CITY OF
BAINBRIDGE ISLAND

ENVIRONMENTAL TECHNICAL ADVISORY COMMITTEE
REGULAR MEETING
THURSDAY, SEPTEMBER 20, 2018
3:00 PM – 5:00 PM
COUNCIL CONFERENCE ROOM
280 MADISON AVENUE NORTH
BAINBRIDGE ISLAND, WA 98110

AGENDA

1. **CALL TO ORDER / ROLL CALL / ACCEPT OR MODIFY AGENDA / CONFLICT OF INTEREST DISCLOSURE**
   3:00 PM

   MEMBERS:

JASON FLOWERS	JUAN ROVALO
DYLAN FRAZER	STEVE SAEPOFF
MELANIE KENNAN	CASEY SCHMIDT
CHARLIE KRATZER	KARL SHEARER

   COUNCIL LIAISON: RASHAM NASSAR

   COBI STAFF: OLIVIA SONTAG

2. **INTRODUCTION OF COMMITTEE MEMBERS** – ALL (15 MIN)
3. **ELECTION OF CHAIR** (10 MIN)
4. **APPROVAL OF MINUTES** – JUNE 1, 2018 & JUNE 21, 2018 (5 MIN)
5. **COUNCIL LIAISON REPORT – RASHAM NASSAR** (10 MIN)
6. **OPMA AND COBI CITIZEN ADVISORY COMMITTEES** – JOE LEVAN, CITY ATTORNEY (15 MIN)
7. **ETAC WORK PROTOCOLS AND OPMA** – CHARLIE KRATZER (10 MIN)
8. **ETAC MEMBERSHIP STATUS OF STEVE SAEPOFF** – ALL (10 MIN)
9. **STATUS OF GROUNDWATER MANAGEMENT PLAN** – ALL (20 MIN)
10. **ROBBINS HABITAT MANAGEMENT PLAN DISCUSSION** – OLIVIA SONTAG, PLANNER / ALL (20 MIN)
11. **PUBLIC COMMENT** (5 MIN)
12. **ADJOURNMENT**
    5:00 PM

For special accommodations, please contact Roz Lassoff,
206-780-8624 or at rlassoff@bainbridgewa.gov

CITY OF
BAINBRIDGE ISLAND

ENVIRONMENTAL TECHNICAL ADVISORY COMMITTEE
SPECIAL MEETING
FRIDAY, JUNE 1, 2018
COUNCIL CONFERENCE ROOM
280 MADISON AVENUE NORTH
BAINBRIDGE ISLAND, WA 98110

MINUTES

1. **CALL TO ORDER / ROLL CALL / ACCEPT OR MODIFY AGENDA / CONFLICT OF INTEREST DISCLOSURE** 8:22 AM

CHAIR:	FRANK GREMSE	
MEMBERS:	JASON FLOWERS	CHARLIE KRATZER
	DYLAN FRAZER	
PUBLIC:	MELANIE KEENAN	MALCOLM GANDER

2. **APPROVAL OF MINUTES:** MAY 17, 2018

3. **DISCUSSION OF GROUND WATER MANAGEMENT PLAN REPORT SECTIONS 1, 2 AND 3:** NEW DRAFT ISSUED DATED 06/01/18

4. **PUBLIC COMMENT:**

   A. TABLE 4 OF THE REPORT DOES NOT ACCURATELY DEPICT HISTORICAL PRODUCTION FROM THE FBS AND SLA WELLS.
   B. THE BAINBRIDGE ISLAND WATER SYSTEM PLAN 2017 SHOULD BE REVIEWED WITH RESPECT TO THE DESIRED INCREASE IN WATER PRODUCTION AND WHERE THAT INCREASE CAN COME FROM.
   C. ABSENCE OF EIS REPORTS ON THE IMPACT OF GROWTH FOR THE LAST 20 YEARS.

5. **ADJOURNMENT** 10:12 AM

09/19/18

CITY OF
BAINBRIDGE ISLAND

Environmental Technical Advisory Committee
THURSDAY, JUNE 21, 2018
MAP ROOM
280 MADISON AVENUE NORTH
Bainbridge Island, WA 98110

MINUTES

1. **CALL TO ORDER / ROLL CALL / ACCEPT OR MODIFY AGENDA / CONFLICT OF INTEREST DISCLOSURE** 3:12 PM

   Chair: Frank Gremse

   Members: Jason Flowers, Charlie Kratzer, Dylan Frazer, Karl Shearer

   Public: Melanie Keenan

2. **APPROVAL OF MINUTES** – JUNE 1, 2018

3. **Discussion of Committee Process** – All

4. **Discussion of Potential Committee Changes** – All

5. **Discussion of Ground Water Management Plan Report Sections** – All

6. **Public Comment**

7. **ADJOURNMENT** 4:45 PM

9/19/18

Ethics Requirements for Advisory Commissions and Committees

The Bainbridge Island Ethics Program (revised March 23, 2011) now applies to the citizen members of advisory commissions and committees as well as city officials. Accordingly, advisory group members must comply with the requirements of the Code of Ethics in Article II of the Ethics Program. These requirements are summarized below; please consult the Code of Ethics for specific language and details of the requirements.

1. Gifts and Compensation. An advisory group member and his or her immediate family members may not accept gifts related to the advisory group member's services to the city, with some exceptions including unsolicited gifts of trivial value.

