are accepting of the risks associated with property development in a potential seismic hazard area.

Alluvial Fan Hazards

At present, we do not know if the finished floor of the building will need to be raised above the existing grade or finished floor to mitigate potential alluvial fan hazards at the site. Applicable mitigations include raising the finished floor grade above the existing grade to prevent flooding impacts to the building interior. Elevated stem walls would safeguard the building from debris flow impacts. We consider the risk of alluvial fan events impacting the new building to be low. The owners must understand the risks and accept the potential hazards.

It is our opinion that reasonable measures will be implemented in the building design and construction to minimize risks associated with alluvial fan events. We do not know of a detailed assessment for the Austin Creek alluvial fan beyond the information from the 1992 report that was discussed above.

Erosion Hazards

Potential Erosion hazards can be mitigated as recommended above. The existing setback of 120 feet is considered adequate to avoid erosion from Austin Creek impacting the site. In conjunction with the civil plan for stormwater management, vegetation management and planting and other recommendations for site development. the frequency or magnitude of erosion on or off the site will not be altered and the recommendations are consistent with Whatcom County Code.

It is our opinion that the development of a new barn in a similar footprint to the existing barn will not pose an unreasonable threat to persons or property either on or off site based on the existing conditions and recommended improvements. The proposed development will not impact existing geologic conditions, and the site is adequate for new development. The impacts of the new development are minimal as the project replaces an existing structure with a new structure. We do not anticipate adverse impacts to adjacent properties. The setback from Austin Creek is adequate and will not increase the frequency of erosion on or off the site. We anticipate adequate stormwater management design based on discussions with the civil engineer. We also foresee a suitable vegetation management program included with the project documents.

Geologically hazardous critical area review is often a multi-phase process. Evaluations typically consist of at least two stages; First, the geologic hazards are identified, and applicable mitigations are recommended. Stage two typically consists of a plan review stage in which the final civil and structural plans are reviewed to assess the incorporation of the recommended mitigations, presented herein, into the project plan sets. Our client should be aware that Whatcom County may require formal review and a brief letter from this firm stating that the relevant civil and structural site plans have adequately implemented the recommendations presented in this report.

CONCLUSIONS AND RECOMMENDATIONS

Based on the evaluation of data collected during this investigation, it is our opinion that the conditions at the site are feasible for the proposed building and parking development, provided the recommendations contained herein are included with the project design.

We assume that the building will be supported with a geotextile reinforced structural fill prism, grade beam and traditional foundations. The building is presumed to implement moderate loading conditions upon the structural fill and native soils and include a concrete slab on grade floor. We anticipate that the new structure footprint will occupy a similar footprint and location as the existing barn, with driveway and parking facilities proposed for the perimeter and north areas. The existing native and structural fill soils are not suitable in their present condition for the support of a new building. Removal and replacement of the existing fill with geotextile fabric and structural fill is recommended.

Earthwork

We recommend the removal of the existing foundation, concrete slab and structural fill prism down to the documented lacustrine deposits. We estimate that approximately 3 to 5 feet of material will need to be removed in order to reach the native sandy silt lacustrine horizon. The contractor should have a dewatering plan, and all earthworks should be performed in the summer dry season when groundwater conditions are typically at their lowest and in the seasonal window for earthworks in the Lake Whatcom watershed.

Prior to the placement of a new geotextile reinforced structural fill pad to support building construction, the exposed subgrade under all areas of the site should be verified as suitable by our firm. The suitability of native soil conditions may be accomplished with soil probe or DCP methods, as applicable.

We recommend following the guidelines provided above in the mitigation of geologic hazards section that includes stripping, geotextile fabric and structural fill to planned elevation. The new foundation will require the geotextile fabric and structural fill material to extend at least 3 to 4 feet or more laterally beyond the edge of each side of the foundation footprint for proper structural support. The design team should consider the spatial limitations associated with property boundaries and the existing infrastructure, utilities and driveways.

Fill and Compaction

Structural fill used to obtain final subgrade elevations for the building footprint must be properly placed and compacted. Material containing topsoil, wood, trash, organics or construction debris will not be suitable for use as structural fill and should be properly disposed of offsite or placed in nonstructural areas. Soils containing more than 5 percent fines are considered moisture sensitive and can be difficult to compact to a firm and unyielding condition when over the optimum moisture content by more than approximately 2 percent. The optimum moisture content is that which allows the greatest dry density to be achieved at a given level of compactive effort. Any non-organic, predominantly granular soil may be used for structural fill provided the material is properly moisture conditioned prior to placement and compaction, and the specified degree of compaction is obtained.

For all imported or recycled structural fill, we recommend that 95% or greater compaction by modified proctor per ASTM D1557 is obtained within the structural fill prism supporting any new structural elements. A third party from a materials testing and inspection company would provide these services.

Reuse of Site Soil

Due to the generally fine-grained component of the existing lacustrine deposits, we do not recommend the reuse of this material as structural fill. The existing structural fill found adjacent to buildings and driveways and presumed to exist under all foundations and slabs on grade is suitable for reuse. Fines content from laboratory work demonstrated that the existing structural fill contains 15 to 16 percent fines. While above the recommended fines content for moisture sensitivity, the client can save significant import-export costs by reusing the existing structural fill. This material should be carefully excavated and stockpiled separately from other excavated site materials. The contractor should aerate and moisture condition the existing structural fill prior to placement and compaction.

Any fill placed beneath the building footprint area should conform to the recommendations listed in the *Imported Structural Fill* section listed below. The reuse of site soils may be difficult or impractical under wet conditions and thus we recommend dry season construction. We recommend that a clast size of no greater than 6 inches in diameter be maintained for the structural fill and no organic soil be included in structural fill areas.

Imported Structural Fill

For imported structural fill materials, we recommend referencing the Washington State Department of Transportation, *Standard Specifications for Road, Bridge and Municipal Construction*, publication M 41-10, 2026.

We recommend general structural fill for dry weather construction be similar to Washington State Department of Transportation (WSDOT) Standard Specification 9-03.14(2) for *Select Borrow*. Soil containing more than about 5 percent fines cannot consistently be compacted to a dense, non-yielding condition when the moisture content is greater than optimum.

We recommend that imported structural fill for wet weather construction be similar to WSDOT Standard Specification 9-03.14(1) for *Gravel Borrow* with the added requirement that no more than 5 percent of the fill material pass through the U.S. No. 200 sieve.

Imported structural fill for foundation, driveway and parking support may consist of crushed engineered material. Based on local availability, we recommend the designer utilize *Crushed Surfacing Base Course* (CSBC) or *Crushed Surfacing Top* Course (CSTC) as structural fill under WSDOT Standard Specification 9-03.9(3).

For general backfill behind concrete foundation walls, we recommend utilizing material similar to *Gravel Backfill for Walls*, Specification 9-03.12(2). The drainage curtain immediately behind the wall should consist of 5/8” to 1-1/4” clear crushed rock with no fines content, depending on local availability.

We recommend the use of quarry spalls for structural support in areas such as portions of the building fill prism and construction entrances as applicable. The design team should reference WSDOT Standard Specification 9-13.1(5). Quarry spalls typically are 4 to 8 inches in diameter, however 2-inch by 4-inch spalls or similar material such as railroad ballast may be used for this purpose depending on cost and local availability.

Backfill and Compaction

Structural fill should be placed in horizontal lifts 6 to 8 inches in loose thickness and thoroughly compacted with appropriate machinery. All structural fill placed under load bearing areas should be compacted to at least 95% of the maximum dry density, as determined using test method ASTM D1557. The top of the compacted structural fill should extend outside all foundations and other structural improvements a minimum distance equal to the thickness of the fill placed beneath the footing. We recommend that the owner and project management team contract a local materials testing firm to verify the required densities are attained during the compaction process.

Seismic Design Category

The Pacific Northwest is seismically active, and the site could be subject to ground motion from a moderate to major earthquake. Consequently, moderate levels of earthquake shaking should be anticipated during the design life of the project, and the proposed structure should be designed to resist earthquake loading using appropriate design methodology.

For structures designed using the seismic design provisions of the 2021 International Building Code, the native lacustrine soil interpreted to underlie the site classifies as Site Class E, according to ASCE 7-16 Standard – Table 20.3-1, *Site Class Definitions*. The structural engineer should incorporate the appropriate design response spectrum based on Site Class E soil and the geographic location of the structure.

Foundation Support

Our field exploration indicates that the site subsurface conditions around the building perimeter contain structural fill above lacustrine deposits that extend to a depth of approximately 11 to 12 feet below grade. Glacial drift soils are positioned below lacustrine deposits and over Chuckanut Formation bedrock. Our above recommendations include the removal of existing foundations and structural fill followed by the placement of geotextile fabric on native lake deposits. All foundations and grade beams shall be supported by at least three feet of new structural fill and geotextile fabric to mitigate seismic and static settlement concerns.

For the foundation fill pad, we recommend Tencate Mirafi® *RS280i* (or industry equivalent) be placed on the native lacustrine deposits. One lift of quarry spalls should be placed above the geotextile fabric and compacted as the first layer of structural fill to mitigate any groundwater concerns. We estimate that a one-foot lift will be sufficient for this purpose. On the quarry spalls, we recommend the placement of a second layer of geotextile fabric. This layer of fabric serves as a separation horizon to mitigate fines migration into any quarry spall voids.

We recommend Northwest Linings & Geotextile Products, Inc., *PermeaTex 2315* woven geotextile fabric (or industry equivalent) be placed above the quarry spalls. The remaining structural fill may consist of recycled existing structural fill and import fill. We recommend capping the new structural fill pad with *Crushed Surfacing Base Couse* (or industry equivalent) under WSDOT Standard Specification 9-03.9(3).

Within the structural fill prism, the geotextile and import fill material should extend laterally beyond the edge of each side of the footing, a distance equal to the depth of the excavation below the base of the footing.

We recommend that our firm verify that suitable bearing conditions have been reached prior to placement of structural fill and foundation formwork during construction.

All footings should be placed a minimum of 18 inches below the lowest adjacent final grade for frost protection. The footings should be sized in accordance with the structural engineer's prescribed design criteria and seismic considerations.

New foundations should have adequate footing drains connecting to the civil engineered storm drain system.

Allowable Bearing Capacity

Assuming the above foundation support criteria are satisfied, continuous and isolated footings and grade beams founded on a geotextile reinforced structural fill prism over approved native soils, may be proportioned using a net allowable soil bearing pressure of up to 1,500 pounds per square foot (psf). Our calculations were based on the use of a 36-inch-wide footing for structural support.

The term "net allowable bearing pressure" refers to the pressure that can be imposed on the import and native soil at foundation level resulting from the total of all dead plus live loads, including the weight of the footing or any backfill placed above the footing. The net allowable bearing pressure may be increased by one-third for transient wind or seismic loads. The above net allowable bearing capacity includes a factor of safety of 3, which is considered the industry standard.

Static Foundation Settlement

We utilized Tensar+™ foundation software to determine static settlement estimates based on the existing and prescribed groundwork conditions. Assuming a moderate building load and that construction is accomplished as recommended and for the maximum allowable soil bearing pressure addressed above, we estimate the total settlement of the foundation should be less than one inch and differential settlement between two adjacent load-bearing components supported on a geotextile reinforced import structural fill prism should be less than about one half the total settlement. The above tolerance values are considered industry standards.

The soil response to applied stresses caused by foundation and other loads is expected to be predominantly elastic in nature, with most of the settlement occurring during construction as loads are applied. This settlement estimate assumes that foundations have been located on properly placed and compacted imported structural fill with geotextile fabric support over native soils as detailed above.

Foundation and Site Drainage

To manage hydrostatic forces and mitigate groundwater seepage, we recommend that an exterior footing drain system be constructed around the perimeter of the new foundation. The drain should consist of a minimum 4-inch diameter perforated pipe, surrounded by a minimum 12 inches of filtering media with the discharge sloped to carry water to an approved collection system. The filtering media may consist of clear crushed drain rock with no fines wrapped by a nonwoven geotextile fabric (such as Tencate Mirafi® 140N or equivalent). The drainage backfill behind the foundation walls should be carried up the back of the wall and be at least 12-inches wide. The drainage backfill should extend from the foundation drain to within approximately 1 foot of the finished grade and consist of clear crushed drain rock with no fines. The invert of the footing drainpipe should be placed slightly below the elevation of the footing, so that water will be contained and conveyed away from the structure. The drain system should include cleanouts to allow for periodic maintenance and inspection.

Stormwater Management

Based on the evaluation of the data collected during this investigation, it is our opinion that the subsurface conditions at the site are suitable for the limited infiltration of stormwater, provided the recommendations contained herein are incorporated into the project design. We do not know the overall stormwater management plan at the time of the writing of this report.

There is variable separation from the existing grade to groundwater intersection. Separation generally ranged from 4 to 7.5 feet in the area of the building. We encountered groundwater at approximately 3 feet BPG in the area north of the building and parking lot that is about 3 feet lower that the rest of the site. The actual location, sizing, depth and overall design of facilities was not completed at the time of the writing of this report. Our recommended design rate is based on calculations performed for this report in conjunction with laboratory analysis of samples obtained from test pit sampling. We recommend confirmation of soil conditions and design rates during construction.

The near-surface lacustrine soils are composed of soft to medium stiff, sandy silt with fines content ranging from 43 to 69 percent in select samples. A restrictive horizon in the form of the groundwater table varied by location. The design team should target the native lacustrine deposits when designing an infiltration facility.

Test Pit Gradation Results

From the explorations in the areas of interest, 4 representative soil samples were selected and mechanically tested for grain size distribution and calculation according to the soil Grain Size Analysis method, Volume V, Chapter 5.4 of the Department of Ecology *Stormwater Management Manual for Western Washington,* 2024. The total correction factor applied to initial saturated hydraulic conductivity (Ksat) values was 0.1188 and based on the below variables.

- Site variability and number of locations tested (CF_v) = 0.33
- Test Method – Grain Size Analysis: (CF_t) = 0.4
- Degree of influent control to prevent siltation & bio-buildup (CF_m) = 0.9

The 2024 SMMWW provides guidelines for grain size analysis where the saturated hydraulic conductivity (K_{sat}) is calculated as referenced by Massmann (2008). If the saturated hydraulic conductivity rate is greater than 0.01 centimeter per second (cm/s), recalculate using the saturated hydraulic conductivity for coarse grained soils. If the saturated hydraulic conductivity rate is less than 0.01 cm/s, recalculate using the saturated hydraulic conductivity for fine grained soils. The initial calculations demonstrated that the 4 samples would be calculated under the saturated hydraulic conductivity for fine grained soils.

The corrected, fine-grained infiltration rates for the lacustrine deposits ranged from 0.22 to 0.29 inches per hour. The native soils are consistent in terms of predicted infiltration rate and fines content. The below rate is representative of loose or soft soil conditions, and do not take into account previous soil compaction or development, particle shape, and stratigraphic effects. We recommend the design team target the upper lacustrine horizon when designing the infiltration system.

For infiltration systems designed to target the lacustrine deposits unit, we recommend the use of **0.25 inches per hour** as a final (long-term) infiltration rate for the design process. Any existing fill encountered at the site should be stripped to the documented lacustrine deposits horizon.

If an increased rate is desired or required, a “real-world” determination can be performed via Pilot Infiltration Test (PIT) methods at actual stormwater facility locations.

We also recommend that any new infiltration facilities be protected from construction traffic during the building process to avoid compaction that could negatively influence infiltration rates.

NW Geo is available to consult further or review stormwater design plans once they are developed for the project and is available to confirm conditions during construction. Once the final civil plans for the development have been prepared, NW Geo recommends that we be allowed to review those plans to verify that the recommendations presented in this report have been incorporated into the final plan for site development

Pavement Applications

The final design and lateral extent of new pavements at the project site is unknown at present. We assume that new pavement will replace the existing pavement in a similar footprint as there is little room to expand laterally.

We recommend the client consider the reuse of the existing structural fill for new pavements. The existing pavement subgrade consists of structural fill that may be suitable to remain. We recommend extensive proof rolling with a fully loaded, double axle dump truck to verify suitability during construction. Overall we anticipate light traffic loading conditions, mostly consisting of passenger cars with some heavier truck traffic for deliveries and SVCA golf course maintenance. We do not know of a traffic study conducted for this project.

The following recommendations are meant as a guideline for the design engineer to develop final pavement sections in accordance with current codes and standards. For pavement design purposes we recommend using a California Bearing Ratio (CBR) value of 2 for the near surface native soils. The design of pavement areas will need to be performed by a licensed engineer. We recommend that subgrade soils supporting pavement sections include minor grade changes to allow for passive drainage away from the pavement or that grading directs surface water to catch basins within the footprint of the pavement interior.

Flexible Asphalt Pavement – Light Duty

If utilized within light vehicle parking areas, we recommend a standard, or “light duty”, pavement section consist of 2.5 inches of Class ½-inch Hot Mix Asphalt (HMA) above 2 inches of Crushed Surfacing Top Course (CSTC) meeting criteria set forth in the Washington State Department of Transportation (WSDOT) Standard Specification 9-03.9(3). The base material for the road section should consist of “gravel base” which may include 8 inches of gravel borrow (with 100% passing the 2-inch sieve) or 6 inches of Crushed Surfacing Base Bourse (CSBC) as classified by WSDOT 9-03.9(3) Standards and Specifications.

Flexible Asphalt Pavement – Heavy Duty

New drive lanes, parking or and any other areas that will be accessed by heavy traffic or higher volumes will require a thicker section and should be designed using a paving section consisting of 4 inches of Class ½-inch HMA above 2 inches of Crushed Surfacing Top Course (CSTC) meeting criteria set forth in the WSDOT Standard Specification 9-03.9(3), overlying gravel base. The base material for the road section should consist of “gravel base” which may include 10 inches of gravel borrow (with 100% passing the 2-inch sieve) or 8 inches of Crushed Surfacing Base Bourse (CSBC) as classified by WSDOT 9-03.9(3) Standards and Specifications.

Concrete Pavement

Concrete pavements could be used for access drives, parking areas, sidewalks, aprons and support structures. Design of concrete pavements is a function of concrete strength, reinforcement steel, and the anticipated loading conditions for the roads. For design purposes, a vertical modulus of subgrade reaction of 100 pounds per cubic inch (pci) should be expected for concrete elements constructed over properly placed and compacted imported structural fill. We anticipate that concrete pavement sections, if utilized, will be at least 4 inches thick and be founded on a minimum of 8 inches of compacted gravel base.

Geotechnical Consultation During Construction

NW Geo recommends that we be involved in the project design review process. The purpose of the review is to verify that the recommendations presented in this report are understood and incorporated in the design and specifications. We also recommend that geotechnical construction monitoring services be provided. The purpose of these services is to observe compliance with the design concepts, specifications, and recommendations of this report. In the event that subsurface conditions differ from those anticipated before the start of construction, we would be pleased to provide revised recommendations appropriate to the conditions revealed during construction.

LIMITATIONS AND USE OF THIS REPORT

Recommendations contained in this report are based on our understanding of the proposed development and construction activities, our field observations, exploration and interpreted results. It is possible that soil and groundwater conditions could vary and differ between or beyond the points explored. If soil or groundwater conditions are encountered during construction that vary or differ from those described herein, NW Geo shall be notified immediately in order that a review may be made and supplemental recommendations provided. If the scope of the proposed construction, including the proposed loads or structural locations, changes from that described in this report, our recommendations shall also be reviewed.

We have prepared this report in substantial accordance with the generally accepted geotechnical engineering practice as it exists in the site area at the time of our study. No warranty, expressed or implied, is made. The recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be conducted by NW Geo during the construction phase in order to evaluate compliance with our recommendations. Other standards or documents referenced in any given standard cited in this report, or otherwise relied upon by the author of this report, are only mentioned in the given standard; they are not incorporated into it or “included by reference”, as that latter term is used relative to contracts or other matters of law.

This report may be used only by SVCA and their design consultants and only for the purposes stated within a reasonable time from its issuance, but in no event later than 5 years from the date of the report. Note that if another firm assumes Geotechnical Engineer of Record responsibilities, they need to review this report and either concur with the findings, conclusions, and recommendations or provide alternate findings, conclusions and recommendation under the guidance of a professional engineer registered in the State of Washington. The recommendations of this report are based on the assumption that the Geotechnical Engineer of Record has reviewed and agrees with the findings, conclusion and recommendations of this report.

Land or facility use, on- and off-site conditions, regulations, or other factors may change over time, and additional work may be required with the passage of time. Based on the intended use of the report, NW Geo may recommend that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by SVCA or anyone else will release NW Geo from any liability resulting from the use of this report by any unauthorized party and SVCA agrees to defend, indemnify, and hold NW Geo harmless from any claim or liability associated with such unauthorized use or non-compliance. We recommend that NW Geo be given the opportunity to review the final project plans and specifications to evaluate if our recommendations have been properly interpreted. We assume no responsibility for misinterpretation of our recommendations.

The scope of work for this geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface or groundwater monitoring at this site.

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Figure 1: *Regional Map* showing the general project location in Sudden Valley, near Bellingham, WA. Image courtesy of *USGS National Map Downloader,* 2026.

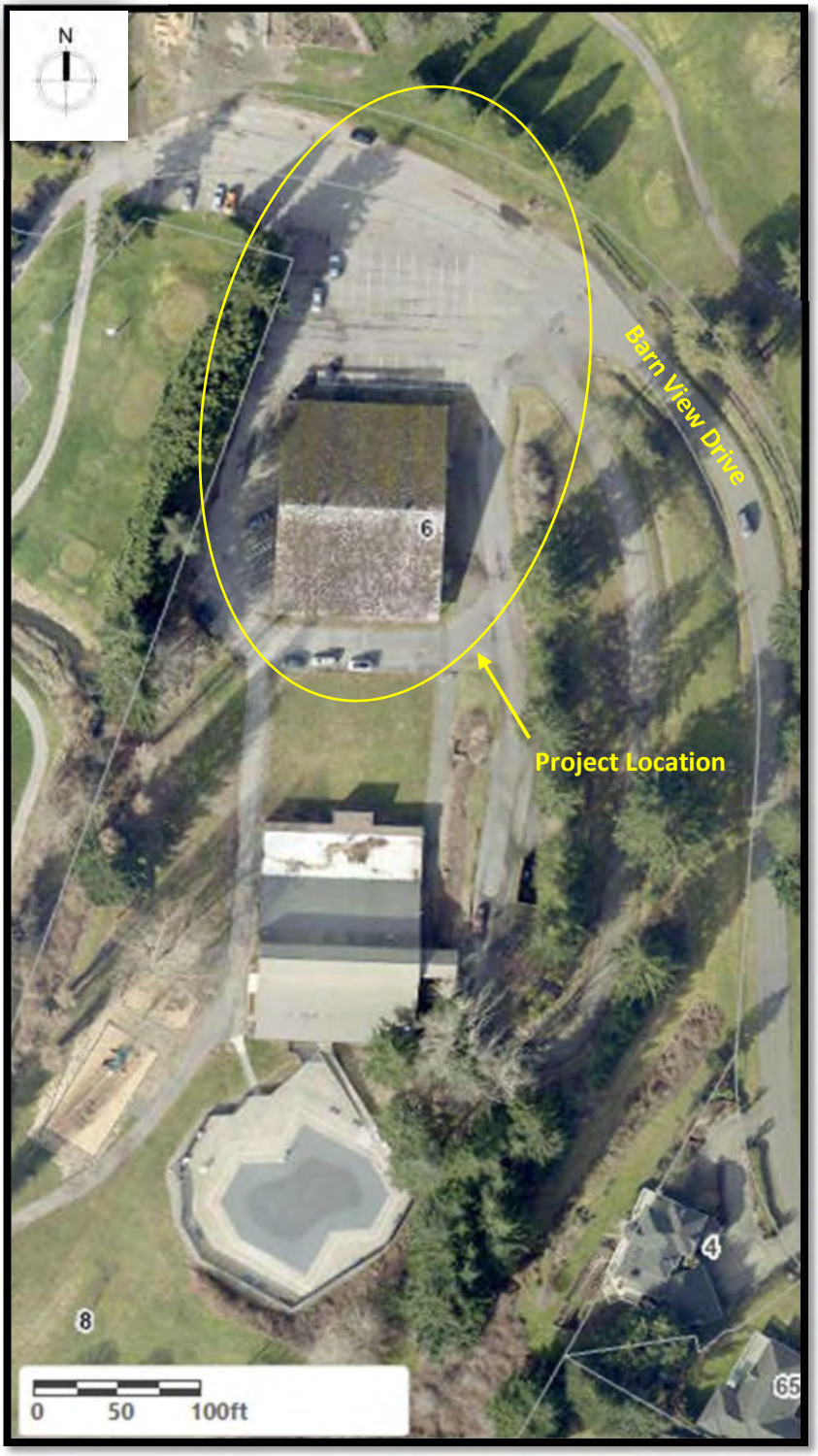


Figure 2: *Vicinity Map* showing the general project location in yellow oval at 6 Barn View Drive, Sudden Valley, WA. Image courtesy of City of Bellingham, *City IQ*, 2026.

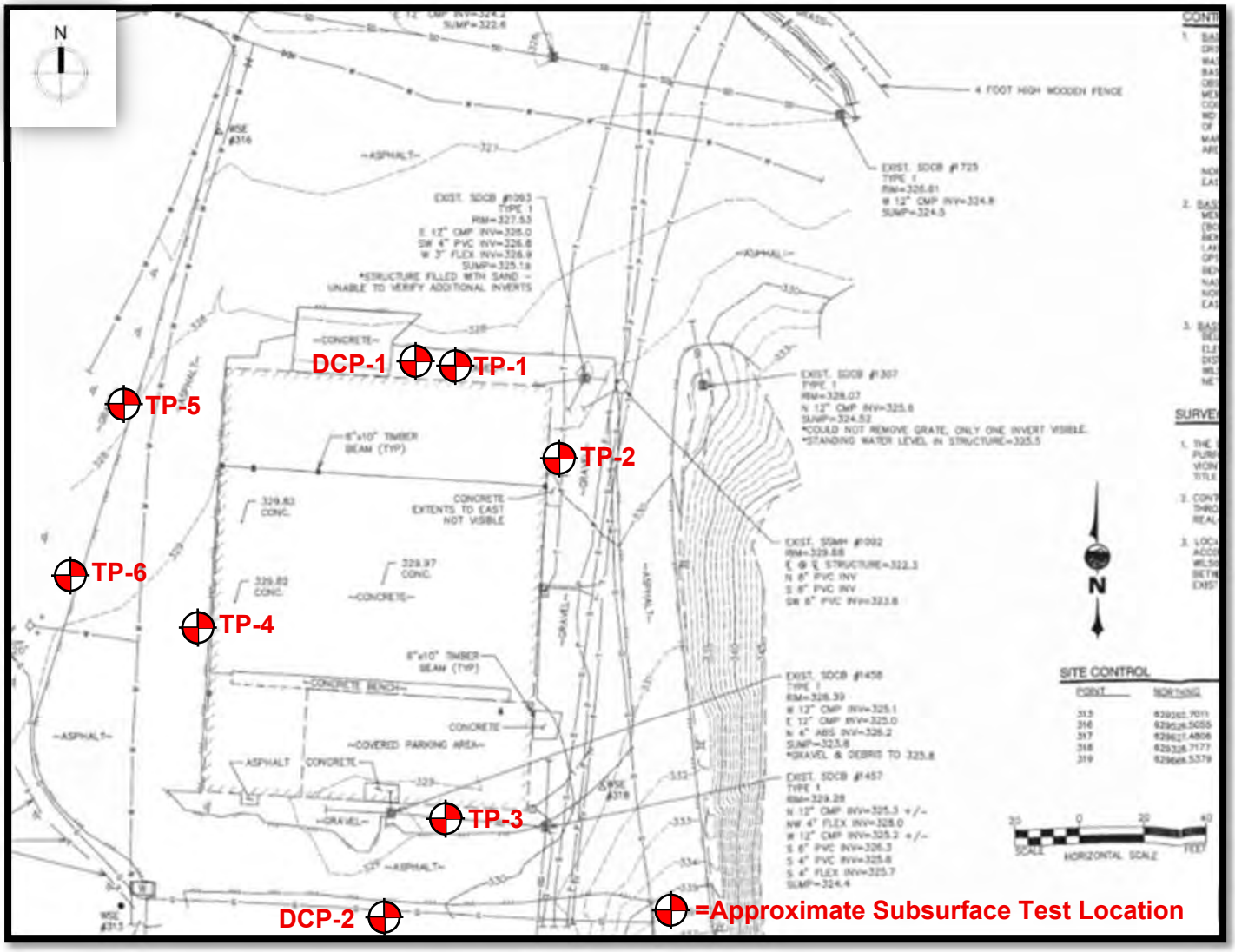


Figure 3A: *Site and Exploration Plan* showing the existing barn, underground utilities and approximate subsurface exploration locations on March 27 and April 10, 2026. Image courtesy of PNW Civil, Inc., 2026.

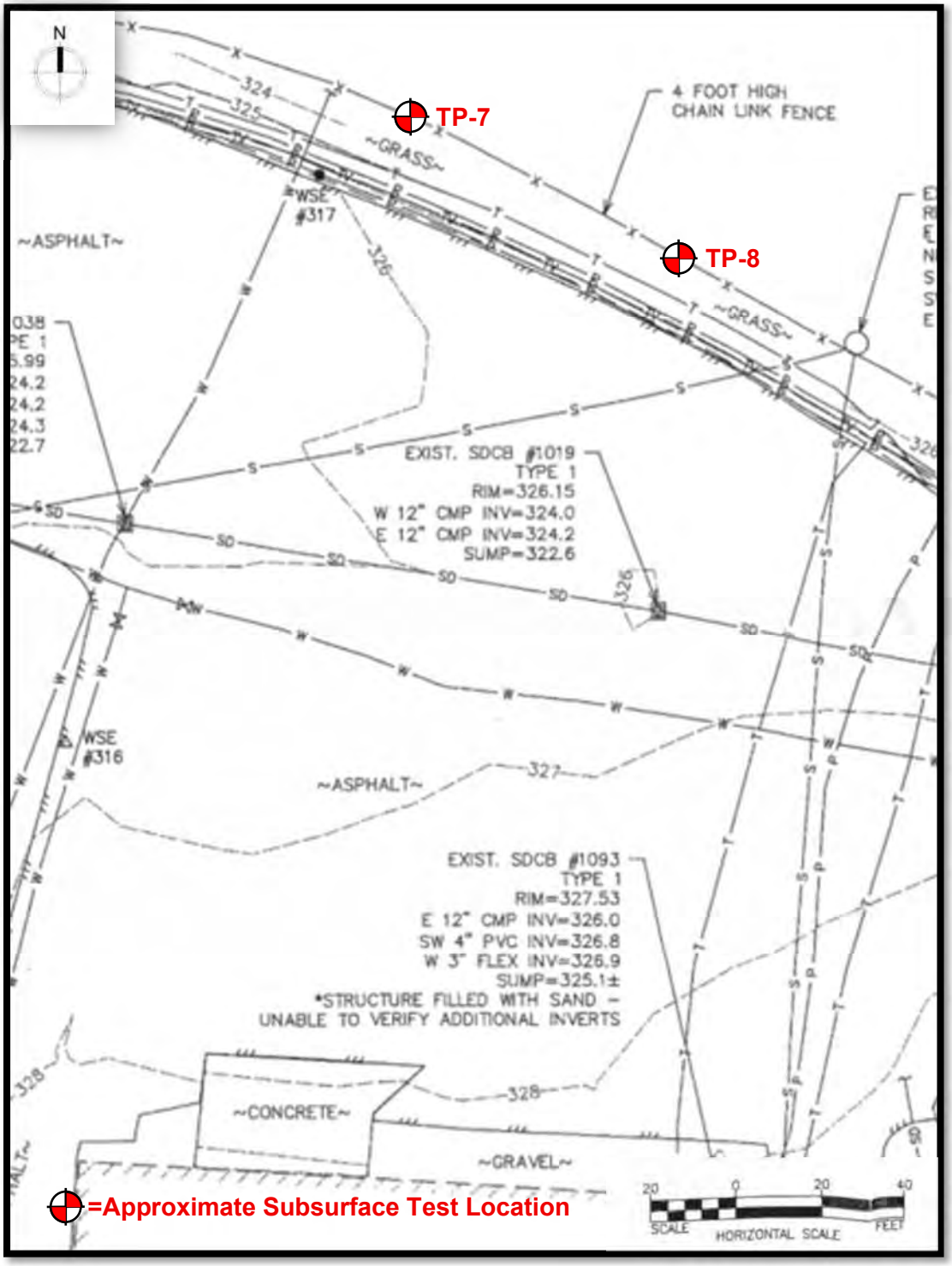


Figure 3B: *Site and Exploration Plan* showing the existing barn margin, northern asphalt parking area and approximate subsurface exploration locations on April 16, 2026. Image courtesy of PNW Civil, Inc., 2026. Scale is approximate.

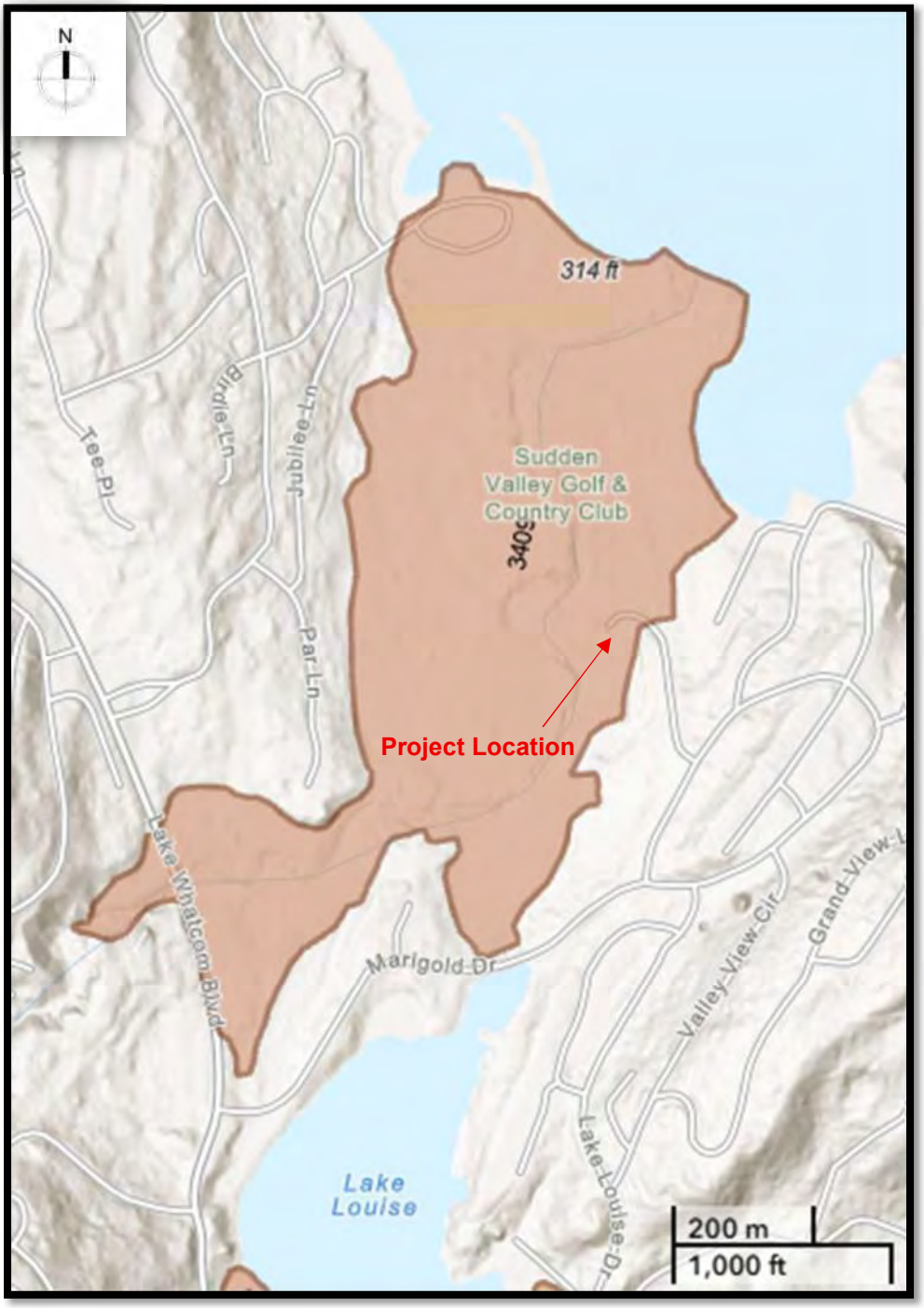


Figure 4: *Geologic Hazard Map* showing the Austin Creek alluvial fan hazard in brown in relation to the project site. Image courtesy DNR *Geologic Information Portal*, 2026.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)		
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	
	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	
	GM	Silty gravels, gravel-sand-silt mixtures
	GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	
	SW	Well-graded sands, gravelly sands, little or no fines
	SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	
	SM	Silty sands, sand-silt mixtures
	SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)		
SILTS AND CLAYS Liquid limit less than 50%	ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts with slight plasticity
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
	OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
	CH	Inorganic clays of high plasticity, fat clays
	OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils

LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART

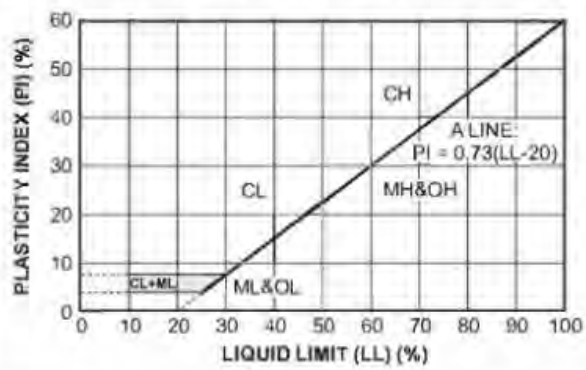


Figure 5: Unified Soil Classification System (USCS) Chart.

Project:	SVCA Barn	**Log #:**	TP-1	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0	GP	0.0-1.25'	Orange brown, damp, medium dense to dense, sandy GRAVEL, some oxidation (Import Fill)
	1			
	2	ML	1.25-3.2'	Gray brown, damp, stiff to very stiff, sandy SILT, some grass fragments & woody debris, some organic odor (Lacustrine Deposits) Probe: 4-8" penetration at 2.0-3.5' BPG PP: 2.5-3.5 tsf at 2.0-3.5' BPG
1	3			
2	4	SM	3.2-8.0'	Light gray, damp to wet, loose to medium dense, silty SAND, some disseminated organics, some organic odor (Lacustrine Deposits) 4.0' - light seepage of groundwater PP: 0.5 tsf at 4.0' BPG
	5			5.0-6.0' - some sticks and organic fragments, soft conditions continue to TD, light seepage to TD
3	6			
	7			7.0' - moderate sidewall collapse
	8			
	9			Groundwater encountered at 4.0' BPG, light seepage 4.0-8.0' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location
	10			

Project:	SVCA Barn	**Log #:**	TP-2	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0 1	GP	0.0-1.0'	Gray brown, damp, dense, sandy GRAVEL, trace oxidation, some concrete & asphalt fragments (Import Fill)
	2 3	ML	1.0-3.2'	Brown-orange-gray, damp, medium stiff to stiff, sandy SILT, varicolored, some sand and gravel, trace cobble (Native Fill) Probe: 5-10" penetration at 1.0-3.2' BPG PP: 2.5 tsf at 3.0' BPG 3.2' - telecom line in sidewall of excavation
	4	GM	3.2-4.75'	Medium to dark gray, damp, dense, sandy, silty GRAVEL, some cobbles (Import Foundation Fill)
4	5 6	SM	4.75-6.5'	Medium gray, damp, medium dense, silty SAND, fine-grained sand, micaceous, some organic odor (Lacustrine Deposits)
5	7 8	ML	6.5-8.0'	Light gray, damp-wet, medium stiff, sandy SILT, some organic fragments and odor (Lacustrine Deposits) 7.5' - light seepage of groundwater
	9 10			Groundwater encountered at 7.5' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location

Project:	SVCA Barn	**Log #:**	TP-3	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0 1	GP	0.0-1.0'	Orange brown, damp, dense, sandy GRAVEL, trace oxidation, trace cobble (Import Fill)
	2 3	GP-ML	1.0-3.0'	Medium gray, damp, medium stiff to medium dense, sandy GRAVEL to sandy SILT, some oxidation, trench backfill (Mixed Import and Native Fill) Probe: 5-10" penetration at 1.0-3.2' BPG PP: 2.5 tsf at 3.0' BPG 3.0' - water line in sidewall of excavation
6 7	4 5 6 7 8	ML	3.0-8.0'	Light gray, damp-wet, soft, sandy SILT, some organic fragments and odor (Lacustrine Deposits) 4.0' - light seepage of groundwater Probe: 2.5' penetration at 4.0' BPG PP: 0.5 tsf at 4.0' BPG 6.5' - light seepage of groundwater, prevalent sidewall collapse, continues to TD
	9 10			Groundwater encountered at 4.0 & 6.5' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location

Project:	SVCA Barn	**Log #:**	TP-4	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0	ASP	0.0-0.25'	Asphalt pavement, 2.5-3" thick, removed with saw
8	1	SW	0.25-1.3'	Light brown, damp, dense, gravelly SAND, some silt, some angular clasts (Import Fill)
	2	SW	1.3-3.0'	Medium brown, damp, medium dense to dense, gravelly SAND, some silt, light oxidation (Import Foundation Fill)
	3			2.75' - unmarked utility cluster - older irrigation conduits
9	4	ML	3.0-5.0'	Orange brown, damp, soft to medium stiff, sandy SILT, some oxidation, charcoal fragments (Lacustrine Deposits)
	5			Probe: 10-18" penetration at 4.0' BPG PP: 0.5-1.5 tsf at 4.0' BPG
	6			No groundwater encountered Test pit terminated at 5.0' BPG due to utilities intersection Please reference *Site and Exploration Plan* for location
	7			
	8			
	9			
	10			

Project:	SVCA Barn	**Log #:**	TP-5	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS	Description
	0	OL-ML	0.0-0.25' Dark brown, damp, soft, organic SILT (Topsoil)
10	1	SW	0.25-1.5' Medium brown, damp, dense, gravelly SAND, some silt, some cobble, some asphalt fragments (Import Fill) 1.5' - SVCA staff reports utility conflict on site
	2		No groundwater encountered Test pit terminated at 1.5' BPG due to utilities conflict below Please reference *Site and Exploration Plan* for location
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		

Project:	SVCA Barn	**Log #:**	TP-6	**Staff:**	KP	**Date:**	3/27/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0	OL-ML	0.0-0.25'	Dark brown, damp, soft, organic SILT (Topsoil)
	1	GP	0.25-1.3'	Gray brown, damp, dense, sandy GRAVEL, some silt, some cobbles (Import Fill)
	2	ML	1.3-8.0'	Gray brown, damp, soft to medium stiff, sandy SILT, fine grained sand, some organic content and odor, light oxidation, micaceous (Lacustrine Deposits) Probe: 8-18" penetration at 2.0-4.0' BPG PP: 0.5-1.0 tsf at 2.0- 4.0' BPG
11	3			
	4			4.0' - prevalent soft conditions continue to TD
	5			
12	6			6.0' - color change to gray orange, increased oxidation
	7			7.0' - light seepage of groundwater encountered
	8			
	9			Groundwater encountered at 7.0' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location
	10			

Project:	SVCA Barn	**Log #:**	TP-7	**Staff:**	KP	**Date:**	4/16/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0	OL-ML	0.0-0.75'	Medium brown, damp, soft, organic SILT, some sand, grass at surface, some roots (Topsoil)
	1	ML	0.75-6.0'	Orange brown, damp, soft to medium stiff, sandy SILT, fine grained sand, some organic content, light oxidation, slightly micaceous, some tree roots (Lacustrine Deposits)
13	2			Probe: 8-20" penetration at 2.0-4.0' BPG PP: 0.5-1.0 tsf at 2.0- 4.0' BPG 2.5' - moderate mottling & oxidation horizon, continues to 3.5' BPG
	3			3.0' - light seepage of groundwater
	4			4.0' - prevalent soft conditions continue to TD
	5			
14	6			6.0' - color change to gray orange
	7	ML	6.0-8.0'	Gray orange, wet, soft to medium stiff, sandy SILT, moderate to strong mottling and oxidation horizon at 6.0-7.0', some disseminated organics, sparse roots, sidewall collapse common, rapid seepage of groundwater (Lacustrine Deposits)
	8			
	9			Groundwater encountered at 3.0' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location
	10			

Project:	SVCA Barn	**Log #:**	TP-8	**Staff:**	KP	**Date:**	4/16/2026
Job No:	26-027	**Driller/Excavator:**	Stremler			**Method:**	Test Pit