2. Confidentiality. An advisory group member or former member may not disclose or use privileged, confidential or proprietary information obtained in the course of his or her duties as a member.

3. Conflict of Interest. An advisory group member may not act officially on a matter in which the member or an immediate family member has any substantial employment related to the matter or other financial or private interest in the matter, or is party to a contract or owns an interest in property that would be significantly affected by the action. However, if the member fully discloses the conflict on the public record, the commission or committee may vote to allow the member to participate in discussion or vote. Members of advisory groups shall sign a conflict of interest statement upon appointment and reappointment.

4. Conduct of Public Meetings. Advisory group meetings should be conducted in a manner that maximizes transparency of relationships that could affect decision-making. Meetings should have a standing agenda item for members to disclose relationships with persons and issues on the agenda, and members should discuss these relationships to judge whether a conflict of interest exists.

7/14

Standard Buffer Reduction Analysis

APN 4189-004-003-0004

Final Report

Prepared for:

Richard and Jim Robbins

Bainbridge Island, WA 98110

Prepared by:

Ericson Consulting

3775 Brownsville Place

Bellingham, WA 98226

August 7, 2018

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1.0 General Information

A site specific vegetation area (SSVA) analysis dated March 25, 2015 and a Habitat Management Plan (HMP) dated March 25, 2016, HMP revised May 02, 2016 was commissioned by the owner Richard and Jim Robbins. This analysis was requested by Bainbridge Island to demonstrate the requested 35 foot reduction in the standard provides an equal no net loss of ecological functions. The habitat management plan contains a greater detail of the management recommendations proposed through this analysis.

1.1 Description of Project Proposal

The proposed action will construct a single family residence, on-site septic, detached garage, accessory decks and path to the bluff. Two undeveloped lots (APN 4189-004-003-00040 and APN 4189-004-005-0002) were aggregated to form one 1.37 acre lot. The building envelope (single family residential building, decks, walkways, driveway, and landscaping) for the proposed development will not exceed 7500 SQFT or approximately 12.5% of the lot area.

2.0 Regulatory

The SSVA analysis addressed the provisions in the City of Bainbridge Island municipal code allowing for the reduction of the standard shoreline buffer through a habitat management plan. The provisions for a habitat management plan in BIMC 16.12.060(E) requires the HMP to provide greater protection of critical area functions and values than the application of the prescribed standard buffer. The authority to protect critical area functions and values is found in RCW 36.70A the Washington State Growth Management Act (GMA). The entire project is within the shoreline jurisdiction regulated under RCW 90.58 the Shoreline Management Act. The standard for protection in the Shoreline Management Act (SMA) is no net loss of ecological function and ecosystem wide processes.

The Bainbridge Island Shoreline Management Program incorporated the critical area ordinance habitat management plan procedures and recognized the different standards of environmental protection by providing an exception to critical area ordinance HMP procedures. To reconcile the different standards of protection between the GMA and SMA the SMP provision the incorporation of the critical area habitat management procedures includes the clause “provided the plan”. The word provided places a condition on the reference to 16.12.060(E) that limits the use and determinations in the prescribed habitat management plan provision 16.16.060(E) to residential properties, use of the City of Bainbridge Island’s Best Available science and any new best available science introduced since the adoption of the shoreline master program, and the standard level of protection is the SMA standard of no net loss of ecological function and ecosystem wide processes and not the GMA standard in 16.12.060(E).

This analysis assess whether an equal level of environmental protection between the requested 115 foot shoreline buffer and the 150' foot shoreline standard buffer in table 16.12.030-3 is present. Habitat management recommendations are provided when the level of protection is not equal.

3.0 Methodology

For this analysis a simplified debit and credit system was created to determine if the proposed 115 foot shoreline setback would provide a similar level of environmental function and ecosystem process as the shoreline standard buffer of 150 ft. The simplified debit and credit methodology will evaluate the same marine riparian functions described in the 2009 document prepared by Brennan et al for Washington State Fish and Wildlife, "Protection of Marine Riparian Functions in Puget Sound Washington". Brenan 2009 concluded the FEMAT curves created to manage upland forests are applicable to use in protection of marine riparian functions. The same conclusion was discussed in the draft document prepared Riparian Ecosystem Volume 2: Management Recommendation (WDFW 2018) which has been distributed for general comment.

The draft document Riparian Ecosystem Volume 2: Management Recommendations furthers the discussion on using the FEMAT curves by providing the recommendation to use the specific potential tree height (SPTH) for a given area as a vegetation management area to protect riparian functions. The draft document provides the methodology to determine the SPTH for a given proposal, in Appendix 1 of the draft document. This method allows the use of existing site class maps produced by the Washington State Department of Natural Resources or the USGS web soil mapper to determine the 200 year SPTH rating curve used to develop the FEMAT curves.