Sample #	Depth (FT)	USCS		Description
	0 1	ML/SM	0.0-1.0'	Medium brown, damp, soft, organic SILT to silty SAND with gravel, trace cobble, grass at surface, dense roots (Topsoil/Fill)
	2	ML	1.0-5.0'	Orange brown, damp, soft to medium stiff, sandy SILT, fine grained sand, some organic content, light oxidation, micaceous, dense tree roots (Lacustrine Deposits)
15	3			Probe: 10-20" penetration at 2.0-4.0' BPG PP: 0.5-1.0 tsf at 2.0- 4.0' BPG 2.5' - moderate mottling & oxidation horizon, continues to 3.5' BPG
	4			3.25' - light seepage of groundwater 4.0' - prevalent soft conditions continue to TD
16	5			6.0' - color change to brown orange
	6 7 8	ML	5.0-8.0'	Brown orange, wet, soft to medium stiff, sandy SILT, moderate to strong mottling and oxidation horizon at 5.0-7.0', some disseminated organics, sparse roots, sidewall collapse common, rapid seepage of groundwater (Lacustrine Deposits)
	9 10			Groundwater encountered at 3.25' BPG Test pit terminated at 8.0' BPG at planned depth Please reference *Site and Exploration Plan* for location

WILDCAT DYNAMIC CONE LOG

NW Geologic, PLLC
Ferndale, WA

PROJECT NUMBER: 26-027
DATE STARTED: 04-10-2026
DATE COMPLETED: 04-10-2026

HOLE #: DCP-1
CREW: NW Geologic, Kurt Parker
PROJECT: SVCA Barn Improvements
ADDRESS: 6 Barn View Drive, Sudden Valley, Bellingham, WA
LOCATION: North side of barn, adjacent to TP-1

SURFACE ELEVATION: Not Determined
WATER ON COMPLETION: Yes
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
- - - 1 ft			~1.2 feet of material removed by hand tools prior to DCP advance			
-	7	31.1	••••••••	8	LOOSE	MEDIUM STIFF
-	7	31.1	••••••••	8	LOOSE	MEDIUM STIFF
- 2 ft	10	44.4	••••••••••••	12	MEDIUM DENSE	STIFF
-	9	40.0	•••••••••••	11	MEDIUM DENSE	STIFF
-	7	31.1	••••••••	8	LOOSE	MEDIUM STIFF
- 3 ft	4	17.8	•••••	5	LOOSE	MEDIUM STIFF
- 1 m	3	13.3	•••	3	VERY LOOSE	SOFT
-	2	7.7	••	2	VERY LOOSE	SOFT
- 4 ft	5	19.3	•••••	5	LOOSE	MEDIUM STIFF
-	4	15.4	••••	4	VERY LOOSE	SOFT
-	2	7.7	••	2	VERY LOOSE	SOFT
- 5 ft	1	3.9	•	1	VERY LOOSE	VERY SOFT
-	0	0.0		0	VERY LOOSE	VERY SOFT
-	0	0.0		0	VERY LOOSE	VERY SOFT
- 6 ft	0	0.0		0	VERY LOOSE	VERY SOFT
-	0	0.0		0	VERY LOOSE	VERY SOFT
- 2 m	0	0.0		0	VERY LOOSE	VERY SOFT
- 7 ft	0	0.0		0	VERY LOOSE	VERY SOFT
-	0	0.0		0	VERY LOOSE	VERY SOFT
-	1	3.4		0	VERY LOOSE	VERY SOFT
- 8 ft	3	10.3	••	2	VERY LOOSE	SOFT
-	3	10.3	••	2	VERY LOOSE	SOFT
-	3	10.3	••	2	VERY LOOSE	SOFT
- 9 ft	4	13.7	•••	3	VERY LOOSE	SOFT
-	6	20.5	•••••	5	LOOSE	MEDIUM STIFF
-	6	20.5	•••••	5	LOOSE	MEDIUM STIFF
- 3 m 10 ft	5	17.1	••••	4	VERY LOOSE	SOFT
-	5	15.3	••••	4	VERY LOOSE	SOFT
-	7	21.4	••••••	6	LOOSE	MEDIUM STIFF
-	10	30.6	•••••••••	8	LOOSE	MEDIUM STIFF
- 11 ft	7	21.4	••••••	6	LOOSE	MEDIUM STIFF
-	6	18.4	•••••	5	LOOSE	MEDIUM STIFF
-	11	33.7	••••••••••	9	LOOSE	STIFF
- 12 ft	17	52.0	••••••••••••••••	14	MEDIUM DENSE	STIFF
-	11	33.7	••••••••••	9	LOOSE	STIFF
-	21	64.3	••••••••••••••••••••	18	MEDIUM DENSE	VERY STIFF
- 4 m 13 ft	25	76.5	••••••••••••••••••••••••	21	MEDIUM DENSE	VERY STIFF

HOLE #: DCP-1

WILDCAT DYNAMIC CONE LOG

PROJECT: SVCA Barn Improvements

PROJECT NUMBER: 26-027

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
	27	74.8		21	MEDIUM DENSE	VERY STIFF
	33	91.4		25+	MEDIUM DENSE	VERY STIFF
14 ft	42	116.3		25+	DENSE	HARD
	50	138.5		25+	DENSE	HARD
15 ft						
16 ft						
5 m						
17 ft						
18 ft						
19 ft						
6 m						
20 ft						
21 ft						
22 ft						
7 m 23 ft						
24 ft						
25 ft						
26 ft						
8 m						
27 ft						
28 ft						
29 ft						
9 m						

WILDCAT DYNAMIC CONE LOG

NW Geologic, PLLC
Ferndale, WA

PROJECT NUMBER: 26-027
DATE STARTED: 04-10-2026
DATE COMPLETED: 04-10-2026

HOLE #: DCP-2
CREW: NW Geologic, Kurt Parker
PROJECT: SVCA Barn Improvements
ADDRESS: 6 Barn View Drive, Sudden Valley, Bellingham, WA
LOCATION: South side of barn, adjacent to drive lane on grass lawn

SURFACE ELEVATION: Not Determined
WATER ON COMPLETION: Yes
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
1 ft			~1.5 feet of material removed by hand tools prior to DCP advance			
	6	26.6	•••••••	7	LOOSE	MEDIUM STIFF
2 ft	12	53.3	••••••••••••••	15	MEDIUM DENSE	STIFF
	30	133.2	••••••••••••••••••••••••••••••••••••	25+	DENSE	HARD
	24	106.6	••••••••••••••••••••••••••••••	25+	MEDIUM DENSE	VERY STIFF
3 ft	14	62.2	••••••••••••••••••	17	MEDIUM DENSE	VERY STIFF
1 m	6	26.6	•••••••	7	LOOSE	MEDIUM STIFF
	7	27.0	•••••••	7	LOOSE	MEDIUM STIFF
4 ft	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
	5	19.3	•••••	5	LOOSE	MEDIUM STIFF
	2	7.7	••	2	VERY LOOSE	SOFT
5 ft	3	11.6	•••	3	VERY LOOSE	SOFT
	5	19.3	•••••	5	LOOSE	MEDIUM STIFF
	4	15.4	••••	4	VERY LOOSE	SOFT
6 ft	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
	8	30.9	••••••••	8	LOOSE	MEDIUM STIFF
2 m	6	23.2	••••••	6	LOOSE	MEDIUM STIFF
7 ft	6	20.5	•••••	5	LOOSE	MEDIUM STIFF
	9	30.8	••••••••	8	LOOSE	MEDIUM STIFF
	9	30.8	••••••••	8	LOOSE	MEDIUM STIFF
8 ft	8	27.4	•••••••	7	LOOSE	MEDIUM STIFF
	12	41.0	••••••••••••	11	MEDIUM DENSE	STIFF
	14	47.9	••••••••••••••	13	MEDIUM DENSE	STIFF
9 ft	14	47.9	••••••••••••••	13	MEDIUM DENSE	STIFF
	15	51.3	•••••••••••••••	14	MEDIUM DENSE	STIFF
	14	47.9	••••••••••••••	13	MEDIUM DENSE	STIFF
3 m 10 ft	15	51.3	•••••••••••••••	14	MEDIUM DENSE	STIFF
	14	42.8	••••••••••••	12	MEDIUM DENSE	STIFF
	16	49.0	•••••••••••••••	13	MEDIUM DENSE	STIFF
	14	42.8	••••••••••••	12	MEDIUM DENSE	STIFF
11 ft	15	45.9	••••••••••••••	13	MEDIUM DENSE	STIFF
	18	55.1	••••••••••••••••	15	MEDIUM DENSE	STIFF
	23	70.4	••••••••••••••••••••	20	MEDIUM DENSE	VERY STIFF
12 ft	26	79.6	••••••••••••••••••••••••	22	MEDIUM DENSE	VERY STIFF
	36	110.2	••••••••••••••••••••••••••••••	25+	DENSE	HARD
	39	119.3	••••••••••••••••••••••••••••••••••	25+	DENSE	HARD
4 m 13 ft	29	88.7	••••••••••••••••••••••••	25	MEDIUM DENSE	VERY STIFF

HOLE #: DCP-2

WILDCAT DYNAMIC CONE LOG

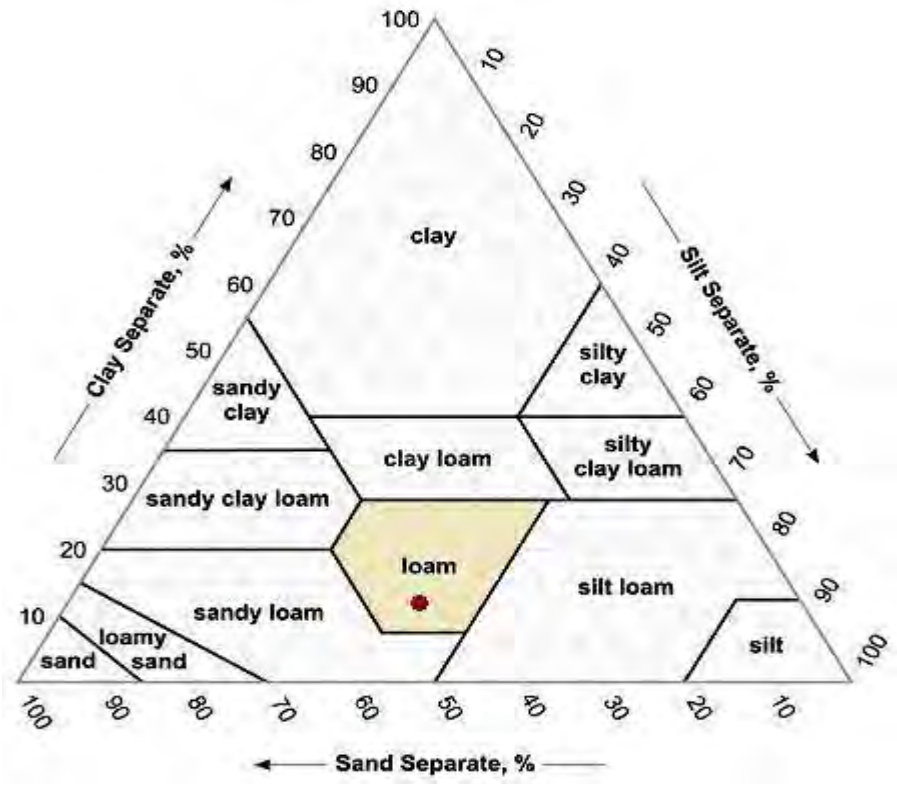
PROJECT: SVCA Barn Improvements

PROJECT NUMBER: 26-027

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY NON-COHESIVE	COHESIVE
	37	102.5		25+	MEDIUM DENSE	VERY STIFF
	33	91.4		25+	MEDIUM DENSE	VERY STIFF
14 ft	50	138.5		25+	DENSE	HARD
15 ft						
16 ft						
5 m						
17 ft						
18 ft						
19 ft						
6 m						
20 ft						
21 ft						
22 ft						
7 m 23 ft						
24 ft						
25 ft						
26 ft						
8 m						
27 ft						
28 ft						
29 ft						
9 m						

Analytical Results	*Sample: SVCA Barn, TP-1 @ 4'*	Simply Soil Testing

Customer:	NW Geologic PLLC	Date received:	03/31/26
	6131 Venus Pl	Report date:	04/07/26
	Ferndale, WA 98248	Sample reference #	18484
		Plant code:	00 - General / not specified
		Tests requested:	Texture



Soil Texture Classification: Loam

Sand: 46% Silt: 42% Clay: 12%

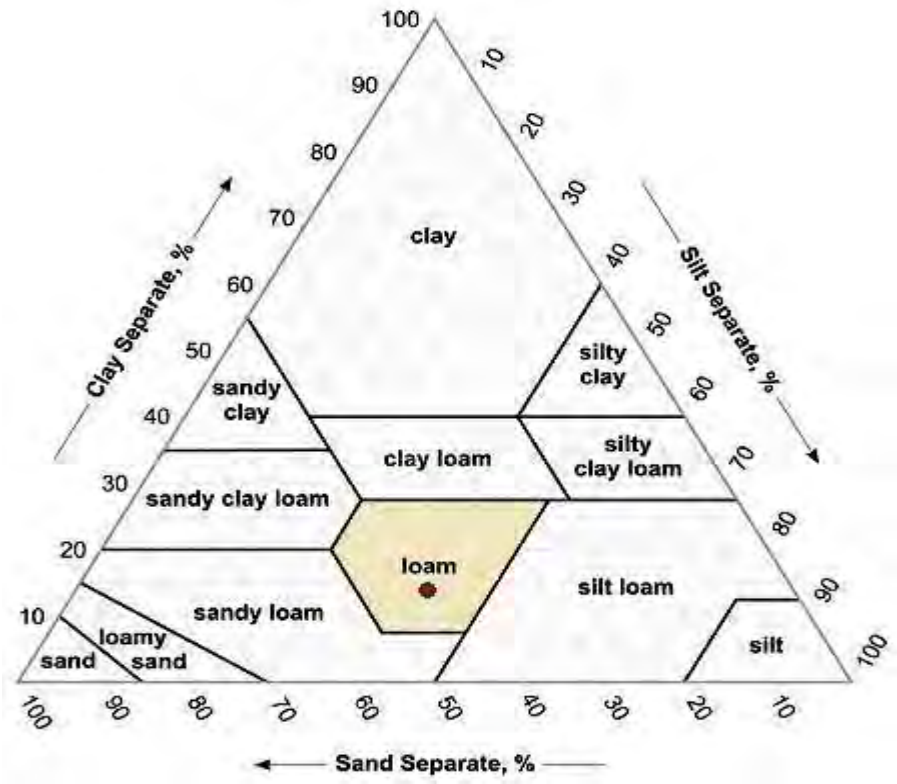
The un-sifted soil contains 3% gravel.

In gardens and lawns, loam soils are the preferred type of soil since they have a combination of desirable characteristics. Loam soils are capable of draining excess water, and are also able to hold substantial amounts of water or nutrients. Loam soils are also workable and resist compaction.

Organic matter: 3.7 %

Analytical Results	Sample: SVCA Barn, TP-3 @ 4'	Simply Soil Testing

Customer:	NW Geologic PLLC 6131 Venus Pl Ferndale, WA 98248	Date received: Report date: Sample reference # Plant code: Tests requested:	03/31/26 04/07/26 18485 00 - General / not specified Texture



Soil Texture Classification: Loam

Sand: 44% Silt: 42% Clay: 14%

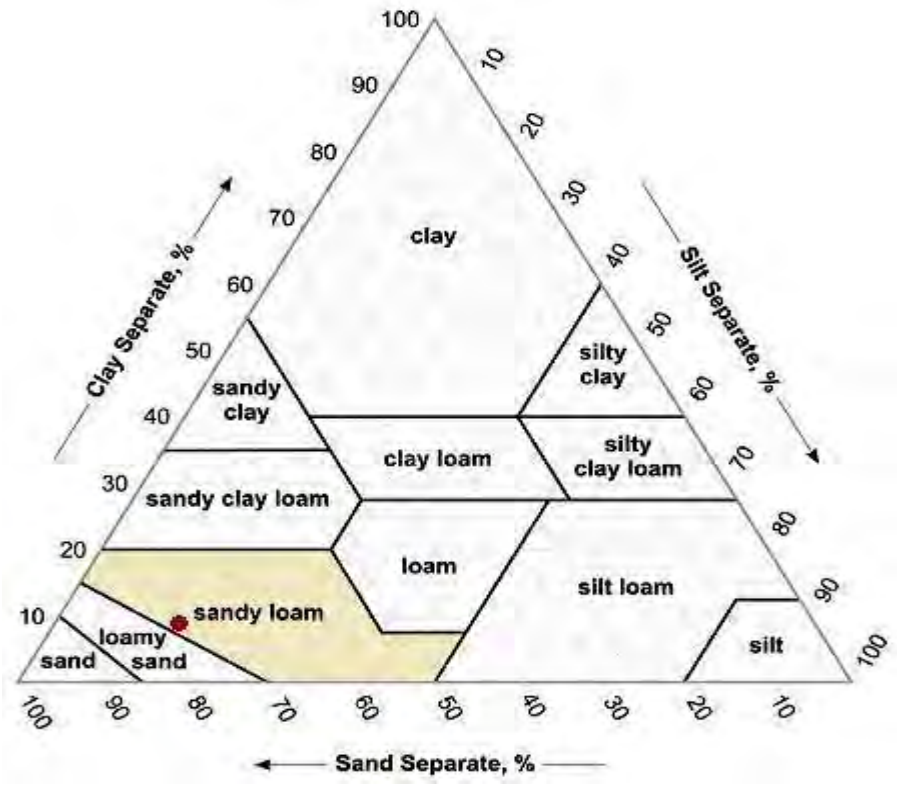
The un-sifted soil contains 0% gravel.

In gardens and lawns, loam soils are the preferred type of soil since they have a combination of desirable characteristics. Loam soils are capable of draining excess water, and are also able to hold substantial amounts of water or nutrients. Loam soils are also workable and resist compaction.

Organic matter: 2.8 %

Analytical Results	*Sample: SVCA Barn, TP-4 @ 1'*	Simply Soil Testing

Customer:	NW Geologic PLLC	Date received:	03/31/26
	6131 Venus Pl	Report date:	04/07/26
	Ferndale, WA 98248	Sample reference #	18486
		Plant code:	00 - General / not specified
		Tests requested:	Texture



Soil Texture Classification: Sandy Loam

Sand: 76% Silt: 15% Clay: 9%

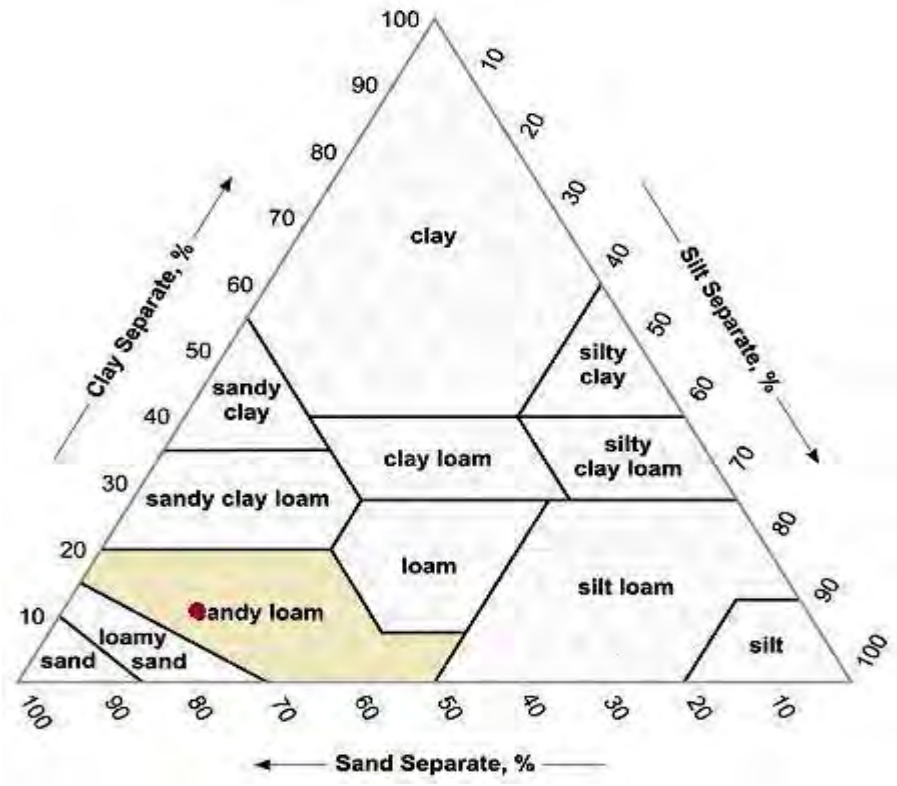
The un-sifted soil contains 61% gravel.

In gardens and lawns, sandy loam soils are capable of quickly draining excess water but cannot hold substantial amounts of water or nutrients. Plants grown in this type of soil will require more frequent watering and fertilization than those grown in soils with a higher concentration of silt and clay. High levels of organic matter improve the ability of the soil to hold water and nutrients.

Organic matter: 1.0 %

Analytical Results	Sample: SVCA Barn, TP-5 @ 1'	Simply Soil Testing

Customer:	NW Geologic PLLC	Date received:	03/31/26
	6131 Venus Pl	Report date:	04/07/26
	Ferndale, WA 98248	Sample reference #	18487
		Plant code:	00 - General / not specified
		Tests requested:	Texture



Soil Texture Classification: Sandy Loam

Sand: 73% Silt: 16% Clay: 11%

The un-sifted soil contains 64% gravel.

In gardens and lawns, sandy loam soils are capable of quickly draining excess water but cannot hold substantial amounts of water or nutrients. Plants grown in this type of soil will require more frequent watering and fertilization than those grown in soils with a higher concentration of silt and clay. High levels of organic matter improve the ability of the soil to hold water and nutrients.