Site Specific Tree Height

The simplified debit and credit used for this analysis will determine the SPTH for the project proposal using the USGS web soil mapper. Area of Interest (AOI) will be defined by the project area which is the two parcels owned by the Robbins. The site tree index for each soil type identified within the parcel will be recorded. The SPTH for the project is the sum of the weight factor multiplied by the SPTH the tree index for that soil. The weighted factor is the percent coverage of the soil type.

$$\sum_{i=0}^{n} w'_i x_i$$

Debit Scoring Method

To fit the general FEMAT curve to the site the weighted SPTH is multiplied by the functions SPTH factor include in Brenan 2009. The analysis will replicate the tables using the weighted SPTH to produce the effectiveness tables for the project site. The analysis will use two different scoring systems, dependent

on if the effectiveness table is multivariate or binary, to determine amount the difference in debit score between the reduced standard buffer and standard buffer. A binary effectiveness table will score a single point for Yes and no point or zero for No. The multivariate effectiveness tables will group the scores into 6 bins based on a 10% percent break providing a single point for each decrease in percentage no points will be given if the effectiveness percentage is below 50% (Table3-1.).

Table 3-1 Percent Effectiveness Score

Effectiveness (%)	Score
≥90	5
≥80	4
≥70	3
≥60	2
≥50	1
<50	0

Credit Scoring Method

In the multivariate tables where the reduced buffer is below the percent effectiveness of the standard shoreline buffer each different management recommendations will be given a credit score based on the percent change in effectiveness (Table 3-2). Binary effectiveness tables that show the reduced buffer is not similar to standard buffer will provide a score based on best professional judgement.

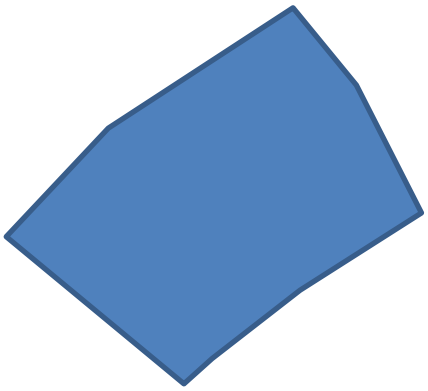
Table 3-2 Credit Score of Increase in Percent Effectiveness

Effectiveness Increase (%)	Score
10	1
20	2
30	3
40	4
50	5

4.0 Results

Using the methodology in Appendix 1 of the draft WDFW 2018 the specific tree height was determined for each soil present, presence of soil was determined using the USDA web soil survey website (https://websoilsurvey.sc.egov.usda.gov). The area of interest (AOI) is the current parcel configuration as a consolidated lot Figure 4-1. Three soils were identified within the AOI Dystric Xerothents, Harstine, and Kapowsin at the percentages 42.86%, 28.57%, and 28.57% respectively. The weighted site specific tree height for the soils on Robbins site is 197 feet (Figure 4-2).

Figure 4-1 Area of Interest



Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10	Dystric Xerorthents, 45 to 70 percent slopes	0.6	42.86
16	Harstine gravelly ashy sandy loam, 15 to 30 percent slopes	0.4	28.57
22	Kapowsin gravelly ashy loam, 0 to 6 percent slopes	0.4	28.57

Figure 4-2 Division of Soils Site Index Curve

Brenan, et al 2009 and WDFW 2018 identified the importance of riparian areas to provide ecological functions. The seven functions addressed by WDFW and reviewed for this analysis include:

- Water quality maintenance
- Fine sediment control
- Large woody debris (LWD) delivery and retention
- Microclimate moderation
- Nutrient delivery and retention
- Fish and wildlife habitat creation and maintenance
- Hydrology/slope stability

Water Quality Maintenance

The percent effectiveness of a 115 foot buffer for sediment is 80%, TSS is 70%, nitrogen is 70%, and phosphorus is 60% with a score are 4, 3, 3, and 2 respectively. The percent effectiveness of 150 foot buffer for sediment is 80%, TSS is 70%, nitrogen is 70%, and phosphorus is 70% with a score of 4, 3, 3, and 3 respectively.

4-3 Table Percent effectiveness constituent removal to buffer depth

%Efficiency	Sediment	TSS	Nitrogen	Phosphorus
50	2	7	12	17
60	7	20	30	40
70	23	66	76	116
80	83	198	198	281
90	297	660	495	825
99	990	2310	1155	1815

Soil Type	Site Class	Percent Coverage	Site Index Curve (50yr)	Site Index Curve (200yr)	Weighted SPTH
10—Dystric Xerorthents	III	.4286	110	185	79.29
16—Harstine	III	.2857	109	185	52.85
22—Kapowsin	II	.2857	123	225	64.28
Total		1.0			196.42

115 Ft	**4**	**3**	**3**	**2**
150 Ft	**4**	**3**	**3**	**3**

Shade

The percent effectiveness of the 115 foot buffer width is 70% with a score of 3 and the percent effectiveness for 150 foot buffer increased to 90% with a score of 5.

4-4 Table Percent effectiveness shade to buffer depth

% Effective	Shade Factor	Buffer Depth (SPTH - 197)
0	0	0
10	0.07	14
20	0.15	30
30	0.22	43
40	0.29	57
50	0.36	71
60	0.42	83
70	0.5	99
80	0.61	120
90	0.73	144
93	0.8	158
95	1	197
115 Ft	**3**	
150 Ft	**5**	

Large Woody Debris

The percent effectiveness of the 115 foot buffer width is 70% with a score of 3 and the percent effectiveness for 150 foot buffer increased to 80% with a score of 4.

4-5 Table Percent effectiveness LWD to buffer depth

% Effective	LWD Factor	Buffer Depth (SPTH - 182)
0	0	0
10	0.09	18
20	0.18	35
30	0.25	49
40	0.32	63
50	0.4	79
60	0.47	93
70	0.55	108
80	0.65	128
90	0.8	158
93	0.85	167
95	0.9	177
99	1	197
99	1.2	236
115 FT	**3**	
150 FT	**4**	

Litter Fall – Nutrient delivery and retention

The percent effectiveness of the 115 foot buffer width is 90% with a score of 5 and the percent effectiveness for 150 foot buffer increased to 98% with a score of 5.

4-6 Table Percent effectiveness Litter Fall to buffer depth

% Effective	Litter Fall Factor	Buffer Depth (SPTH - 197)
0	0	0
10	0.04	7.88
20	0.08	15.76
30	0.12	23.64
40	0.17	33.49
50	0.22	43.34
60	0.27	53.19
70	0.33	65.01
80	0.4	78.8
90	0.5	98.5
95	0.65	128.05
98	0.9	177.3
115 FT	**5**	
150 FT	**5**	

Hydrology and Slope

According to the WDFW document the riparian role in protecting hydrology and slope function focuses on two areas the first is impacts on sediment inputs into streams and wetlands and the second is protecting infrastructure from disturbances. Distance for new development to be setback is based on two factors bluff height and the general characteristic of the soil to be stable, moderately stable, or unstable. The site falls within two characteristics of the soil moderately stable and unstable with a bluff height of approximately 55 feet. For a 115 foot setback the score is 1 for moderately stable and 0 for unstable and for 150 foot setback the score is 1 for moderately stable and 1 for stable.

4-8 Table Hydrology and Slope

Bluff Height (ft)	Stable	Moderately Stable	Unstable
0	20	40	60
40	40	80	120
60	60	120	180
80	80	160	240
100	100	200	300
120	120	240	360
140	140	280	420
160	160	320	540
180	180	360	540
200	200	400	600
115 FT	**N/A**	**1**	**0**
150 FT	**N/A**	**1**	**1**

Riparian Management Area

The Riparian Management Area is one site index curve tree length for this site the riparian area is 197 feet. Neither buffer scored a 1 for this function.

4-9 Table Riparian Management Area

Riparian Management Area (ft)	115 FT	150 FT
197 FT	0	0

5.0 Credit for Management Recommendations

Water quality maintenance

The four water quality parameters identified by Brenan, et al 2009 and WDFW 2018 as important for water quality maintenance are sediment, total suspended solids (TSS), nitrogen, and phosphorus. The standard buffer and the proposed reduce buffer scored the same for each water quality parameter, accept phosphorous. The proposed reduced buffer is 60% effective of removing phosphorous and the standard buffer is 70% with a difference of 10% effectiveness. To increase the percent effectiveness an engineered solution is required. Engineered media filtration systems are sized dependent on the area of impervious surface and the selection of the filtration is dependent on the desired percent effectiveness.

115 Ft	**4(80%)**	**3(70%)**	**3(70%)**	**2(60%)**
150 Ft	**4(80%)**	**3(70%)**	**3(70%)**	**3(70%)**

Recommend Management Action

Runoff from the proposed development will be filtered through an engineered phosphorus neutral storm water treatment system with a 95% efficiency rate for phosphorus removal. This will increase efficiency by at least 30% and the score by 3 for a total of 5. This score provides greater function than the standards buffer.

Microclimate moderation

The microclimate functions of forested riparian areas discussed in t Brennan 2009, WDFW 2009, and the 2018 draft Riparian recommendations can be grouped into three sub categories which are effects on adjacent stream or river, nearshore biological communities, and upland interior forest microclimate; each category will be discussed individually.

Adjacent stream/river

The effect of direct shade and interior microclimate to alter the temperature of a water body is dependent on the width of the water body. Narrow stream temperature is affected to a greater extent by the presence or absence of shade and interior forest temperature. A modeling analysis completed by Washington State Department of Ecology demonstrated stream with widths greater than 20 feet a 50 foot buffer and 75 foot buffer had the same effect on stream temperature and streams less than 10 feet showed a greater adverse affected on stream temperatures with smaller buffer widths. The effectiveness based on buffer width is highly important for narrow streams and less important for larger streams (Ecology 2007)(Herrera 2011). The site does not contain narrow streams. The adjacent water body is Agate Passage a deep channel with a width of 1 to 3 miles and receives tidal water exchange with Puget Sound. Overwater shade and forest interior micro-climate does not impact the water temperature of Agate Passage; the shade/microclimate effectiveness of the reduce buffer and the standard buffer to regulate the adjacent water body temperature is the same.

Supra-tidal and Upper Intertidal

Supra-tidal and upper intertidal sediment temperature could be affect by the presence and absence of shade (Rice 2006)(Tonnes 2008)(2009a WDFW). The bluff is approximately 55 feet in height. At the base of the bluff is stand of deciduous trees, likely growing on a historical slump (figure 5-1). This stand is providing shade to the supra-tidal and upper intertidal zones. Protection of the littoral process is discussed in Large Woody Debris and Hydrology/stability below. The shade/microclimate effectiveness of the reduce buffer and the standard buffer to regulate the supra-tidal and upper intertidal temperature is the same.