Organic matter: 1.6 %

CERTERRA GEOTEST

Materially Better™

Submittal Date: April 2, 2026

Job Number: 26-0154
Job Name: NW Geologic PLLC - General Services 2026
Client: NW Geologic, PLLC
Address: Various
Whatcom County, WA 98225

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 26-002997
Sample Date: March 27, 2026

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	N/A	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

Sincerely,

Tiffani Anderson

Tiffani Anderson, Laboratory Manager
tanderson@rmacompanies.com
253.283.5023 (c)

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Sieve Analysis Test Report

ASTM C117 & C136

% Gravel		% Sand			% Fines
Coarse	Fine	Coarse	Medium	Fine	
0	3	3	8	17	69

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1/2"	100			
3/8"	99			
#4	97			
#10	94			
#20	90			
#40	86			
#60	82			
#100	78			
#200	69			

* (no specification provided)

Material Description

TP-1 @ 2.5'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8631 D_{85}= 0.3643 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

26-027 - SVCA Barn Labs

Location: TP-1 @ 2.5' - Sampled by Client
Sample Number: 26-002997

Sample Date: 3/27/26

CERTERRA GEOTEST

Client: NW Geologic, PLLC
Project: NW Geologic PLLC - General Services 2026
Various, Whatcom County, WA 98225
Project No: 26-0154

Figure 26-002997

Tested By: MFP Checked By: TA

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CERTERRA GEOTEST

Materially Better™

Submittal Date: April 2, 2026

Job Number: 26-0154
Job Name: NW Geologic PLLC - General Services 2026
Client: NW Geologic, PLLC
Address: Various
Whatcom County, WA 98225

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 26-002998
Sample Date: March 27, 2026

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	N/A	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

Sincerely,

Tiffani Anderson

Tiffani Anderson, Laboratory Manager
tanderson@rmacompanies.com
253.283.5023 (c)

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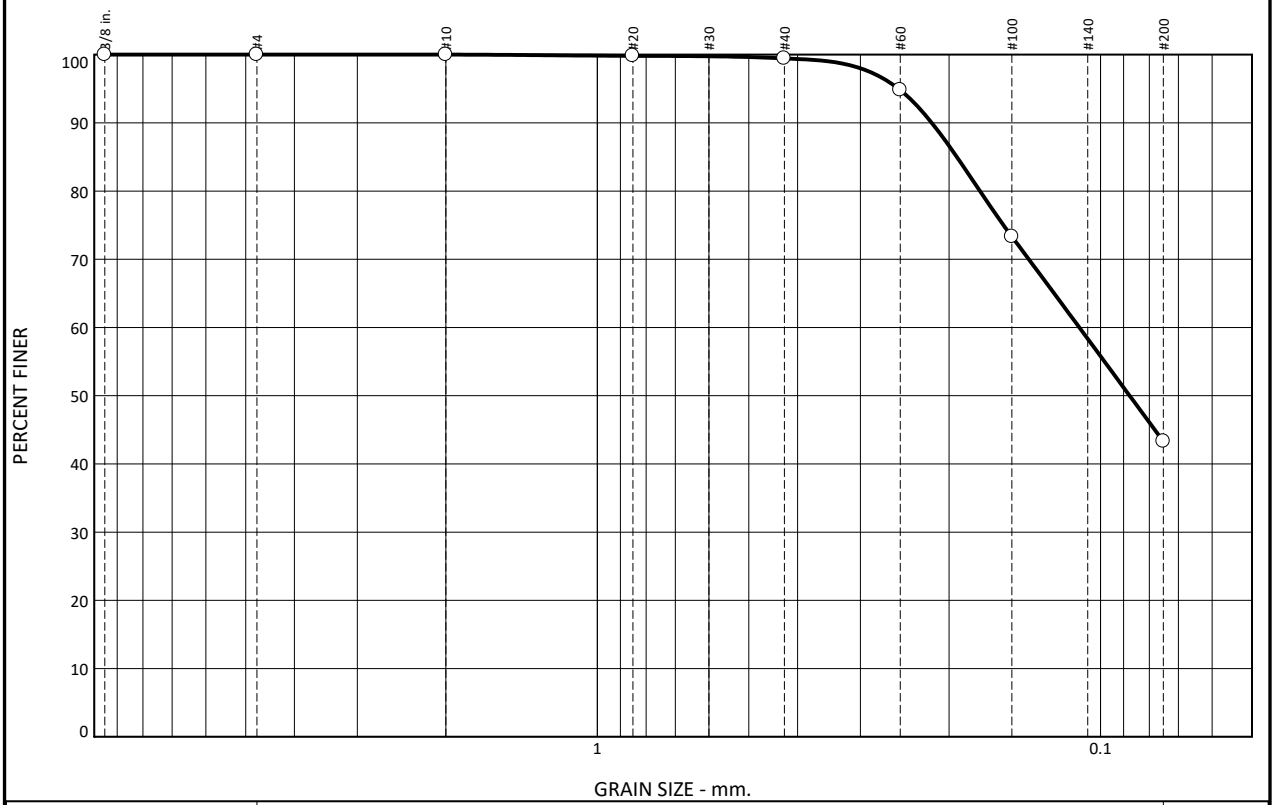
Sieve Analysis Test Report

ASTM C117 & C136



% Gravel	% Sand			% Fines
Fine	Coarse	Medium	Fine	
0	0	1	56	43

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/8"	100			
#4	100			
#10	100			
#20	100			
#40	99			
#60	95			
#100	73			
#200	43			

* (no specification provided)

Material Description

TP-2 @ 5.0'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2165 D_{85}= 0.1930 D_{60}= 0.1102
D_{50}= 0.0875 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

26-027 - SVCA Barn Labs

Location: TP-2 @ 5.0' - Sampled by Client
Sample Number: 26-002998

Sample Date: 3/27/26

CERTERRA GEOTEST

Client: NW Geologic, PLLC
Project: NW Geologic PLLC - General Services 2026
Various, Whatcom County, WA 98225
Project No: 26-0154

Figure 26-002998

Tested By: MFP Checked By: TA

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CERTERRA GEOTEST

Materially Better™

Submittal Date: April 2, 2026

Job Number: 26-0154
Job Name: NW Geologic PLLC - General Services 2026
Client: NW Geologic, PLLC
Address: Various
Whatcom County, WA 98225

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 26-002999
Sample Date: March 27, 2026

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	N/A	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

Sincerely,

Tiffani Anderson

Tiffani Anderson, Laboratory Manager
tanderson@rmacompanies.com
253.283.5023 (c)

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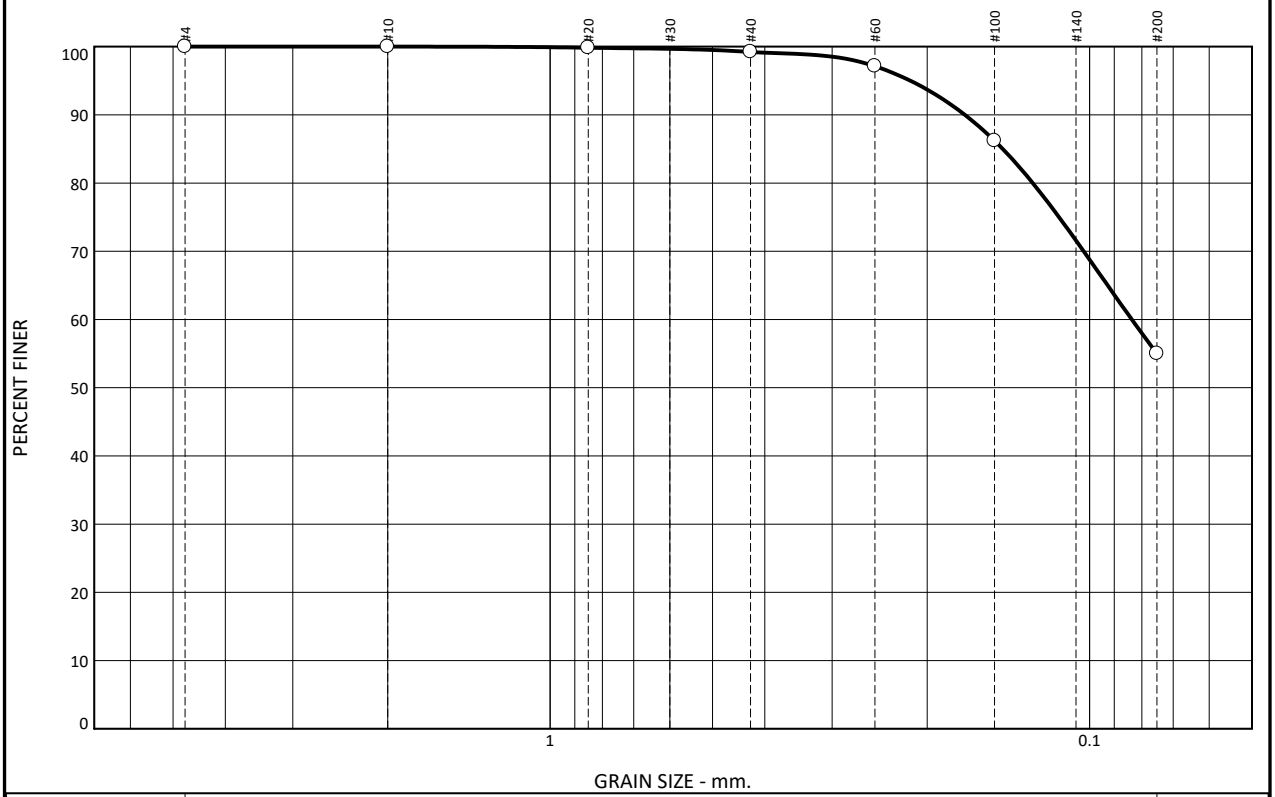
Sieve Analysis Test Report

ASTM C117 & C136



% Gravel	% Sand			% Fines
Fine	Coarse	Medium	Fine	
0	0	1	44	55

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
#4	100			
#10	100			
#20	100			
#40	99			
#60	97			
#100	86			
#200	55			

* (no specification provided)

Material Description

TP-4 @ 4.0'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.1703 D_{85}= 0.1448 D_{60}= 0.0835
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

26-027 - SVCA Barn Labs

Location: TP-4 @ 4.0' - Sampled by Client
Sample Number: 26-002999 Sample Date: 3/27/26

CERTERRA GEOTEST

Client: NW Geologic, PLLC
Project: NW Geologic PLLC - General Services 2026
Various, Whatcom County, WA 98225
Project No: 26-0154 Figure 26-002999

Tested By: MFP Checked By: TA

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CERTERRA GEOTEST

Materially Better™

Submittal Date: April 2, 2026

Job Number: 26-0154
Job Name: NW Geologic PLLC - General Services 2026
Client: NW Geologic, PLLC
Address: Various
Whatcom County, WA 98225

As requested, GeoTest Services, Inc. performed materials testing services at our Bellingham, WA laboratory for the project noted above. The testing was performed in accordance with the applicable ASTM/AASHTO test methods. Please see the attached laboratory reports and summary of the test results listed in the chart below.

Sample Number: 26-003000
Sample Date: March 27, 2026

Test(s) Performed:	Pass / Fail	Comments:
Sieve - ASTM C136/C117	N/A	

We appreciate the opportunity to be of service to you on this project. If you have any questions regarding the results of the test(s) performed, methods used, or require any other assistance, please do not hesitate to contact the undersigned.

Sincerely,

Tiffani Anderson

Tiffani Anderson, Laboratory Manager
tanderson@rmacompanies.com
253.283.5023 (c)

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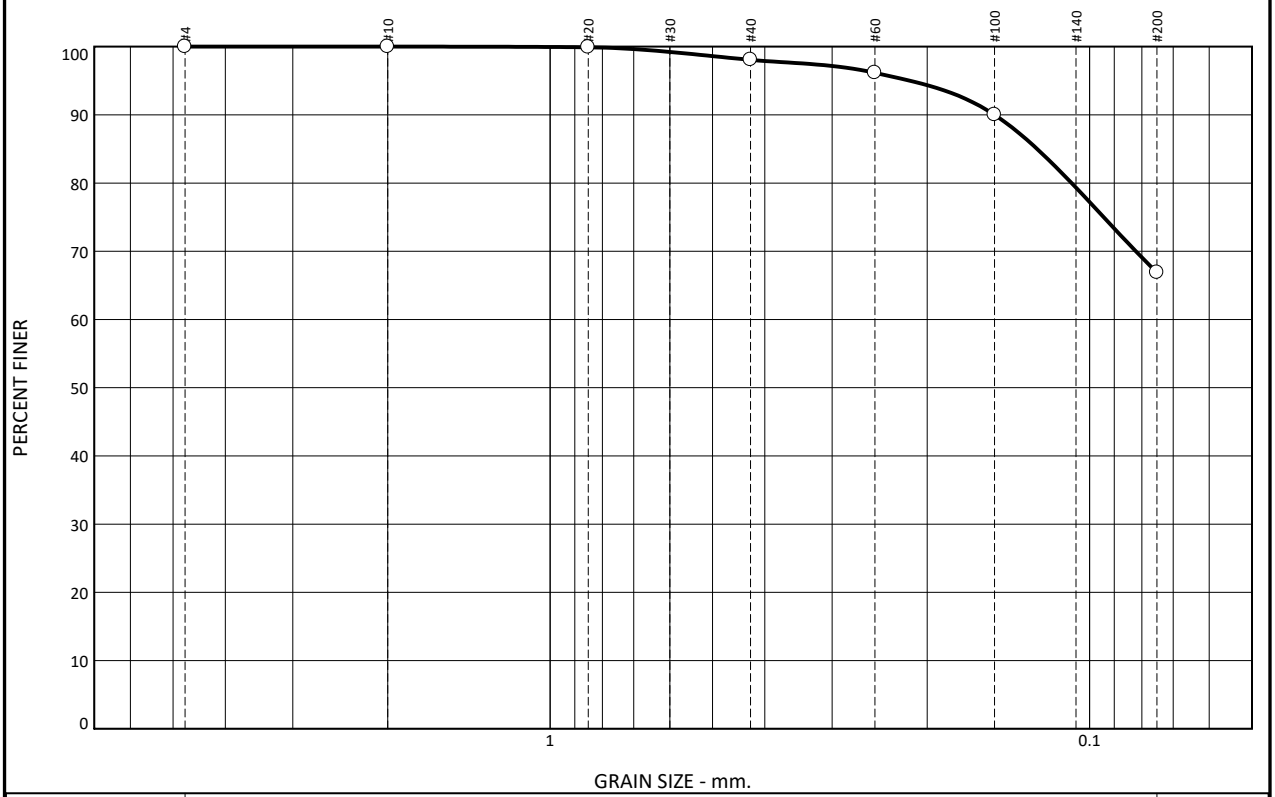
Sieve Analysis Test Report

ASTM C117 & C136



% Gravel	% Sand			% Fines
Fine	Coarse	Medium	Fine	
0	0	2	31	67

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
#4	100			
#10	100			
#20	100			
#40	98			
#60	96			
#100	90			
#200	67			

* (no specification provided)

Material Description

TP-6 @ 3.0'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.1500 D_{85}= 0.1251 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

26-027 - SVCA Barn Labs

Location: TP-6 @ 3.0' - Sampled by Client
Sample Number: 26-003000 Sample Date: 3/27/26

CERTERRA GEOTEST

Client: NW Geologic, PLLC
Project: NW Geologic PLLC - General Services 2026
Various, Whatcom County, WA 98225
Project No: 26-0154 Figure 26-003000

Tested By: MFP Checked By: TA

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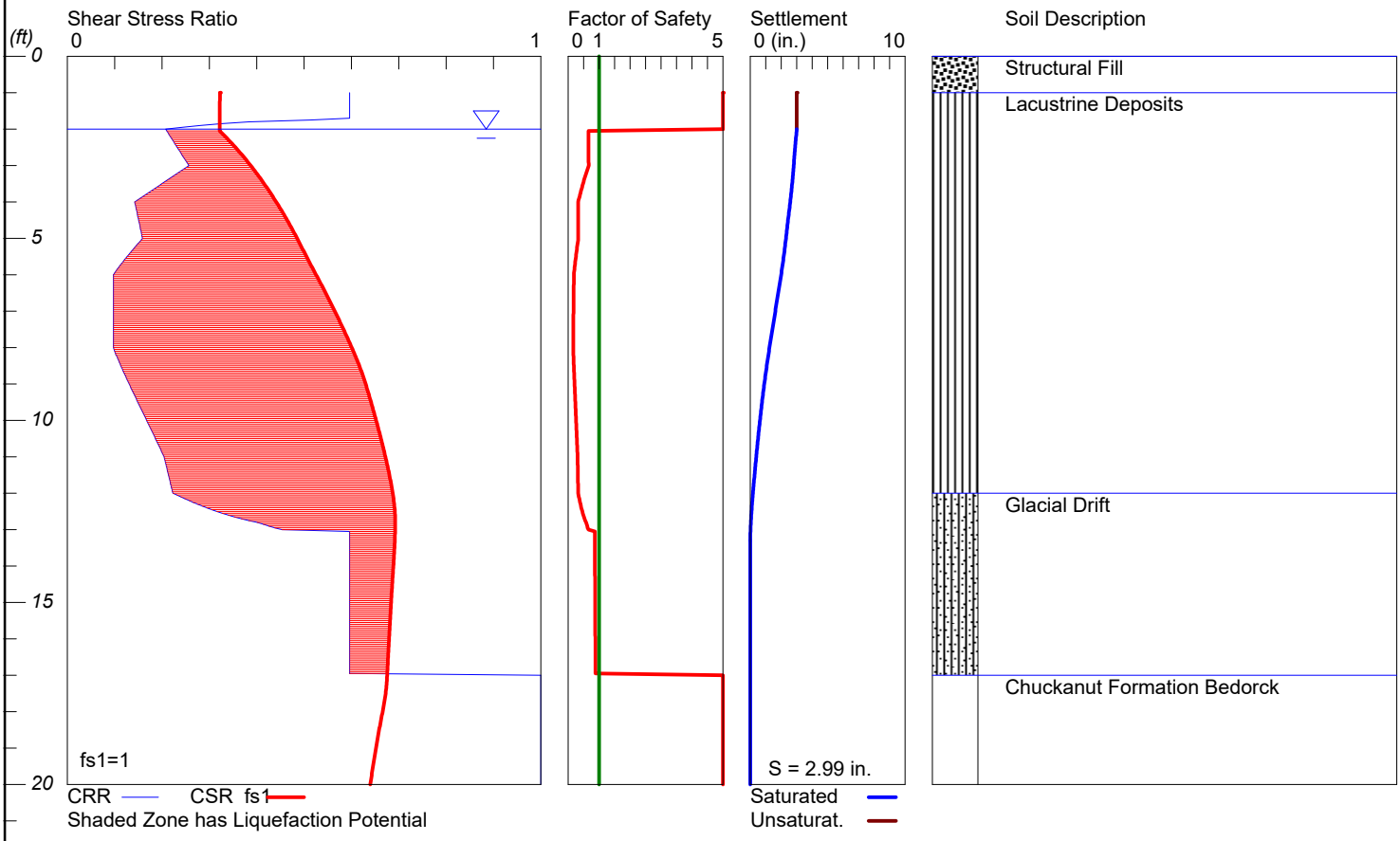
LIQUEFACTION ANALYSIS

SVCA Barn Improvements

Hole No.=DCP-1 Water Depth=2 ft Surface Elev.=328

Magnitude=7
Acceleration=0.497g



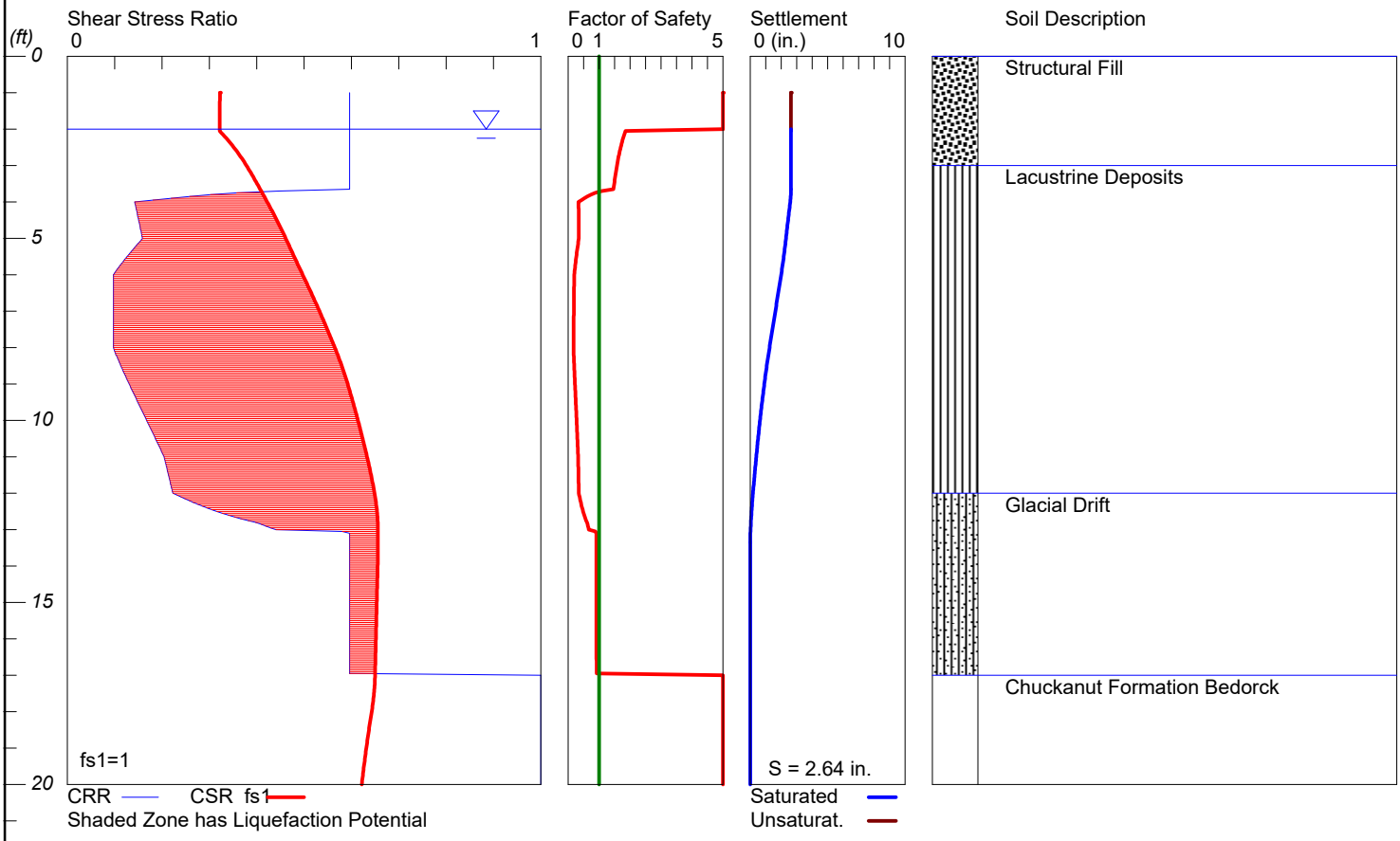
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