Forest Interior

The effect of forest and microclimate is well documented in technical literature (Chen et al, 1993) (Chen et al, 1995) (Cadenasso 1997). Anderson 2004 demonstrated a significant difference in interior forest temperature in cleared areas vs. a less significant change in commercially thinned areas. The change in the temperature in commercially thinned areas increase by 1 to 4 degrees Celsius and in forest clearings the temper increase by 6 to 9 degrees Celsius. Arroyo-Rodrıguez et al 2017 demonstrated a negative coefficient in temperate forest for temperature on the forest edge to temperature in the forest Interior. The reduced buffer has a 70% effectiveness at providing microclimate control and the standards buffer with a 90% e at providing the microclimate function. The management recommendation must increase effectiveness by 20% or 2 points

115	**3(70%)**
150	**5(90%)**

Recommend Management Action

The functions of providing shade/microclimate moderation to regulate temperature in the nearshore and to regulate Agate Pass water temperature are the same for both the reduced buffer and standard buffer. The management recommendation will focus on the limiting of cleared open spaces to provide a contiguous interior forest to keep the ratio of forest edge effect area to interior forest area low. The area calculations were obtained from the Kitsap County GIS parcel search measure tool. Table 5-3 below provides the area of contiguous forest and area of potential development. To raise the reduced buffer score additional contiguous forested area will be preserved to decrease forest edge and increase the area of the interior forest. To reduce the effect of temperature increase within a clearing the total building envelope will be less than 15% of the total area the forested parcel.

Table 5 1. Percent Contiguous Forest Area

Increase in Contiguous Forested Area	Score
10%	1
20%	2
30%	3
40%	4
50%	5

Table 5-2. Building Envelope as Percent of Parcel Area

Percent Parcel Area– Building Envelope	Score
≤5%	3
≤10%	2
<15%	1
15%	0
>15%	-1

Table 5-3. Contiguous Forest Area with in Buffers and Setbacks.

Setback		Approximate Parcel Area inside Setback (SqFt)	Approximate Parcel Area Outside of Setbacks (SqFt)
Total Parcel		58,806	
Side A (82.5)		7405+871	8276
Side B (10')		3485+436	3921
115' - Potential Development Area			8276
150' – Potential Development Area			6969
Difference in Development Area			1307
100' Wildlife Corridor (Side A + 17.5')			1312

Large woody debris (LWD) delivery and retention

Large woody debris is an important feature in the marine nearshore as described in the Habitat Management Plan. For marine bluffs the recruit of large wood is from a source bluff periodic mass wasting event and the occasional fallen tree at the top of bluff. Circulation of large wood within the Puget Sound is carried out through large storms depositing or removing mobile material in the upper intertidal. Wind waves and tide action move the material throughout the Salish Sea. Large river systems are the primary delivery system of large wood into this wood delivery system. The proposed project has been setback from top of bluff to avoid the need for shoreline stabilization for the life of the property. With the appropriate setback as recommended by the Geotechnical Engineer of 115' the natural littoral drift process and delivery of sediment and large wood will not be impacted. The reduced buffer scored one point less than the standard buffer for delivery of large wood which is 10% less effective at delivering and retaining large wood.

115 FT	**3(70%)**
150 FT	**4(80%)**

Recommend Management Action

Retention of large wood is largely dependent on natural systems. Anthropogenic impacts to this system on a site scale are attributed to shoreline stabilization. The project as proposed will not require shoreline stabilization for the life of the property. Delivery of large wood will continue for the life of the structure. Large wood removed during construction should be placed on the beach. According to the tree survey

approximately 10 trees are located outside of the 100 foot wildlife corridor and 20 foot wide side set back. As natural bluff retreat occurs this structure is likely to become legally non-conforming at the end of the life of the structure. Land use laws pertaining to non-conforming structures and the ability to build in the same footprint effectively disconnect these ten trees from processes related to natural bluff retreat. Ten conifers will be planted in open areas within the 115' shoreline setback area this will increase the effectiveness by 10%.

Nutrient delivery and retention

The reduced buffer and the standard buffer scored the same.

115 FT	**5**
150 FT	**5**

Fish and wildlife habitat creation and maintenance

The reduced buffer and the standard buffer scored the same.

115 Ft	**0**
150 Ft	**0**

Hydrology/slope stability

The hydrology and slope stability functions of forested riparian areas discussed in Brennan, et al 2009, WDFW 2009, and the WDFW 2018 draft Riparian recommendations can be grouped into two sub categories sediment control and slope stability.

Slope Stability

The reduced buffer and standard buffer scored the same for stable slopes and moderately stable slopes. For unstable slopes the reduced buffer did not meet the setback. The parcel is split between unstable and moderately stable slopes. A geotechnical report was commissioned by the Robbins which stated the 115 foot setback was sufficient to ensure the home would not need shoreline stabilization for the life of the structure.

Sediment Control

It is the professional opinion of the licensed geotechnical engineer that the reduced buffer provides similar protection to the single family residence as the standard 150 foot buffer. With the appropriate setback as recommended by the geotechnical engineer the natural littoral drift process will not be impacted. The site will deliver sediment into the system at a natural rate.