SVCA Barn Improvements

Hole No.=DCP-1 Water Depth=2 ft Surface Elev.=328

Magnitude=7
Acceleration=0.497g



LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

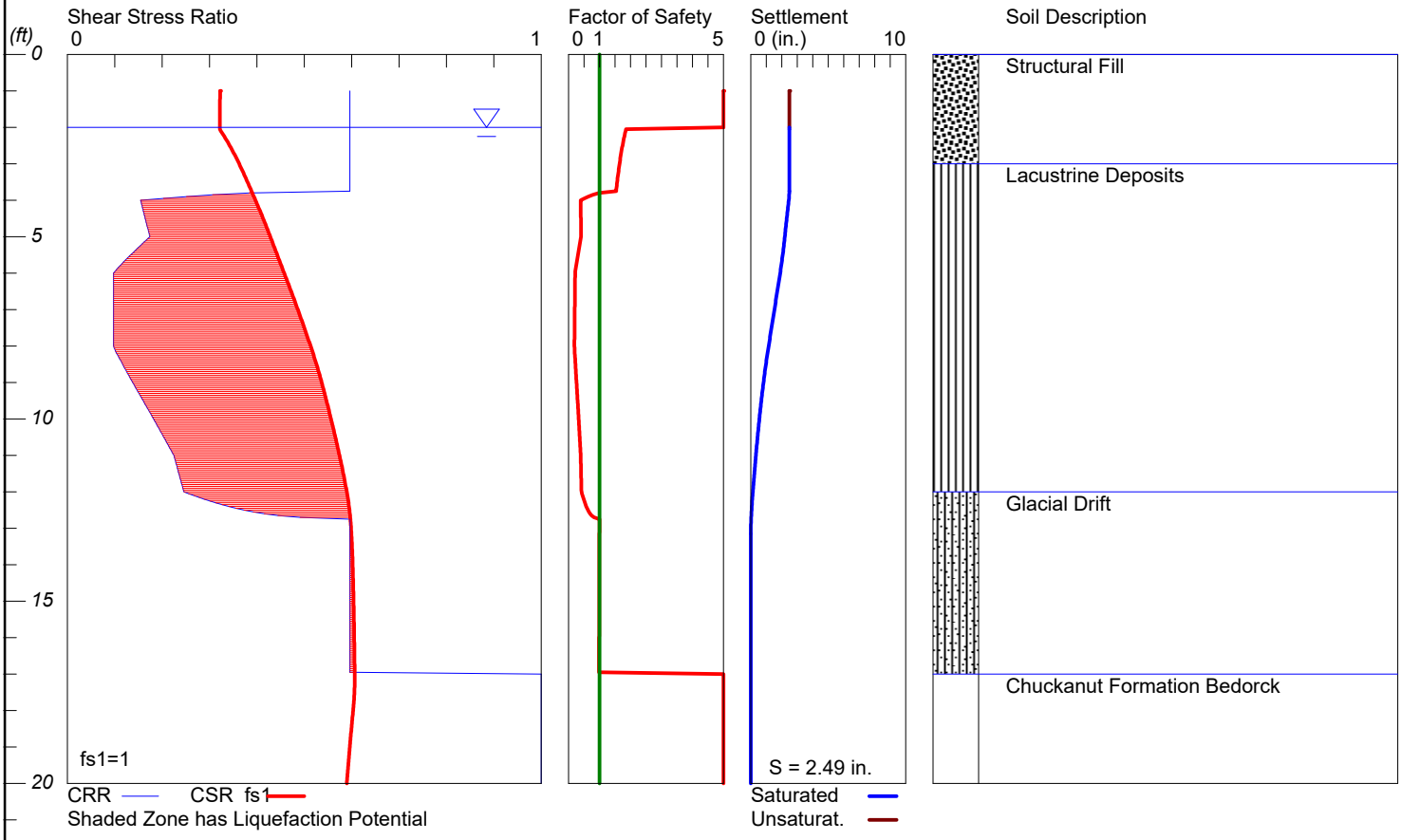
SVCA Barn Improvements

Hole No.=DCP-1 Water Depth=2 ft Surface Elev.=328

Magnitude=7

Ground Improvement of Fill=1 ft

Acceleration=0.497g



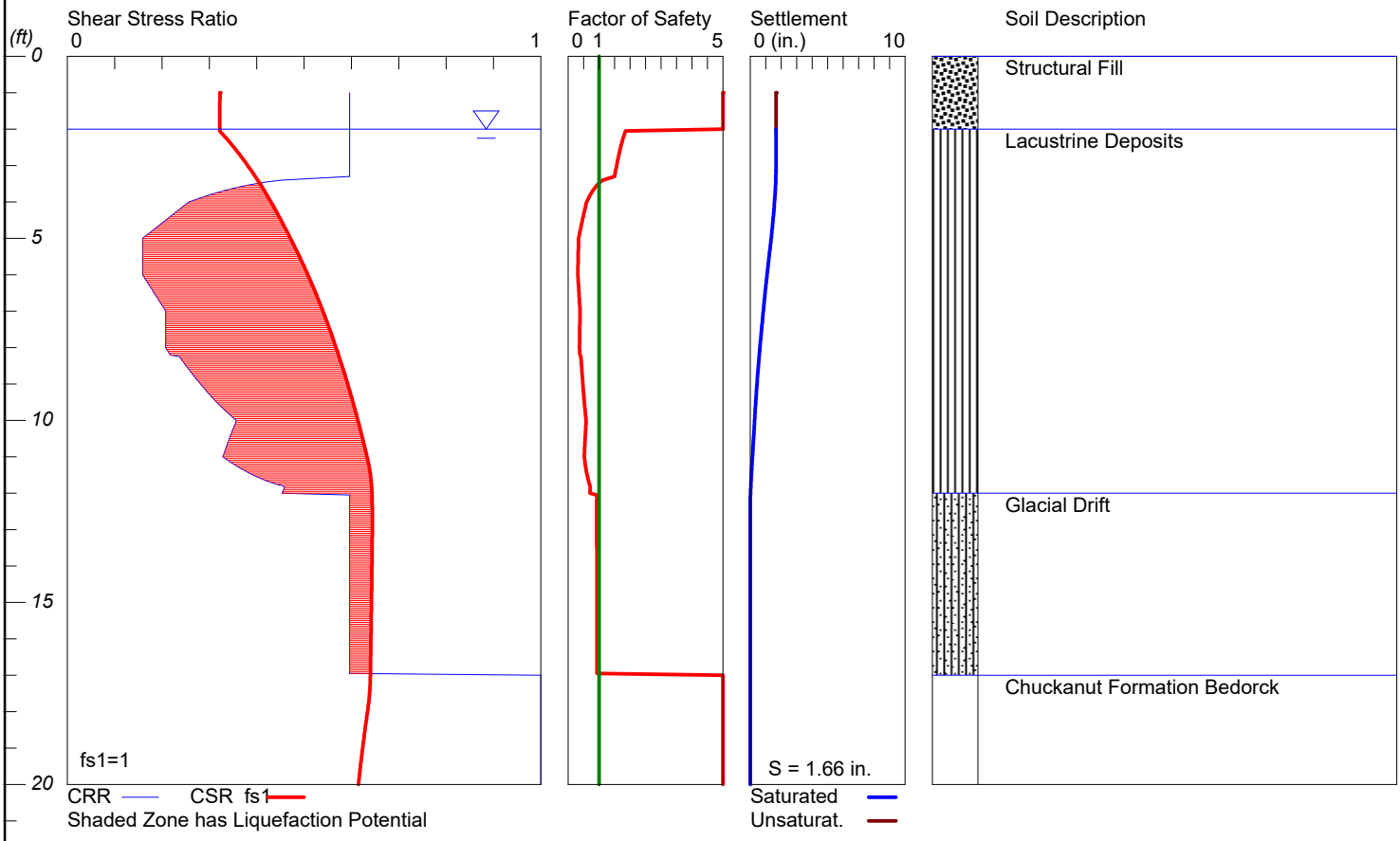
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

SVCA Barn Improvements

Hole No.=DCP-2 Water Depth=2 ft Surface Elev.=328

Magnitude=7
Acceleration=0.497g



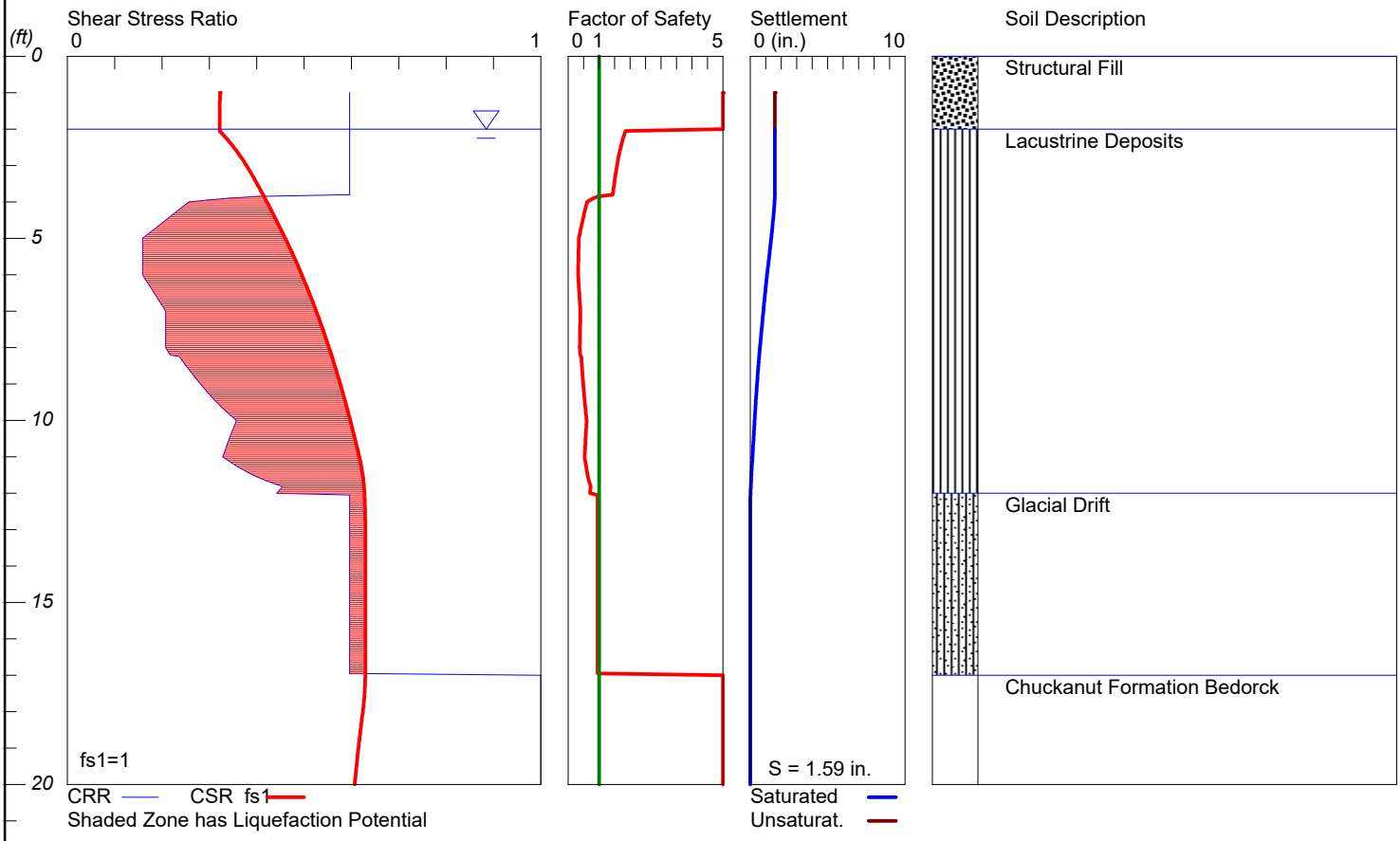
LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

SVCA Barn Improvements

Hole No.=DCP-2 Water Depth=2 ft Surface Elev.=328

Magnitude=7
Acceleration=0.497g



LiquefyPro CivilTech Software USA www.civiltech.com

LIQUEFACTION ANALYSIS

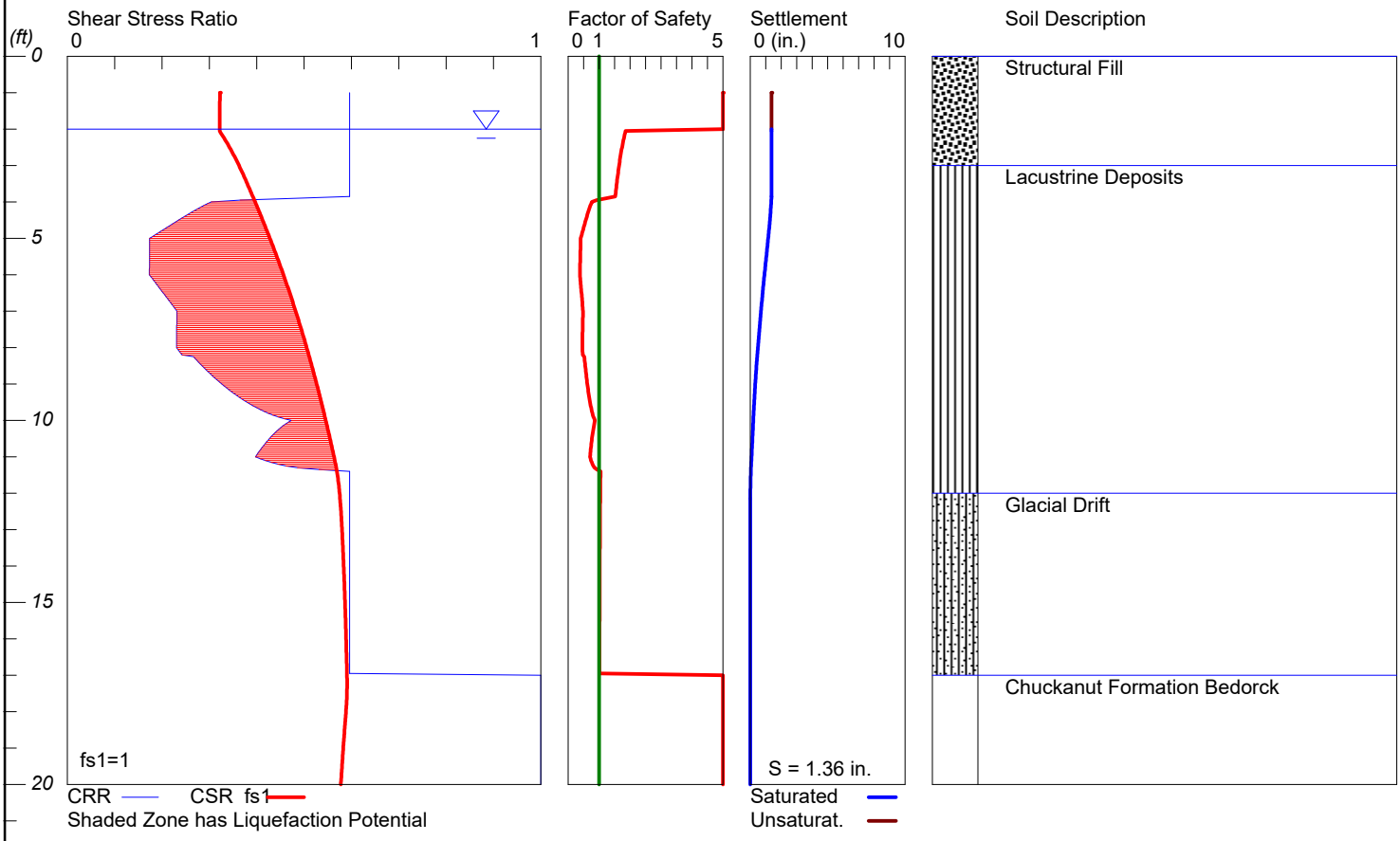
SVCA Barn Improvements

Hole No.=DCP-2 Water Depth=2 ft Surface Elev.=328

Magnitude=7

Ground Improvement of Fill=1 ft

Acceleration=0.497g



LiquefyPro CivilTech Software USA www.civiltech.com

Appendix A: Photographs of Site Conditions

Photo 1: Existing conditions at the barn facing S on March 27, 2026.

Photo 2: The N side of the barn with TP-1 in progress on March 27, 2026.

Photo 3: The S side of the barn, facing W on March 27, 2026.

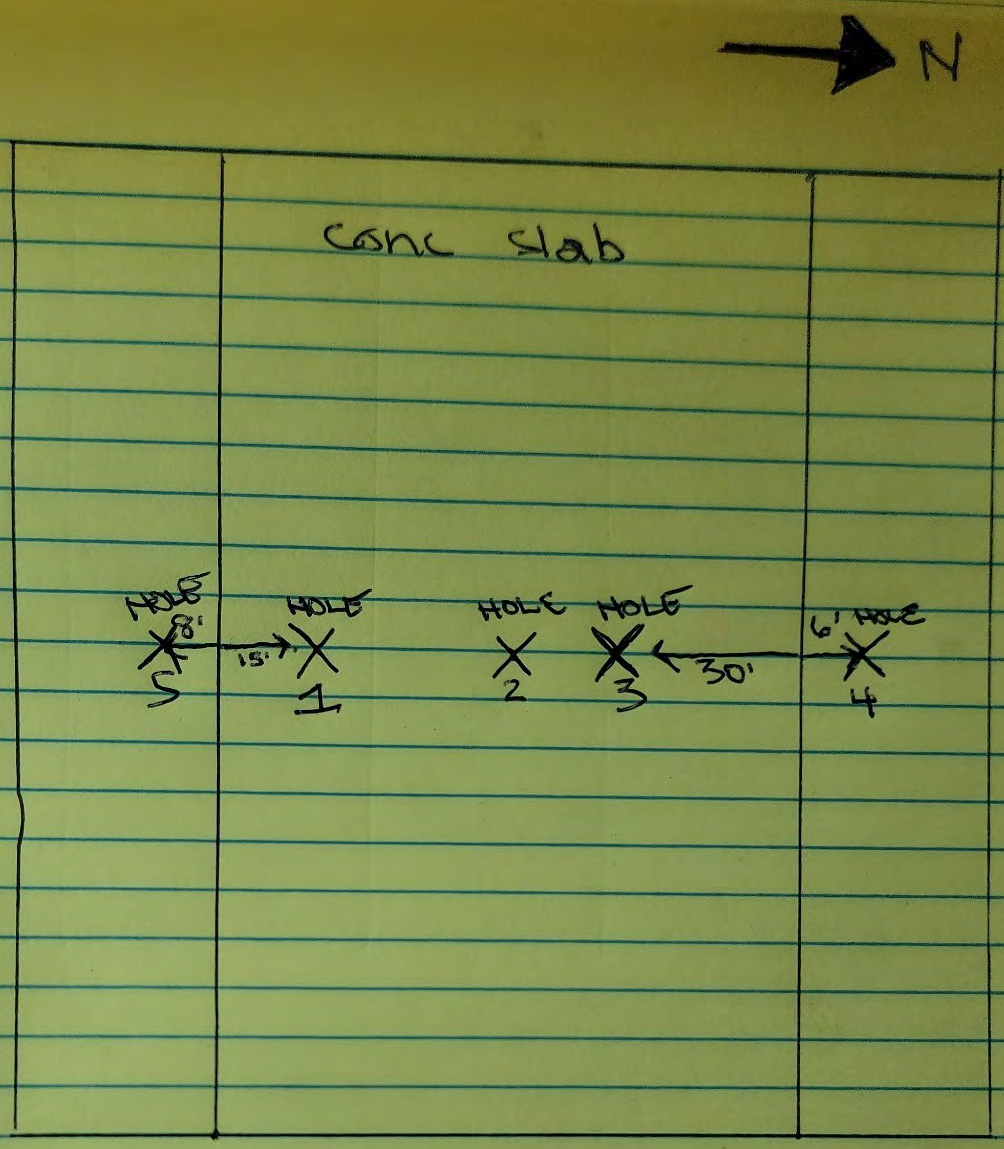
Photo 4: Test location TP-4 in progress on the W side of the barn. Facing S on March 27, 2026.

Photo 5: Test location DCP-1 in progress adjacent to TP-1. Facing SE on April 10, 2026.

Photo 6: Test location DCP-2 in progress on the S side of the barn. Facing S on April 10, 2026.

Photo 7: Test location TP-7 in progress N of the apshalt pavement and barn facility. Facing W on April 16, 2026.

Photo 8: Test location TP-8 in progress N of the apshalt pavement and barn facility. Facing W on April 16, 2026.



HOLE 1: 4.5" concrete, 3" foam paneling, 6" washed rock, 4' native/gravel fill

HOLE 2: Same results as above

HOLE 3: Same results as above

HOLE 4: 2' gravel than silty clay

HOLE 5: Same as hole 4

kingworks
CONSULTING ENGINEERS

February 18, 2014

PROJECT: **Sudden Valley Barn Investigations** **KW#13111**

TO: Jeff Schlaack
Sudden Valley Community Association
4 Clubhouse Circle
Bellingham, WA 98229

REPORT OF FINDINGS

This report addresses two buildings. These are the north most of the three barns henceforth referred to as the "ice barn" and the center barn that will be referred to as the "library barn". The following sections describe our observations, analysis, and recommendations.

Ice Barn:

Building Description: The ice barn is an early to mid-1900's timber framed barn structure that may have been built prior to the Sudden Valley community development for agricultural purposes, or early in the community history to house an ice rink. There is a timber framed loft along the south side of the barn and the remainder of the structure is one story with a slab poured on ground for the floor. The walls are constructed with cedar siding over wood girts. The roof is constructed with long spanning timber trusses that appear to have been field constructed with through bolts and nailed sawn timber members. The roofing appears to have been a corrugated metal product that was overlaid with cedar shingles on sleepers sometime in the past. The roof is in bad condition with extensive leaks. The building is currently used to house maintenance equipment and road sand.

Since the building's use is not going to change, the building structure does not need to be checked for compliance with current code requirements for snow, wind, and seismic forces. (It should be noted that the building would likely not be adequate for any of these criteria and is, and will continue to be less safe than a similar structure constructed to modern standards). The purpose of this investigation is to attempt to identify structural flaws (due to design or degeneration) that should be modified, repaired, or monitored in order to keep the building in service.

Available information: No building drawings were available. Our review, analysis, and recommendations are based on site observations only. No invasive/destructive testing was utilized with the exception of some spot probing with an ice pick to check for the presence of rot on posts, where accessible.

Site observations were made on 11/20/13 and 11/26/13. Our information gathered included the roof framing, loft framing and post conditions including connections, of areas we could observe and access. A Detailed condition survey of the roof framing was not possible due to the presence of netting installed at the underside of the existing trusses.

Observed condition issues: The following condition problems were noted:

1. Of approximately 100 posts, a total of 18 wood posts along the west end wall and the south side wall were observed to have substantial areas of rot. 26 existing posts were concealed by finishes and could not be checked.
2. The leaking roof may have caused rot or corrosion damage to the roof framing that could not be observed. It is our understanding that a tear off and re-roof is pending and that the roof framing will be inspected and replaced in kind if damage is discovered.