115 FT	**N/A**	**1**	**0**
150 FT	**N/A**	**1**	**1**

6.0 References

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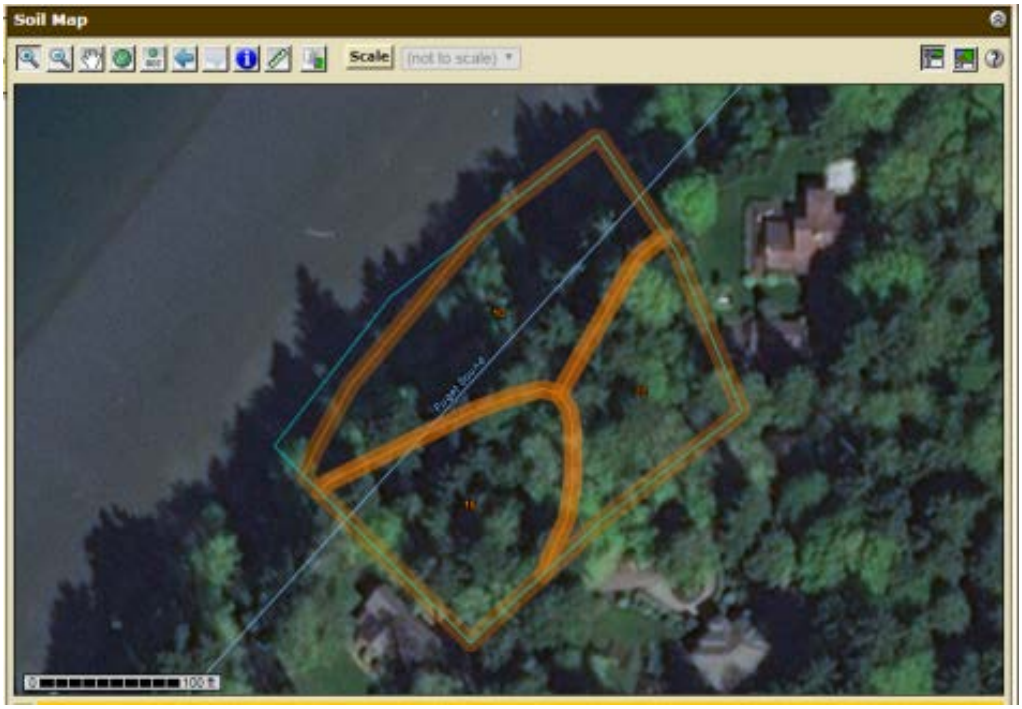
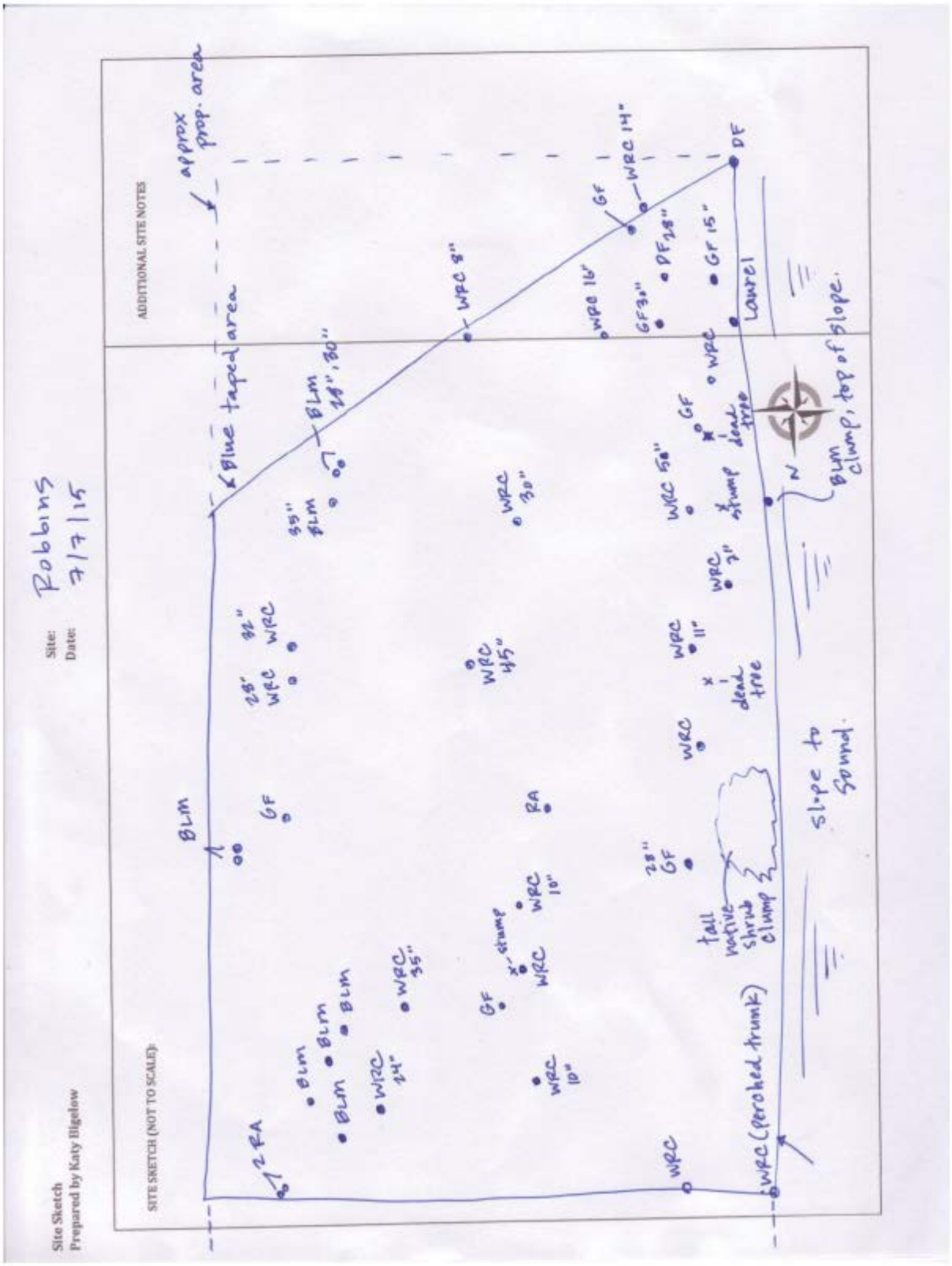
Appendix A – Area of Interest