Existing structure analysis: The following analysis was performed. Wood framing was assumed to be Douglas fir #2 or better. The analysis assumes that the members are in sound condition (free from rot or corrosion damage):

1. Gravity loads:
   a. The existing loft framing was checked and determined to be inadequate for live loads in excess of 20 PSF. The space should not be used for occupancy, but may be accessed for maintenance purposes.
   b. The majority of the roof framing is adequate for self-weight plus snow load. Some truss elements are overstressed by a factor of 1.2 or less, but these would generally be acceptable given the current use of structure.
   c. The following truss members and connections appear to be grossly overstressed and should be reinforced:
      i. Reinforcement of the center web members and their connections at the bottom chord (overstressed by a factor of 7).
      ii. Reinforcement of the connection of the truss knee braces at the support columns (overstressed by a factor of 3.6).

2. Lateral loads:
   a. By current code, the structure is inadequate for seismic loads by a factor of approximately 2.
   b. The structure does appear to be adequate for current code wind loads, with the exception of the tall end walls at the east and west ends of the central building bay. These appear to be inadequate for out of plane wind forces.

Repair recommendations: Because there is no planned action that would trigger bringing the building up to code, such as adding load or weight to the building, or changing the use/occupancy of the building, the only repairs that are strictly required are those related to building degradation. The following structural repair recommendations are separated into three categories: 1) required, 2) recommended, and 3) required if the building is upgraded to meet code.

1. Required structural repairs:
   a. Replace all posts with rot damage. This building is a 'pole building' which means the posts are buried deep in the ground so that they provide the lateral support and gravity support to the building. Because of this, the replacement poles will have to be detailed to be restrained at the base. This will require special detailing including the addition of large concrete footings, substantial steel brackets and fastening.
   b. Repair any roof framing elements with rot as part of the re-roof project.

2. Recommended structural repairs:
   a. Reinforce truss members and connections that were determined to be grossly overstressed (see section above).
   b. Reinforce the central building bay end walls for lateral wind loads.

3. Not required unless building is to be upgraded to meet code:
   a. Add extensive shear walls to the building to provide lateral capacity for seismic loads.
      i. Completely re-frame central building bay end walls (for out of plane wind and in plane shear for seismic).
   b. Extensive reinforcement of existing trusses to address all elements and connections that are overstressed.

Roof Type: We recommend that the new roof installation include standing seam metal panels over plywood or OSB that is fastened per an engineer's direction for wind uplift and diaphragm action.

This roof type is recommended for the following reasons:
1. This is the only assembly type which will strengthen the roof diaphragm so that the owner will have the option to make additional seismic improvements to the structure in the future, if required.
2. This roof type has the longest life expectancy.
3. Composition shingles or other asphalt membrane products will be too heavy and would probably be inappropriate for a building of this type.
4. Corrugated metal roofs would require through fastening with screws which will create opportunities for future leaks.

We also recommend that the final assembly (including membrane types and fastening) be reviewed by a consultant with expertise in building envelope construction such as an architect or envelope consultant.

Drawings provided for Ice barn:
- KW-1 Section View
- KW-2 Post Findings
- KW-3 Loft Framing
- KW-4 Roof Framing

Library Barn:

Building Description: The library barn is an early to mid-1900's timber framed barn structure that was probably built prior to the Sudden Valley community development for agricultural purposes. The structure is two stories tall with the first level constructed with a slab on ground and the upper floor constructed with timber joists and beams. The walls are constructed with siding over wood girts. The central roof vault is constructed with timber frames that are built up with sawn lumber members. The side roofs are supported with rafters. It appears that the central vault area was subjected to outward thrust forces that caused the central posts, side roofs and side walls to shift outward. A steel rod and beam system is in place across the vault to resist these thrust forces and does not appear to be a part of the original building. The roofing is fairly new with composition shingles. The building's upper floor is currently unoccupied, but it is our impression that the Association would like to use this space in the future as office space. The lower floor is currently under construction to be used as a public library satellite branch.

It is our interpretation that this building's structure should be brought up to code because its use has been modified by adding the library on the main floor (and possible future upper floor occupancy). This will require extensive reinforcement efforts, including the addition of structure to the roof and extensive re-framing of the walls to provide a load path for lateral forces. The purpose of the investigation has been both to attempt to identify structural flaws (due to design or degeneration) that should be modified, repaired or monitored in order to keep the building in service AND to develop schematic options for reinforcing the structure for gravity and lateral forces.

Available information: Partial building drawings, engineering calculations, and a report dated April 2012, prepared by Mats Harezlak PE were provided by the client. Original building drawings were not available. Our review, analysis and recommendations are based on the previous report and our observations.

Site observations were made on 11/26/13, 1/22/14 and 2/12/14. Our staff became generally familiar with the structural components of the building. No invasive testing was performed. The structural work related to the library is covered with finishes so it was not observed. The general floor framing sizes and spacing was taken from the previous engineering report by Harezlak, and subsequently discussed and clarified with the volunteers building the library. A storage area at the north side of the ground level was accessed and the reinforcement work specified by Harezlak including the installation of connection hardware between timber beams and columns, had not been installed in this space.

Observed condition issues: The following conditions and structural issues were noted:

1. Some rotted roof decking and floor decking in the upper level space.
2. The westward lean of the central roof vault. It is our opinion that this issue occurred during construction of the barn and that it has not been an ongoing process. However, if the leaning is progressing, we feel that it will be arrested by the addition of plywood to the roof, which is necessary for seismic performance.
3. The outward thrusting of the central roof vault is evident by the leaning central support columns and outboard walls. The steel cross tie reinforcement that has been added at some point in the past, has been confirmed to be adequate by Harezlak, and further confirmed by our analysis to be adequate to resist the anticipated thrust.

4. The end walls at the east and west of the upper level space appear to be inadequately framed for wind loads. Additionally, the west end wall is allowing driven rain to enter the upper floor space, where it subsequently can leak into the finished library space below. In a separate project, Kingworks has issued repair drawings for reframing of the west end wall. A similar repair will be required on the east wall, with minor modification for the different wall openings.
5. There are no plywood shear walls present between the upper level floor and the roof. It is not possible to observe the presence of new shear walls in the main floor library area, but they are shown on the Harezlak drawings and presumed to be present and properly installed. These elements would have been observed by the county building inspector before being covered.
6. The roof framing appears to have no connection hardware to tie it to the rest of the building for uplift from wind.

Existing structure analysis: Kingworks has performed the following analysis as requested by the client. Analysis was based on the recent engineering study by Harezlak and Kingworks' structural observations. Wood framing was assumed to be Douglas fir #1 or better. The analysis assumes that the members are in sound condition (free from rot or corrosion damage):

1. Gravity loads:
   a. The existing 2nd floor framing was checked with a dead load of 30 PSF to account for the new floor finish materials. The framing was checked with a 50 PSF live load in addition to a 15 PSF movable partition load. The floor framing (joists, girders & columns) was found to be adequate for these loads over the library area. The section of floor over the north storage area however was not reinforced like the floor over the library. Joists in this area were overstressed by a factor of 1.1. See section g below regarding footings that were inadequate when checked w/ office loads and ad's dead loads from finishes.
   b. The existing central roof vault was modeled and determined to be inadequate when analyzed with appropriate wind and snow loads combined with the additional dead load from insulation, ceiling material and HVAC equipment. The majority of the truss members and connections are overstressed by a factor of 1.4 or more (the majority of overstressed conditions will also be present without the added dead loads mentioned, but to a lesser degree).
   c. The existing side roof rafters were checked for snow load combined with the additional dead load (similar to the central vault area item b). These rafters were overstressed by a factor of 1.8 and inadequate.
   d. The roof framing dead load was inadequate to resist the wind uplift loads and additional connection hardware will be required throughout.
   e. The flat 4x8 girders supporting the central roof vault and side roof rafters are grossly overstressed by a factor of 11.8.
   f. The central 2nd floor columns supporting the central roof vaults are overstressed by a factor of 1.6.
   g. The majority of the column footings are adequate to support the current loads of the building. If dead loads and live loads are added (per item b above) for office occupancy on the upper floor, than the soil bearing stress will be much too high at 8 column footings.

2. Lateral loads:
   a. The walls connecting the 2nd floor to the roof are inadequate to transfer lateral loads (seismic & wind) to the shear walls on the 1st floor.
   b. The end walls are currently inadequate to resist out of plane wind loads.

Repair recommendations: Because of the addition of the library and the potential future use of the upper floor, it is our opinion that this building should be reinforced to the level required by current code for gravity and lateral loads. With respect to lateral and gravity forces, it is our opinion that this reinforcement/upgrade performed at the ground floor level is for the most part adequate. Similar upgrades must be executed for the upper level and roof. It is our opinion that the following structural repair items are required to bring the building to code, based on the use and future use of the building. Additional design and detailing work will be required to fully specify the work that is only briefly described below:

1. Gravity loads:
   a. Central roof vault members should be reinforced by attaching additional members to strengthen the existing members. Connections should be reinforced by adding additional nailing (these elements could be replaced with the new trusses as an alternate repair). See attached KW-5.
   b. Side roof rafters should be reinforced by adding intermediate joists or sistering to existing joists, to lower the loads on the existing members. See attached KW-5.
   c. Roof framing members should be connected with hurricane ties to resist wind uplift loads. See attached KW-5.
   d. The flat 4x8 girders supporting the roof along the main interior column lines should be reinforced with new beams aligned below them and bearing on studs at both ends which are connected to the existing columns. See attached KW-5.
   e. The eight existing footings that are inadequate for potential future uses should be reinforced by extending the footing size. Footings needing reinforcement are shown in the foundation/footing plan for the library barn, see attached KW-7.
   f. The floor joists over the north main level storage area, spanning from grids 2 to 3 in the drawings provided by Harezlak, should be reinforced with intermediate joists like those over the library were. See attached KW-5.

2. Lateral loads:
   a. The end walls at the east and west of the upper floor space should be re-framed so that they can adequately resist out of plane wind loads. Additionally, plywood shear walls should be added to provide a load path for seismic and wind lateral forces. See attached drawing S201 showing this work for the west wall and KW-6 for shear wall locations.
   b. The partial height walls along the north and south sides of the upper floor space should be replaced with a 2x4 stud wall with plywood sheathing and fastened to the roof above and the floor below for lateral loads. See attached KW-6.
   c. The existing plywood on the upper floor should be nailed to the decking below to provide a structural diaphragm that will transfer lateral forces from the new shear walls above, to the existing shear walls below that were added during the library construction. Any floor planks below the plywood that exhibit signs of rot should be replaced or reinforced.
   d. The existing composition roof should be removed and plywood should be installed above the existing planks with the necessary fastening to ensure that the roof

diaphragm is functional. Any roof planks below the plywood that exhibit signs of rot should be replaced or reinforced.

e. The main floor end walls that were indicated as being shear walls should be finished. See attached KW-8.

New Roof Type: We recommend that the new roof installation include standing seam metal panels over plywood or OSB that is fastened per an engineer's direction for wind uplift and diaphragm action.

This roof type is recommended for the following reasons:

1. This is the only assembly type which will strengthen the roof diaphragm so that the owner will have the option to make additional seismic improvements to the structure in the future, if required.
2. This roof type has the longest life expectancy.
3. Composition shingles or other asphalt membrane products will be too heavy and would probably be inappropriate for a building of this type.
4. Corrugated metal roofs would require through fastening with screws which will create opportunities for future leaks.

We also recommend that the final assembly (including membrane types and fastening) be reviewed by a consultant with expertise in building envelope construction such as an architect or envelope consultant.

Drawings provided for library barn:

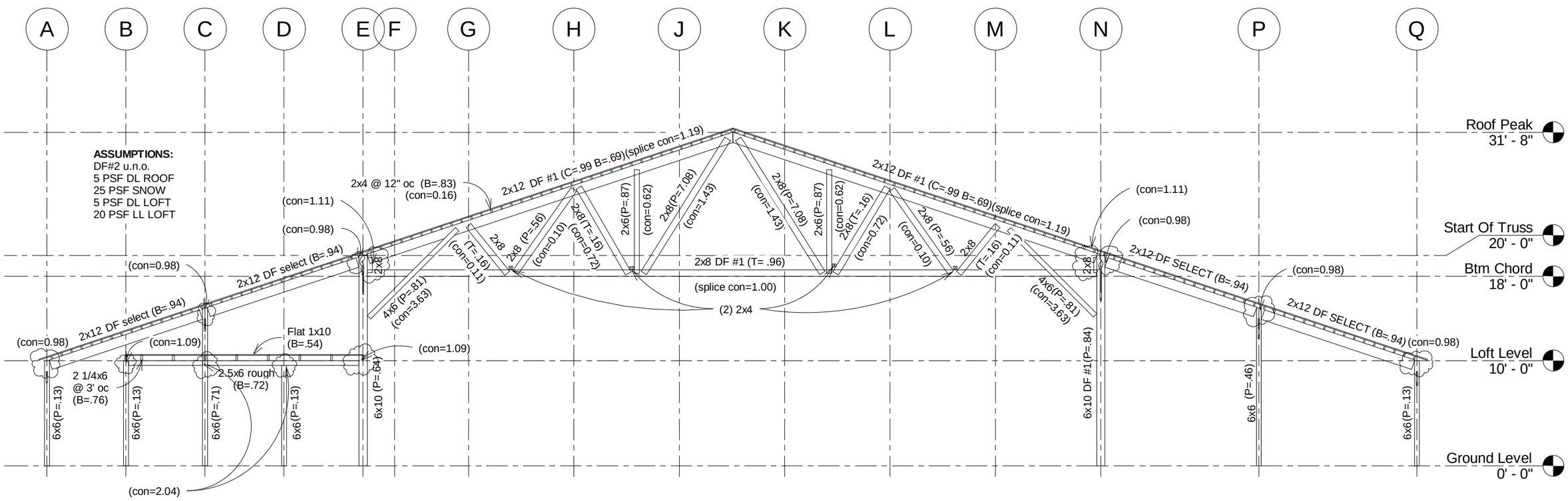
- KW-5 Section View
- KW-6 2nd Floor Shear Walls
- KW-7 Foundation/Footing Plan
- KW-8 1st Floor Shear Walls
- S201 West Wall Replacement

This concludes our report of findings for the barn investigations. Feel free to contact us if you have any questions or concerns. We would be happy to assist in the planning and execution of the repairs recommended.

Sincerely,

John R King, SE
Principal

Digital Seal
Applied to PDF
2/18/14



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CONSULTING ENGINEERS, PLLC
600 DUPONT STREET, SUITE B
BELLINGHAM, WA 98225
360-714-8260
www.king-works.com

Section View:

Ice Barn

Project number	13111
Date	2/18/2014
Drawn by	
Checked by	

KW-1

Scale

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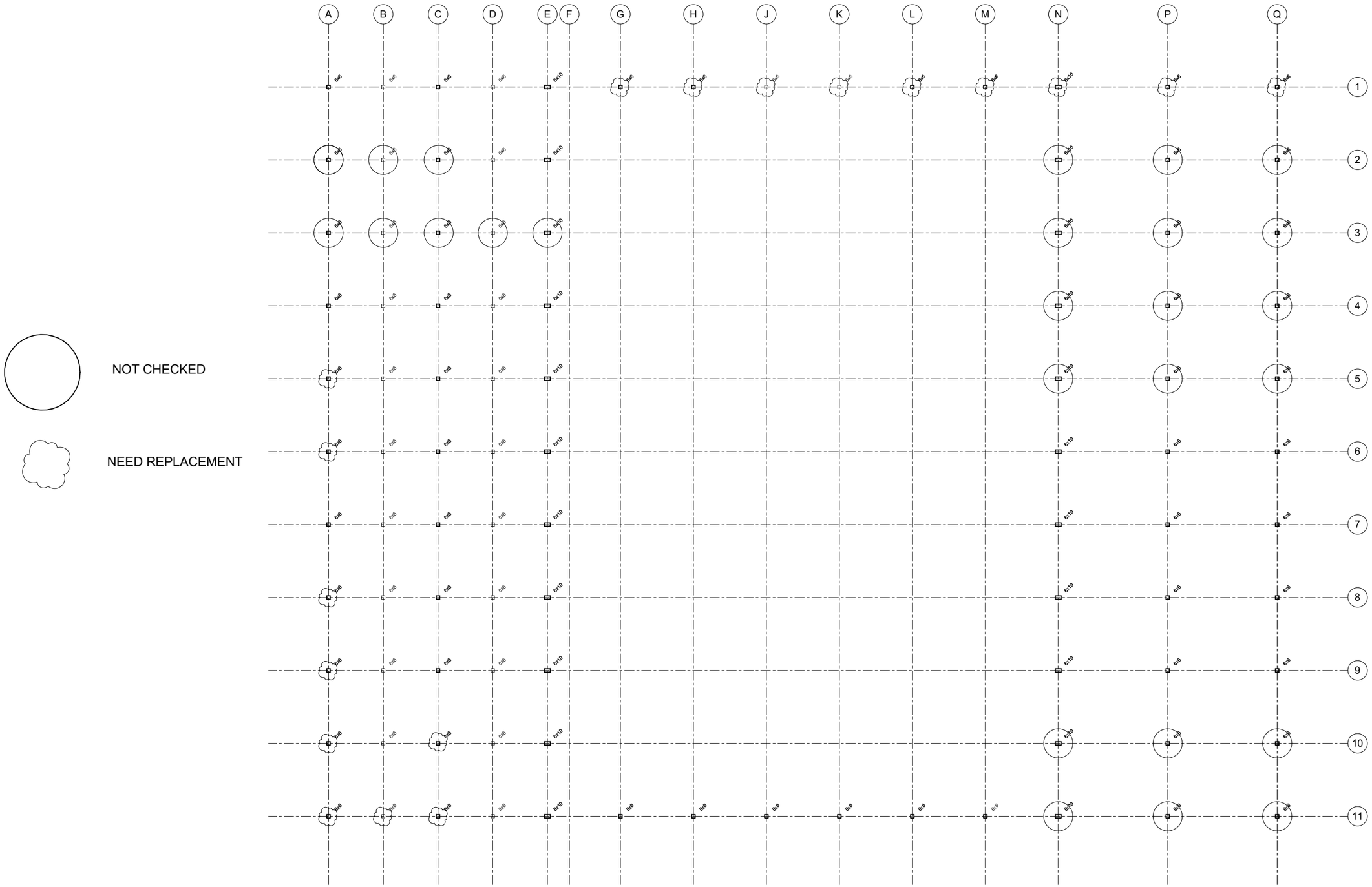

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Post Findings:

Ice Barn

Project number	13111
Date	2/18/2014
Drawn by	
Checked by	

KW-2

Scale

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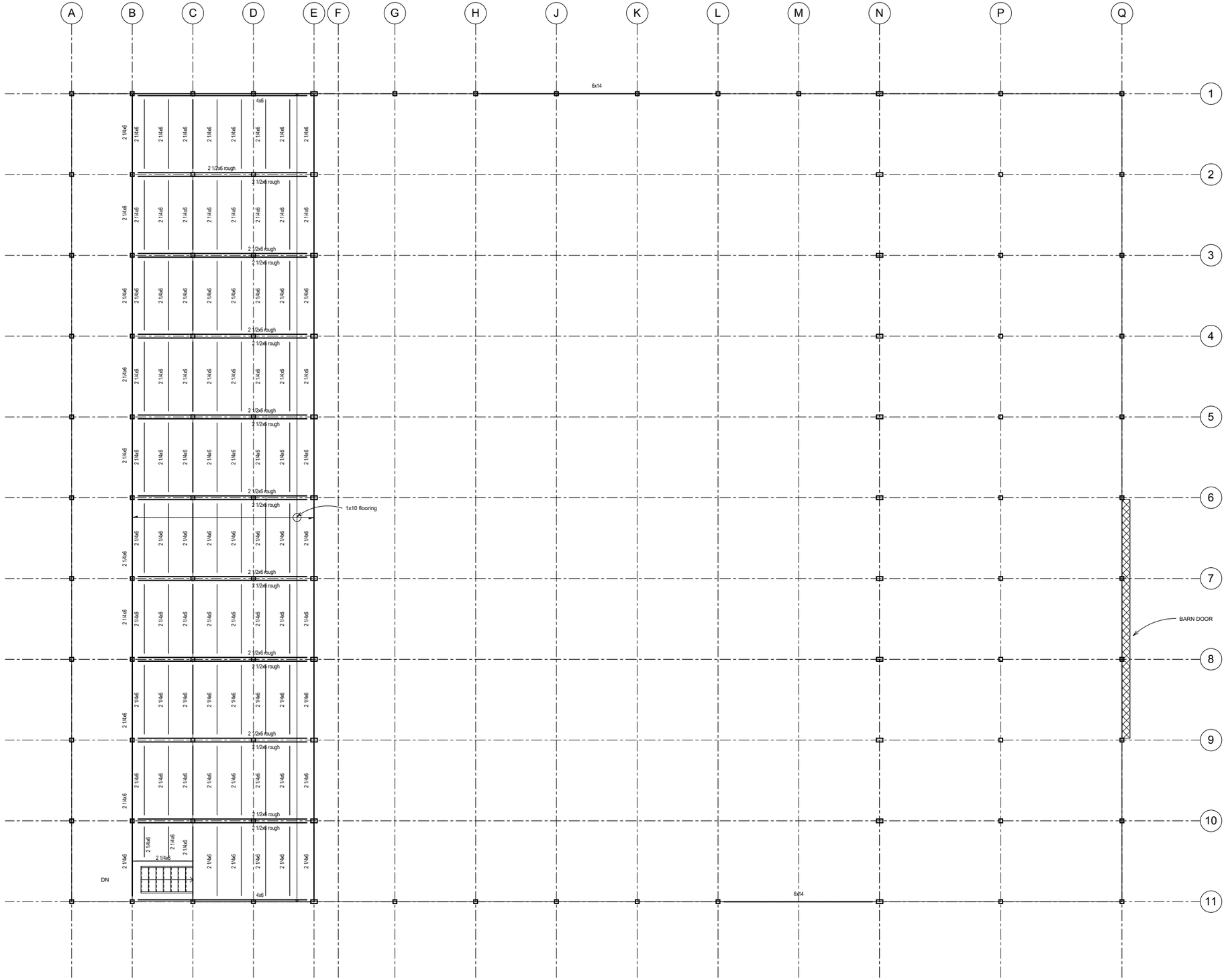

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Loft Framing:

Ice Barn

Project number	13111
Date	2/18/2014
Drawn by	
Checked by	

KW-3

Scale

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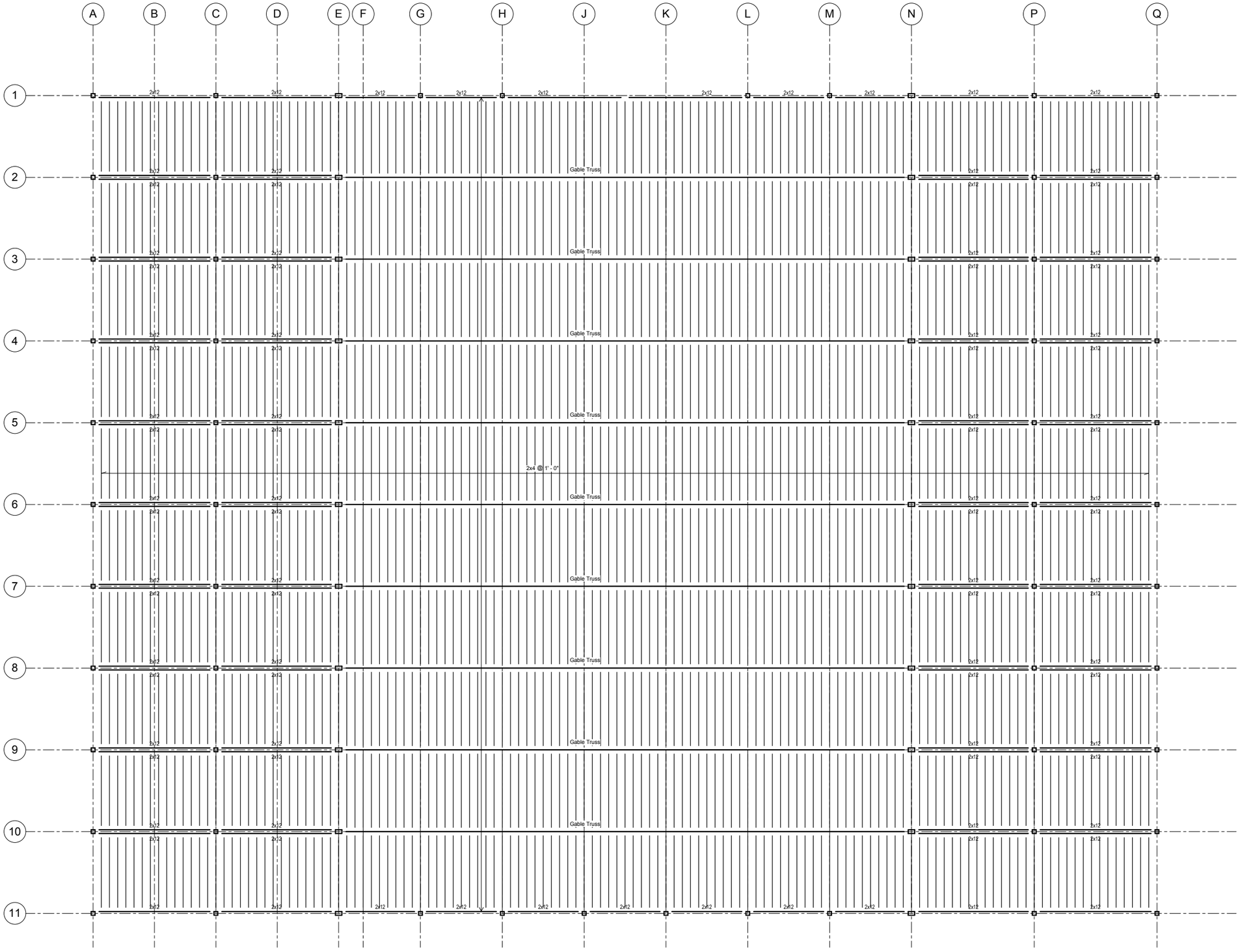

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BELLINGHAM, WA 98225
360-714-8260
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Roof Framing:

Ice Barn

Project number	13111
Date	2/18/2014
Drawn by	
Checked by	

KW-4

Scale

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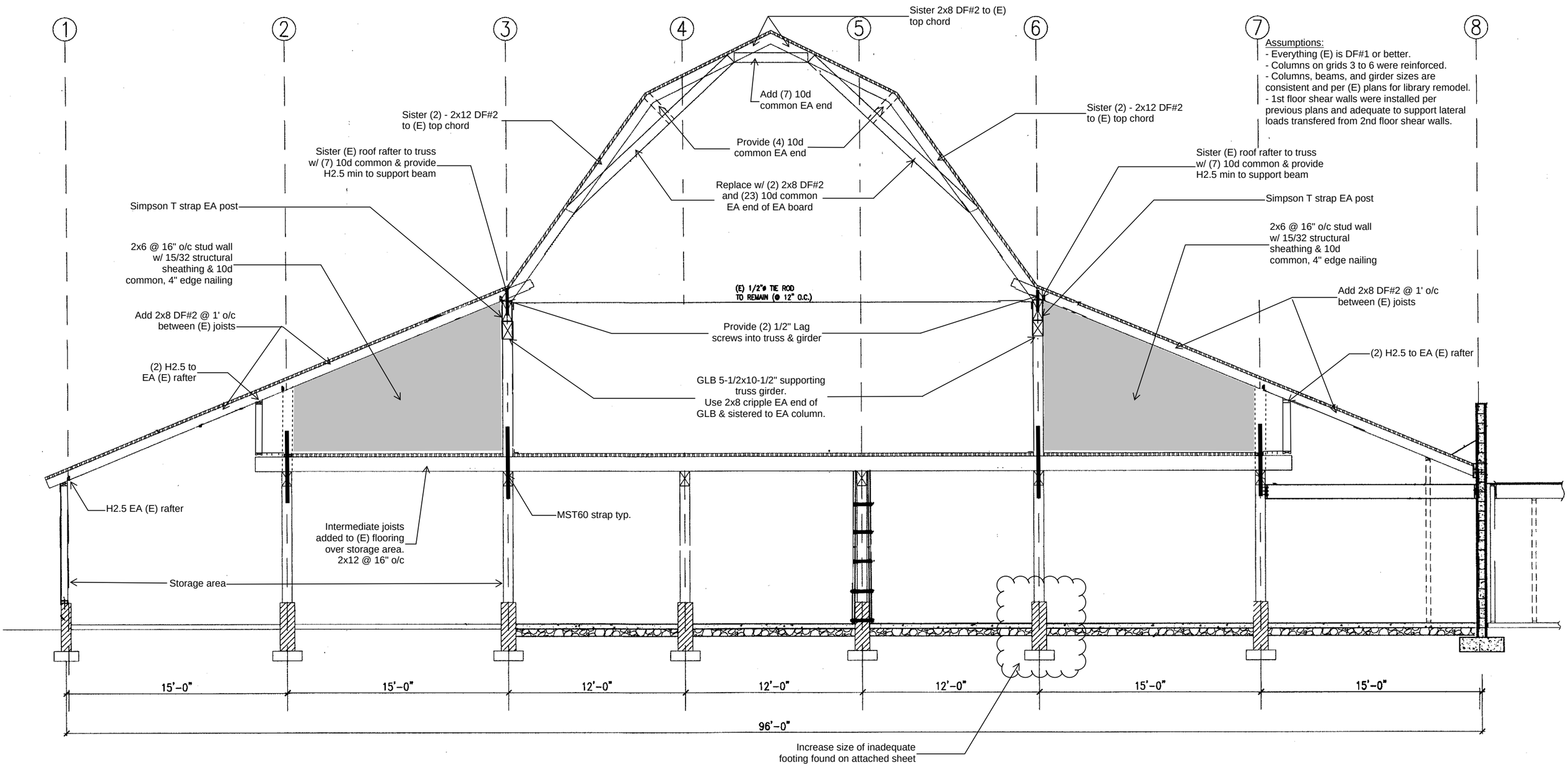

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Section View:

Library Barn

Project number	13111
Date	2/18/2014
Drawn by	
Checked by	

KW-5

Scale

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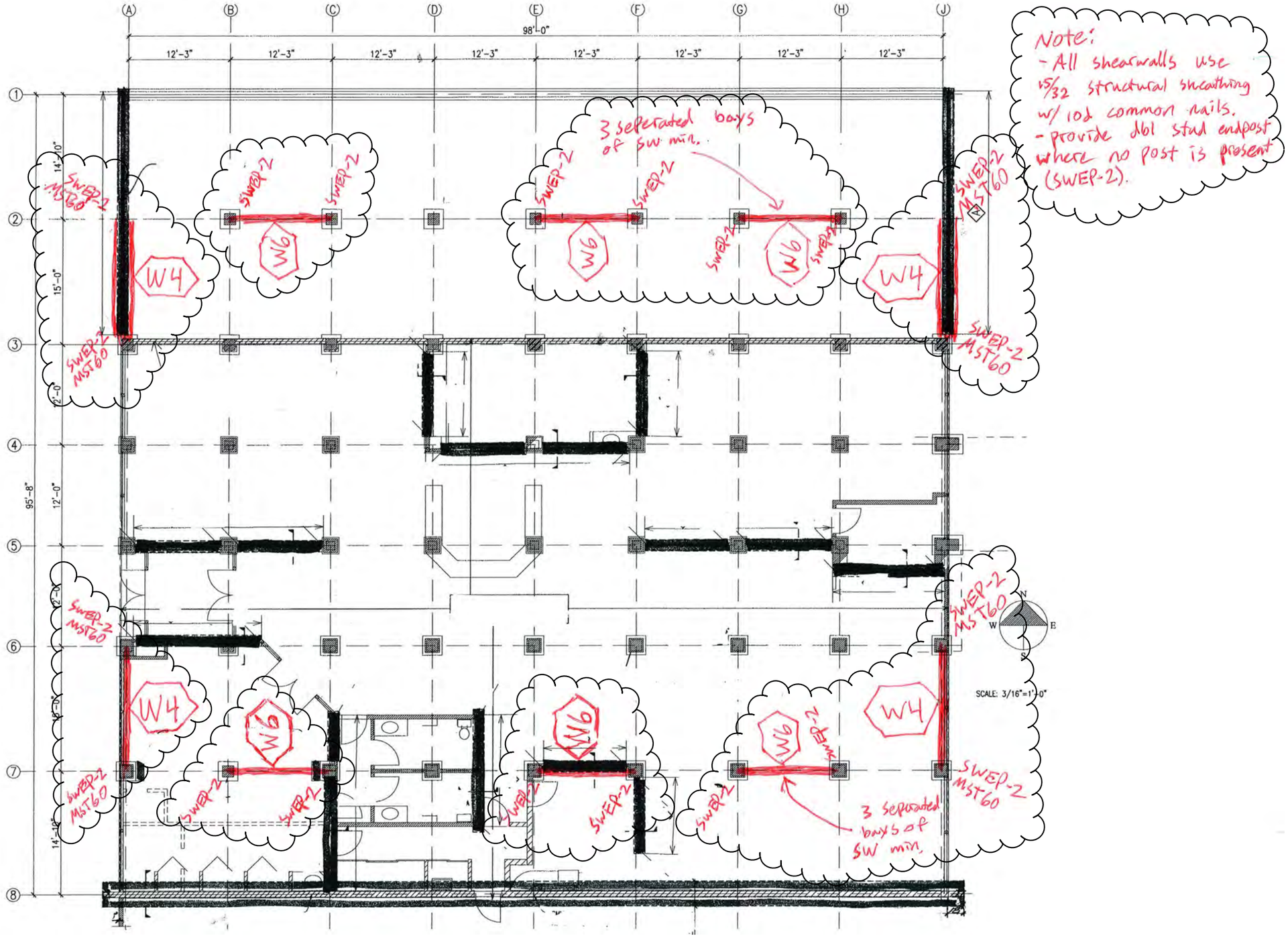

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2nd Floor Shear Walls:

Library Barn

Project number	13111
Date	2/18/2014
Drawn by	
Checked by	

KW-6

Scale

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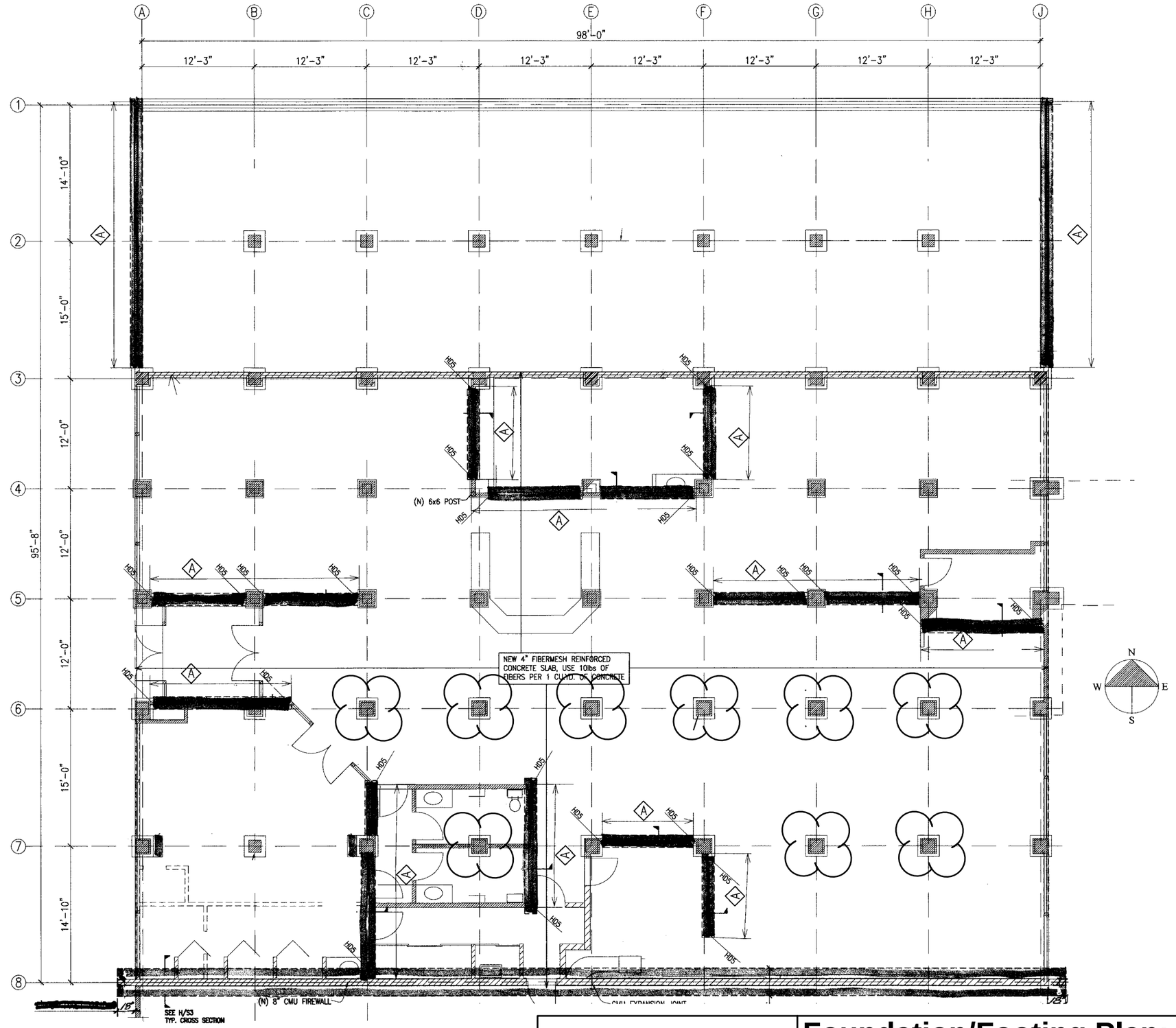
The clouded footings along grids 6 and 7 need to be enlarged if the 2nd floor is to be used as office space.



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Foundation/Footing Plan:

Library Barn

Project number	13111
Date	2/18/2014
Drawn by	
Checked by	

KW-7

Scale

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Shear walls and foundations to be completed per Harezlak's original report on both end walls.

WEST ENTRY ELEVATION #2
3/32" = 1' - 0" 1/26/2014
David Hamilton, Architect, AIA

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1st Floor Shear Walls:

Library Barn

Project number	13111
Date	2/18/2014
Drawn by	
Checked by	
Scale	

KW-8

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STRUCTURAL NOTES:

GENERAL
-Designed in accordance with the 2012 International Building Code (IBC)
Design Loads:
Dead Load: 12 PSF
Wind Loads (ASCE 7/IBC):
- Wind Speed (3 Sec. Gust) = 110 MPH / Exposure: C / Importance IW = 1.0
- Components & Cladding: Component and cladding-wind pressures to be used for the design of exterior components and cladding (by others) shall be determined in accordance with ASCE 7 and the IBC.

- Contractor shall ensure high standards of worksmanship throughout, with strict adherence to the contract documents.
- Kingworks is responsible only for the design of the primary structural system as shown in the contract documents. Design of all secondary structure or non-structural elements are by others.
- Notify the engineer immediately of any discrepancies between these notes, the contract drawings, the specification, or the governing code. The engineer shall reply in writing. Any related work performed by the Contractor prior to receiving a reply from the engineer is at the Contractor's sole risk. For purposes of bidding, the most stringent of the conflicting documents shall apply.
- Verify all existing conditions; verify all dimensions in the field; notify the engineer of any discrepancies or conditions not included in or contrary to the contract documents prior to construction.
- Coordinate the structural drawings with drawings from all other disciplines (including but not limited to Architectural, Civil, Mechanical, and Electrical).
- The structure shown in these drawings is designed to be stable and to resist the loads above only in a fully completed form. Contractor shall ensure that the structure is adequately braced and shored during construction for all temporary loads until all elements are in place, and shall ensure that temporary loadings do not exceed the allowable capacity of any structural elements both before and after these elements are in place.
- Contractor is solely responsible for site safety, coordination, procedures, construction methodology, shoring, bracing, and sequencing.
- Contractor is solely responsible for the protection of existing buildings, utilities, streets, equipment, etc. during construction. Provide temporary bracing and protection as required.
- Do not scale drawings and notify the engineer of any discrepancies.
- Any holes or other alterations to the structure which are not specifically detailed on the contract drawings shall be submitted to the engineer for approval.
- These drawings, and all designs shown within these drawings, are copyrighted by Kingworks Consulting Engineers. Duplication is not permitted without written permission. The designs shown herein are intended for this project only and may not be used on any other project or for any other purpose.

STRUCTURAL OBSERVATION
- Structural Observation in accordance with IBC Section 1704 will be performed if required by the local building official. It shall be the Contractor's responsibility to keep the Structural Engineer apprised of the general schedule of construction, such that observations may be made at appropriate stages before significant structural components (such as reinforcing bars, framing members, or wall holdowns) are obscured.
be APA rated, type as follows:

WOOD FRAMING:
- Materials (unless indicated otherwise on the drawings):

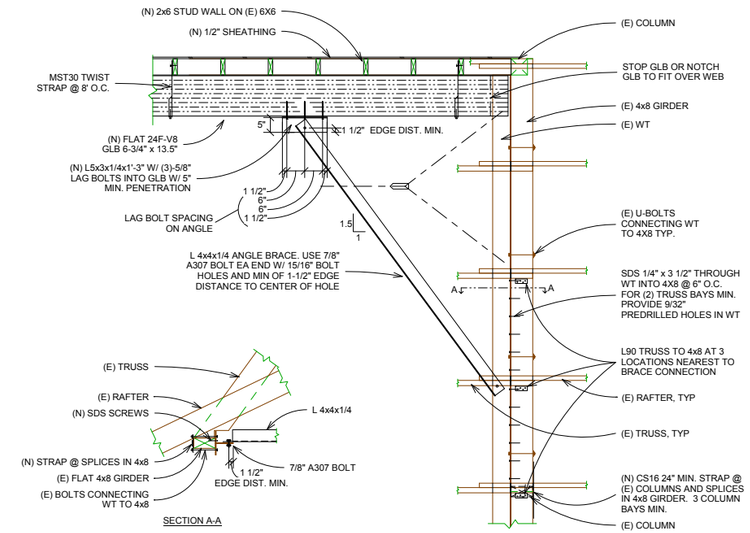
APPLICATION	TYPE/SPECIES/GRADE/REMARKS
Posts & beams	Douglas Fir #2
Studs	Hem Fir #2 or better
Sills and Plates	Hem Fir #2
Blocking / Bridging	Hem Fir #2
Glulam (GLB)	AITC or APA/EWS 24F-V4 24F-V8 at cont. or cantilevered beams
Connectors	Simpson Strong-Tie Or approved equal
Bolts in Wood	ASTM A36 or A307 Washer under head and nut, typical

- Nail Sizes shown are 'common' u.n.o.
- All sawn lumber shall be kiln-dried to a maximum moisture content of 19%.
- Bolt holes in wood shall equal bolt diameter plus 1/8" maximum. Lag screws (or lag bolts) shall have predrilled holes equal to approximately 60% of screw diameter and shall be installed by turning; do not hammer into hole. Soap lubrication on threads is acceptable.
- Splitting of wood members by driving nails or screws is not acceptable. If splitting occurs, predrill all holes as required.
- CONNECTORS: All connecting hardware shall be installed per the Manufacturer's recommendations. Fill all nail or screw holes with the fastener type (diameter and length) indicated by the Manufacturer.
- SHEATHING: Install wall sheathing in either the horizontal or up-right orientation. Adjust all sheathing layouts so that no panel is less than 16" long. All sheathing shall be APA rated, type as follows:

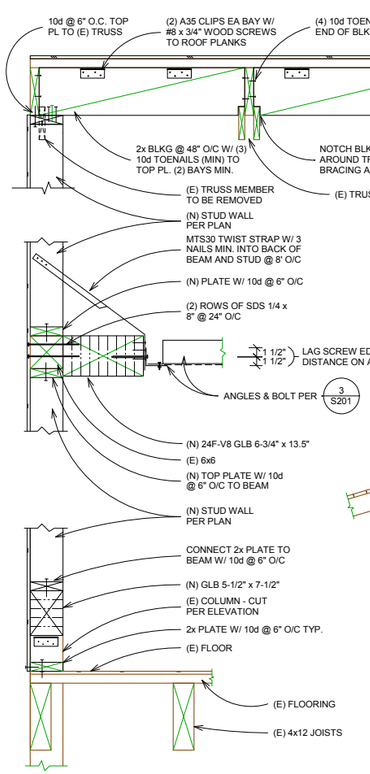
		MIN. NAILING (common nails)		
USE	TYPE	BLOCK EDGES	PANEL EDGES	PANEL INTERIOR
Walls	15/32" PLY or OSB	Shearwalls only	8d@6"	8d@12"

"Min. Nailing" above shall apply at all locations, except where larger nails or smaller spacing are required by plans or details. Shearwall nailing is shown by schedule on the plans. Where "boundary fastening" (BF) is referenced in these drawings, panel edge values per the above schedule shall apply. Blocking for edges shall be 2x4 flat, minimum, unless a greater size is required to avoid splitting.