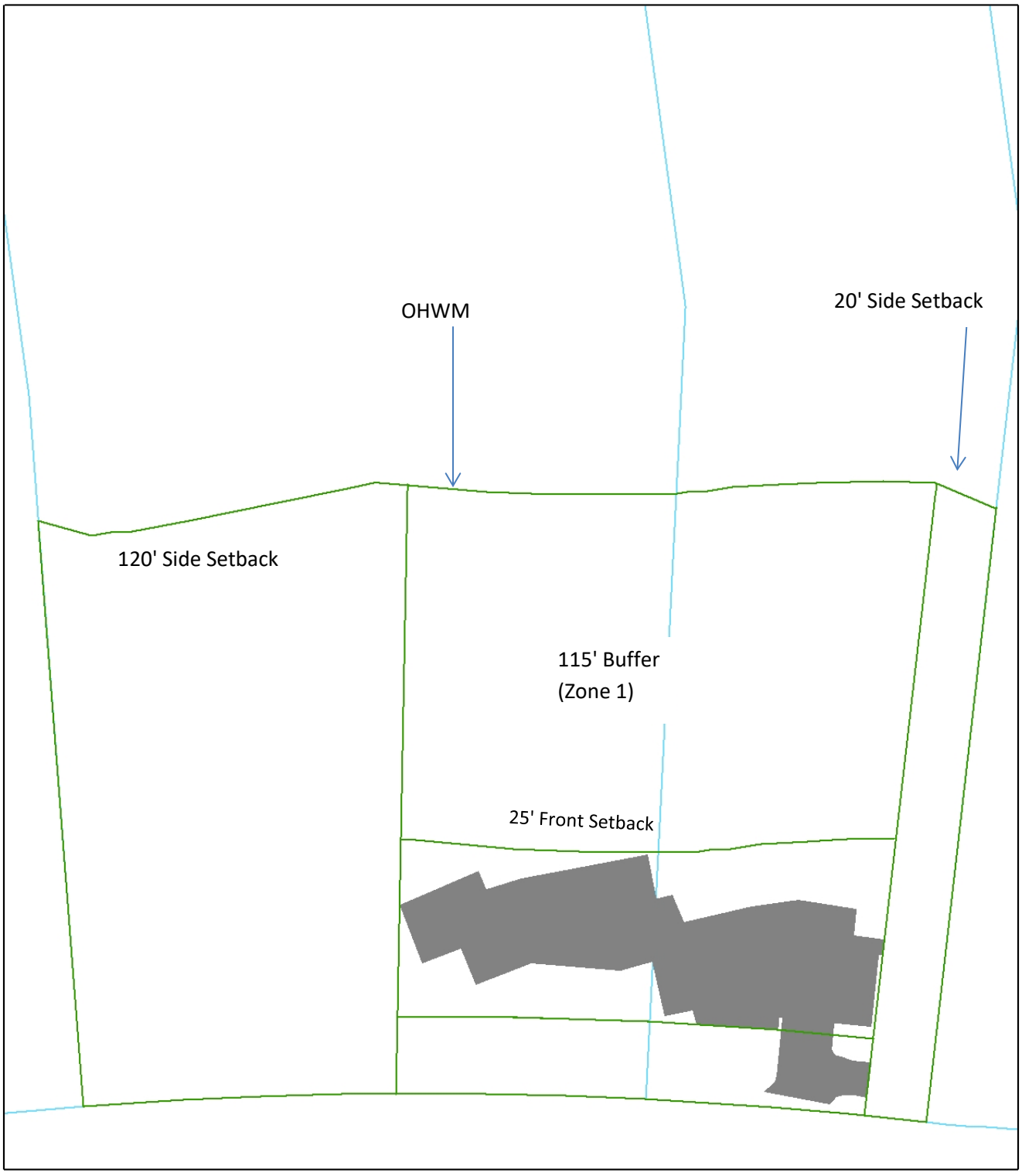
Rhumb Line ENVIRONMENTAL	**Robbins Site Specific Vegetation Area (SSVA)** 0 Sunset Lane Bainbridge Island, WA 98110 Parcel No 4189-004-003-0004 & 4189-004-005-0002.	Websoil Area of Interest **Figure 1.** February 2016