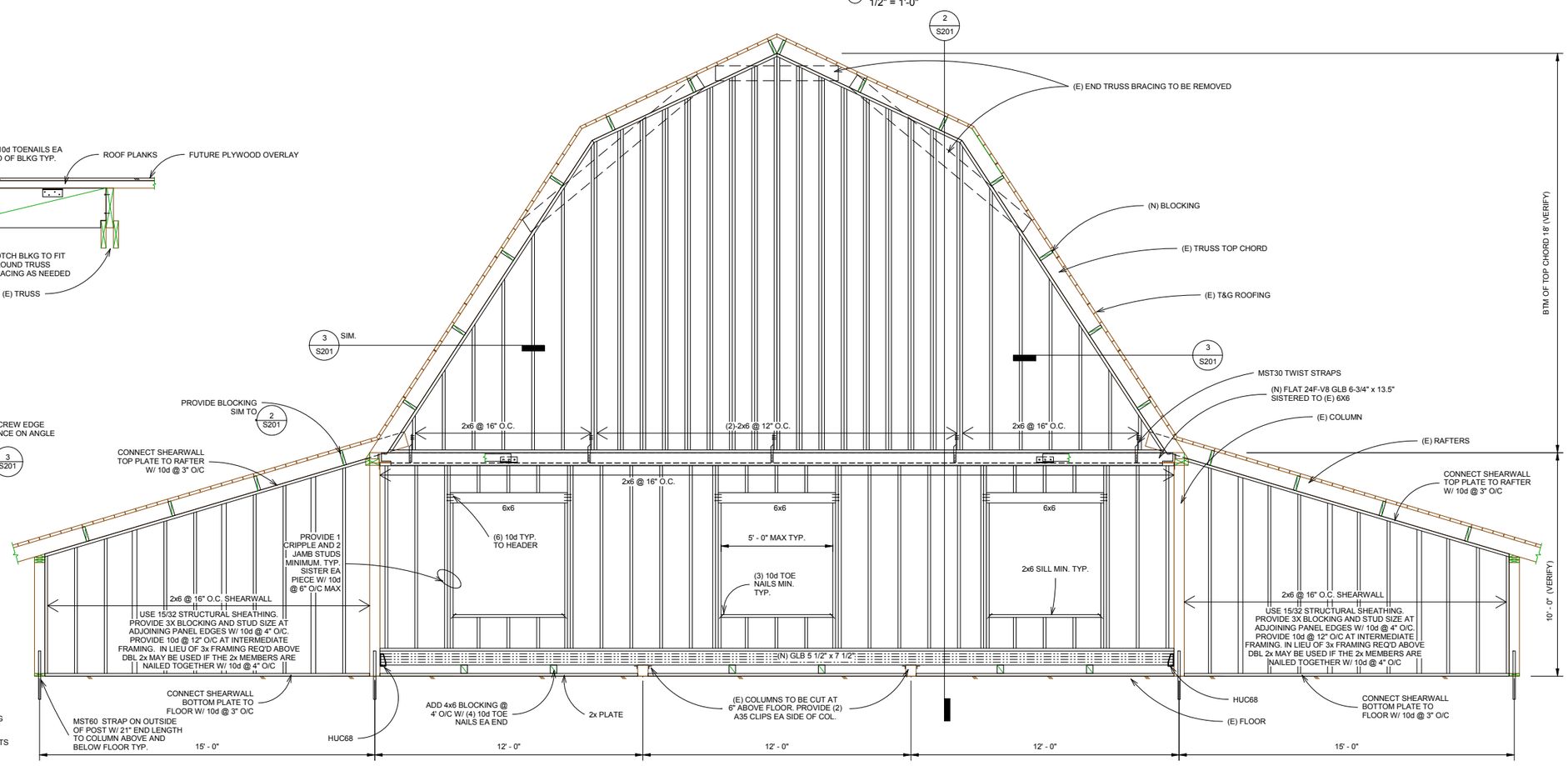
STRUCTURAL STEEL:
- ANGLES: All angles shall be ASTM A36 u.n.o.
- BOLTS: All bolts shall be A307 typ. u.n.o.



3 CORNER PLAN VIEW
1/2" = 1'-0"



2 WALL SECTION
1" = 1'-0"



1 FRAMING ELEVATION
3/8" = 1'-0"

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400 Dupont Street, Ste 8, Bellingham WA 98225
tel 360-734-8260 www.king-works.com

Revision Schedule		
Date	No.	Description

Verify Scale:
Enclosing box measures 1/2 inch tall x 2 1/2 inch wide when drawings are printed at full scale.

WEST SUDDEN VALLEY BARN WALL REPAIR

STRUCTURAL NOTES/FRAMING ELEVATION

JOB No:	13140
DATE:	2/10/14
DRAWN BY:	P.S.
CHECKED BY:	

SHEET:
S201

© copyright KW. 2013

northwest CleanAir agency
1600 S 2nd Street
Mount Vernon, WA 98273
Main: 360-428-1617
Fax: 360-428-1620
info@nwcleanairwa.gov
nwcleanairwa.gov

Asbestos / Demolition Notification Approval and Permit to Work

Notification #	26-399
Received Date	07/10/2026
Approval Date	07/10/2026
Fee Amount	$ 297.00
Receipt #	06839G

Project Site

Barn 6
10 Barn View Ct
Bellingham, 98229

Project Details

Project Type Demolition only

Building Type Other Multiuse Barn

Building Age (Year Built) 1961

☐ **Emergency**

Estimated Demolition Date 09/01/2026

☑ **Survey**

Survey Link [Survey on file with NWCAA]

☐ **Owner Occupied Abatement**

Asbestos Locations

☐ **Class I** ☐ **Class II** ☐ **Vermiculite** ☐ **Non-friable Fee Exempt Material**

Owner

Site Owner Tyler Andrews - Construction Manager for Sudden Valley Community Association

Owner Phone (425) 954-9614

Notification Submitted by Tyler Andrews

Notification Contact Phone (425) 954-9614

Notification Contact Email accounting@pnwcivil.com

This notification must be posted at the work site.

You must file an amendment if there are any changes to the project scope or schedule.

<http://nwcleanairwa.gov/forms/asbestos-project-amendment/>

Information on asbestos and demolition can be found on the agency website.

<http://nwcleanairwa.gov/permits-and-services/asbestos-and-demolition/>

Asbestos disposal information

<http://nwcleanairwa.gov/download/disposal-information/>

NWCAA asbestos regulations can be found in Section 570 Asbestos Control Standards.

<http://nwcleanairwa.gov/regulation/section-550-590/section-570/>

Environmental Abatement Services Inc

July 11, 2019 (corrected on 7/9/26)

Britt Honcoop

2380 Grandview Rd
Ferndale, WA 98248
Britt.Honcoop@wrsweb.com

Asbestos Abatement Project: Barn 6 (Hockey Barn)
Sudden Family Community Association
10 Barn View Dr
Bellingham, WA 98229

Per the Asbestos Survey (#SV-B6) conducted by Dan Shelly on 10/26/2017 (cert# 1625581). EAS (contractor #ENVIRAS014RA) removed asbestos containing material from the above address as specified in the survey. According to local state and federal regulations, materials containing more than one percent (1%) asbestos must be removed prior to any remodel, renovation, or demolition activity.

The material was removed by Certified Asbestos Workers under the direct supervision of a Certified Asbestos Supervisor in accordance with all applicable local, state and federal regulations on 07/10/2019. The materials collected were packaged for final disposal in compliance with all applicable federal, state, and local laws.

If materials are identified under 1% asbestos on the survey work practices and worker protection must be in compliance with WAC 2962-62-077. Additional information is available with directive WRD 23.30 available on the Washington State Department of Labor and Industries website.

The building was surveyed and the materials found to contain more than 1% asbestos were removed and properly disposed in accordance with all applicable regulations. A copy of the survey with laboratory report, and this letter may be used as documentation of the completion of asbestos identification and removal. Any planned remodeling, renovation, and demolition activities should be approved to proceed.

Sincerely,

Cathy Marquez
President

PO Box 2503 / 18365 W Lincoln St.
Mount Vernon, WA 98273

Phone (360) 755-1085
Fax (360) 588-4180

NVL
INDUSTRIAL HYGIENE SERVICES
LABORATORY + MANAGEMENT + TRAINING

July 21, 2026

Catherine Marquez
Environmental Abatement Svcs, Inc.
P.O.Box 2503
Mt. Vernon, WA 98273

NVL Batch # 2611573.00

RE: Total Metal Analysis
Method: EPA 1311/7000B Lead by FAA <TCLP>
Item Code: TCLP-1

Client Project: Tyler Andrews
Location: 10 Barn View Court Bellingham WA 98229

Dear Ms. Marquez,

NVL Labs received 1 sample(s) for the said project on 7/15/2026. Preparation of these samples was conducted following protocol outlined in EPA 1311/7000B, unless stated otherwise. Analysis of these samples was performed using analytical instruments in accordance with EPA 1311/7000B Lead by FAA <TCLP>. Sample amount used was below 100 grams as recommended by EPA 1311. The results are usually expressed in mg/L and ppm. Test results are not blank corrected.

For recent regulation updates pertaining to current regulatory levels or permissible exposure levels, please call your local regulatory agencies for more detail.

At NVL Labs all analyses are performed under strict guidelines of the Quality Assurance Program. This report is considered highly confidential and will not be released without your approval. Samples are archived after two weeks from the analysis date. Please feel free to contact us at 206-547-0100, in case you have any questions or concerns.

Sincerely,

Shalini Patel, Technical Manager

Enc.: Sample results

Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)
4708 Aurora Avenue North | Seattle, WA 98103-6516

Analysis Report

Toxicity Characteristic Leaching Procedure - Lead (Pb)

Client: Environmental Abatement Svcs, Inc.
Address: P.O.Box 2503
Mt. Vernon, WA 98273

Attention: Ms. Catherine Marquez
Project Location: 10 Barn View Court Bellingham WA 98229

Batch #: 2611573.00
Matrix: Bulk
Method: EPA 1311/7000B
Client Project #: Tyler Andrews
Date Received: 7/15/2026
Samples Received: 1
Samples Analyzed: 1

Lab ID	Client Sample #	RL mg/ L	Results in mg/L	Results in ppm
260064695	AM71526-01	0.5	< 0.5	< 0.5

Sampled by: Client
Analyzed by: Yasuyuki Hida
Reviewed by: Shalini Patel
Date Analyzed: 07/21/2026
Date Issued: 07/21/2026

Shalini Patel, Technical Manager

mg/ L =Milligrams per liter
ppm = parts per million

RL = Reporting Limit
'<' = Below the reporting Limit

Note : Method QC results are acceptable unless stated otherwise.
Unless otherwise indicated, the condition of all samples was acceptable at time of receipt.

Bench Run No: 2026-0720-03

LEAD LABORATORY SERVICES

194

NVL

Company	Environmental Abatement Svcs, Inc.	**NVL Batch Number**	**2611573.00**
Address	P.O.Box 2503	**TAT** 5 Days	**AH** No
	Mt. Vernon, WA 98273	**Rush TAT**	
Project Manager	Ms. Catherine Marquez	**Due Date** 7/22/2026	**Time** 2:45 PM
Phone	(360) 755-1085	**Email**	asbestoseas@aol.com
Cell:	(360) 421-0806	**Fax**	(360) 588-4180

Project Name/Number: Tyler Andrews **Project Location:** 10 Barn View Court Bellingham WA 98229

Subcategory Flame AA (FAA)

Item Code TCLP-1 EPA 1311/7000B Lead by FAA <TCLP>

Total Number of Samples 1 Rush Samples

	Lab ID	Sample ID	Description	A/R
1	260064695	AM71526-01		A

	Print Name	Signature	Company	Date	Time
Sampled by	Client				
Relinquished by	Drop Box				

Office Use Only	Print Name	Signature	Company	Date	Time
Received by	Joel Chavez		NVL	7/15/26	1445
Analyzed by	Yasuyuki Hida		NVL	7/21/26	
Results Called by					
☐ **Faxed** ☐ **Emailed**					

Special Instructions:

Date: 7/16/2026
Time: 11:54 AM
Entered By: Frank Larkin

CHAIN of CUSTODY SAMPLE LOG

2611573

Client: Environmental Abatement Svcs, Inc.
Street: P.O.Box 2503
Mt. Vernon, WA 98273

NVL Batch Number:
Client Job Number: Tyler Andrews
Total Samples: 1
Turn Around Time: ☐ 1 Hr ☐ 6 Hrs ☐ 3 Days ☐ 10 Days ☐ 2 Hrs ☐ 1 Day ☐ 4 Days ☐ 4 Hrs ☐ 2 Days ☒ 5 Days
Please call for TAT less than 24 Hrs

Project Manager: Ms. Catherine Marquez
Project Location: 10 Barn view Court Bellingham WA 98229
Email address: asbestoseas@aol.com
Phone: (360) 755-1085 Fax: (360) 588-4180 Cell: (360) 421-0806

☐ Asbestos Air ☐ PCM (NIOSH 7400) ☐ TEM (NIOSH 7402) ☐ TEM (AHERA) ☐ TEM (EPA Level II) ☐ Other
☐ Asbestos Bulk ☐ PLM (EPA/600/R-93/116) ☐ PLM (EPA Point Count) ☐ PLM (EPA Gravimetry) ☐ TEM BULK
☐ Mold/Fungus ☐ Mold Air ☐ Mold Bulk ☐ Rotometer Calibration

METALS	Det. Limit	Matrix		RCRA Metals	☐ All 8	Other Metals
☐ Total Metals	☐ FAA (ppm)	☐ Air Filter	☐ Paint Chips in %	☐ Arsenic (As)	☒ Lead (Pb)	☐ All 3
☒ TCLP	☐ ICP (ppm)	☐ Drinking water	☐ Paint Chips in cm2	☐ Barium (Ba)	☐ Mercury (Hg)	☐ Copper (Cu)
☐ Cr 6	☐ GFAA (ppb)	☐ Dust/wipe (Area)	☐ Waste Water	☐ Cadmium (Cd)	☐ Selenium (Se)	☐ Nickel (Ni)
	☐ CVAA (ppb)	☐ Soil	☐ Other	☐ Chromium (Cr)	☐ Silver (Ag)	☐ Zinc (Zn)

☐ Other Types of Analysis: ☐ Fiberglass ☐ Nuisance Dust ☐ Other (Specify) ☐ Silica ☐ Respirable Dust

Condition of Package: ☐ Good ☐ Damaged (no spillage) ☐ Severe damage (spillage)

Seq. #	Lab ID	Client Sample Number	Comments (e.g Sample are, Sample Volume, etc)	A/R
1		AH71526-01	TCLP - plywood - OSB, window & door interior	
2			trim with paint, Moulding, wall panel, carpet	
3			black Rubber, Formica green, Formica black	
4			concrete slab floors insulation Fiber glass	
5			exterior wood siding with Red paint	
6			& white, 4X4 wood beam wood, 2X4 studs	
7			plastic exterior panels - T11 siding, drywall	
8			Felt paper, shake shingles roof & siding	
9			ceiling tile & vinyl floor, blue foam	
10			layers of paint from bathroom floors	
11				
12				
13				
14				
15				

	Print Below	Sign Below	Company	Date	Time
Sampled by	Alonso Navarro		EAS	7-15-26	12:00
Relinquished by	Alonso Navarro		EAS	7-15-26	4:00
Received by	Joel Gomez		NVL	7/15/26	1445 DB
Analyzed by					
Results Called by					
Results Faxed by					

Special Instructions: Unless requested in writing, all samples will be disposed of two (2) weeks after analysis.

Phone: 206 547.0100 | Fax: 206 634.1936 | Toll Free: 1.888.NVL.LABS (685.5227)
4708 Aurora Avenue North | Seattle, WA 98103-6516

Sudden Valley Community Association
360-734-6430
4 Clubhouse Circle Bellingham, WA 98229
www.suddenvalley.com

APPROVAL REQUEST MEMO

To: **Sudden Valley Community Association Board of Directors**

From: **Jo Anne Jensen, General Manager**

Date: **September 24, 2026**

Subject: **Approval Request – 2027 Golf Fee Increases**

Purpose
To submit proposed 2027 golf fee increases for review and approval by the Board of Directors.

Background
Modest increases to the majority of the fees charged by the Sudden Valley Golf Course are proposed for 2027. It has been the practice of the Association to implement small annual increases for many years. This practice has supported golf's consistent growth in revenue despite smaller increases, if any, in the number of rounds played each year.

The proposed fee increases are needed to cover increasing operational costs but must be balanced against the fees charged by competitive courses in our area, as we do not want to price ourselves out of the market. Golf Director Kevin LeDuc proposed these fees after considering both rising costs and competitive prices.

The attached table shows both the current and the proposed fees. The increases average about 3% overall, although some individual line items have larger increases.

The proposed fees show a 20% discount for property owners who golf Monday through Thursday and maintain a 10% discount on weekend play. This reflects the pricing set by the Board earlier this year.

Request
I request that the SVCA Board of Directors approve the attached schedule of 2027 golf fees.

Motion
I move that the SVCA Board of Directors approve the attached schedule of 2027 golf fees.

Recommendation
Recommended: _____Not Recommended: _____Finance Committee

Signed: _____
Jean Maixner, Treasurer

Approvals

Approved: _____Not Approved: _____ SVCA Board of Directors

Signed: _____Date: _____

Keith McLean, President

GOLF RATES	Member		Non-Member	
GOLF Annual Membership	**ANNUALLY**			
	2026	**2027**	**2026**	**2027**
Annual Membership costs as stated plus Golf Club fees and taxes				
Annual Membership - Single	2,350.00	2,425.00	2,575.00	2,650.00
Annual Membership - Couple	3,525.00	3,650.00	3,900.00	4,000.00
Annual Membership - Family 3+	3,750.00	3,850.00	4,100.00	4,200.00
Annual Membership - Young Family (children <15) After Noon Play	1,675.00	1,725.00	1,875.00	1,925.00
Annual Membership - Senior Limited	1,725.00	1,780.00	1,900.00	1,950.00
Annual Membership - Intermediate (18-28yrs old)	1,175.00	1,225.00	1,275.00	1,325.00
Annual Membership - Associate	550.00	575.00	550.00	575.00
Annual Membership - Social	150.00	170.00	150.00	170.00
Annual Membership - Junior/Student (<17 yrs old)	360.00	370.00	390.00	395.00
Annual Corporate 4 Named Memberships	N/A	N/A	N/A	N/A
Annual Corporate 4 Named Memberships with Cart Included	N/A	N/A	N/A	N/A
Annual Corporate 4 Floating Memberships	N/A	N/A	N/A	N/A
Annual Corporate 4 Floating Memberships with Cart Included	N/A	N/A	N/A	N/A
Monthly Membership - Single	200.00	210.00	215.00	225.00
Monthly Membership - Couple	300.00	315.00	330.00	340.00
Monthly Membership - Family 3+	320.00	335.00	350.00	360.00
Monthly Membership - Young Family (children <15) After Noon Play	145.00	150.00	160.00	165.00
Monthly Membership - Senior Limited	150.00	155.00	165.00	170.00
Monthly Membership - Intermediate (18-28yrs old)	105.00	110.00	115.00	120.00
Monthly Membership - Associate	50.00	50.00	50.00	50.00
Monthly Membership - Junior/Student (<17 yrs old)	38.00	38.00	43.00	43.00
GOLF Daily Fees	**DAILY**			
Group Pricing is available for groups of 16 or more. Please contact Golf Professional Staff for a quote.				
May- Sept: Property Owner / Guest (Mon-Thurs) Daily Green Fees, 9 Holes	36.00	32.00	40.00	42.00
May- Sept: Property Owner / Guest (Mon-Thurs) Daily Green Fees, 18 Holes	55.80	51.20	62.00	65.00
May- Sept: Property Owner / Guest (Fri-Sun,Holidays) Daily Green Fees, 9 Holes	44.10	45.00	49.00	50.00
May- Sept: Property Owner / Guest (Fri-Sun,Holidays) Daily Green Fees, 18 Holes	66.60	69.30	75.00	77.00
April&October: Property Owner / Guest (Mon-Fri) Daily Green Fees, 9 Holes	30.60	28.00	34.00	35.00
April&October: Property Owner / Guest (Mon-Fri) Daily Green Fees, 18 Holes	47.70	44.00	53.00	55.00
April&October: Property Owner / Guest (Sat-Sun,Holidays) Daily Green Fees, 9 Holes	36.90	37.80	41.00	42.00
April&October: Property Owner / Guest (Sat-Sun,Holidays) Daily Green Fees, 18 Holes	57.60	58.50	64.00	65.00
March: Property Owner / Guest (Mon-Fri) Daily Green Fees, 9 Holes	27.00	24.00	30.00	32.00
March: Property Owner / Guest (Mon-Fri) Daily Green Fees, 18 Holes	43.20	39.20	48.00	49.00
March: Property Owner / Guest (Sat-Sun,Holidays) Daily Green Fees, 9 Holes	33.30	34.20	37.00	38.00
March: Property Owner / Guest (Sat-Sun,Holidays)) Daily Green Fees, 18 Holes	52.20	53.10	58.00	59.00
Nov-Feb: Property Owner / Guest (Mon-Fri.) Daily Green Fees, 9 Holes	24.30	22.40	27.00	28.00
Nov-Feb: Property Owner / Guest (Mon-Fri.) Daily Green Fees, 18 Holes	38.70	36.00	43.00	45.00
Nov-Feb: Property Owner / Guest (Sat-Sun,Holidays) Daily Green Fees, 9 Holes	30.60	31.50	34.00	35.00
Nov-Feb: Property Owner / Guest (Sat-Sun,Holidays) Daily Green Fees, 18 Holes	48.60	49.50	54.00	55.00
Other Golf Fees				
Cart Rental - 9 Holes	12.60	14.00	14.00	15.00
Golf Cart Rental - 18 Holes	17.10	18.50	19.00	20.00
Annual Cart Rental, Annual Option, Single	750.00	775.00	750.00	775.00
Annual Cart Rental, Annual Option, Couple	1,000.00	1,030.00	1,000.00	1,030.00
Annual Cart Rental, Monthly Option, Single	65.00	67.00	65.00	67.00
Annual Cart Rental, Monthly Option, Couple	90.00	93.00	90.00	93.00
Daily Trail Fee - 9 Holes	14.00	15.00	14.00	15.00
Daily Trail Fee - 18 Holes	19.00	20.00	19.00	20.00
Annual Trail Fee, Annual Option	400.00	420.00	400.00	420.00
Annual Trail Fee, Monthly Option	35.00	37.00	35.00	37.00
Driving Range Fee, Small Bag	5.40	6.50	6.00	7.00
Driving Range Fee, Medium Bag	7.20	8.50	8.00	9.00
Driving Range Fee, Large Bag	9.00	10.00	10.00	11.00
Annual Golf Club Storage, Bag Only	170.00	180.00	170.00	180.00
Annual Golf Club Storage, Bag & Pull Cart (Full - No New Spots Available)	n/a	n/a	n/a	n/a