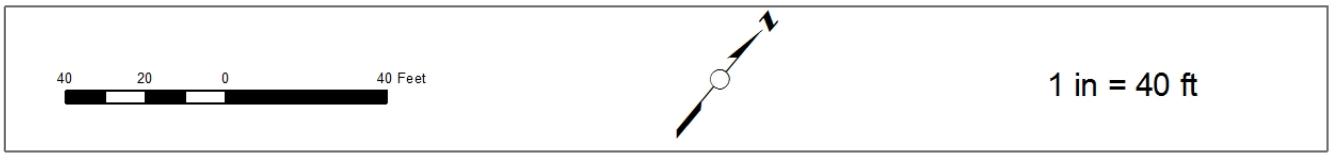


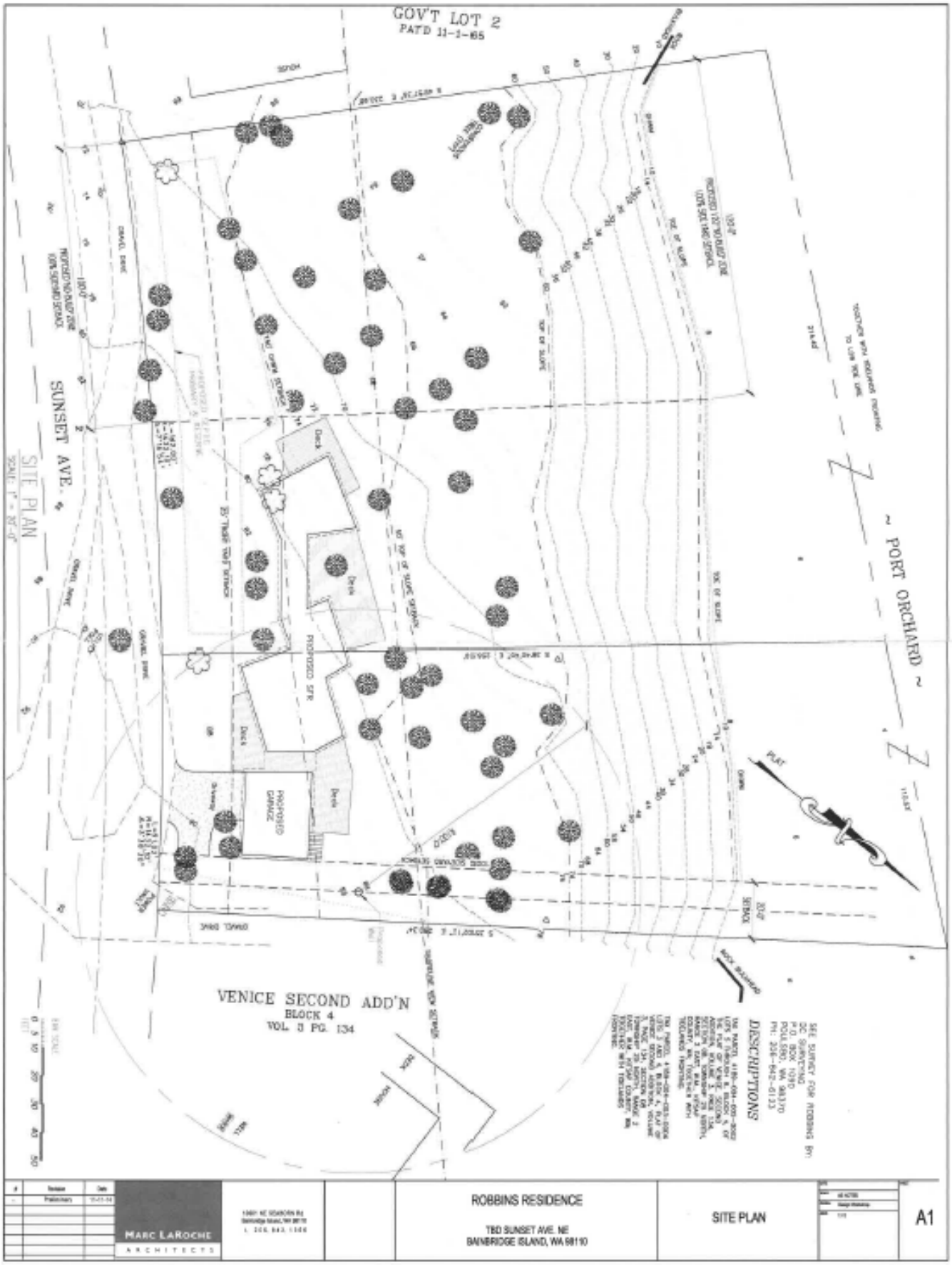
Rhumb Line ENVIRONMENTAL	**Robbins Site Specific Vegetation Area (SSVA)** 0 Sunset Lane Bainbridge Island, WA 98110 Parcel No 4189-004-003-0004 & 4189-004-005-0002.	Tree Survey **Figure 2.** February 2016

Rhumb Line ENVIRONMENTAL	**Robbins Site Specific Vegetation Area (SSVA)** 0 Sunset Lane Bainbridge Island, WA 98110 Parcel No 4189-004-003-0004 & 4189-004-005-0002.	Sediment Band **Figure 3.** February 2016

Appendix C - Single Family Residence Site Plan






GOV'T LOT 2
PAT'D 11-1-65
SUNSET AVE.
SITE PLAN
PORT ORCHARD
VENICE SECOND ADD'N
BLOCK 4
VOL. 3 PG. 134
PROPOSED GARAGE
PROPOSED SFR
Deck
DESCRIPTIONS
ROBBINS RESIDENCE
TBD SUNSET AVE. NE
BAINBRIDGE ISLAND, WA 98110
SITE PLAN
A1
MARC LAROCHE
ARCHITECTS

Appendix D - Site Visit

Building site from road

Building Site looking towards the road

Upper Intertidal