P.O. Box 720 10045 Old Frontier Road NW
Silverdale, Washington 98383
(360) 692-5525 • Seattle (206) 682-5574
www.map-limited.com

ENGINEERING • SURVEYING • PLANNING

PRELIMINARY DESIGN REPORT

FOR

MESSENGER HOUSE PHASE 2

Bainbridge Island, Washington

SECTION 14, TOWNSHIP 25 NORTH,

RANGE 2 EAST, W.M.

PREPARED FOR:	Cascadia Development 506 N 40th Ave Suite 100 Yakima, WA 98903
CONTACT:	Justin Younker (509) 426-2756
PREPARED BY:	K. Pat Fuhrer, P.E. J# 6800
DATE:	NOVEMBER 13, 2020

11-13-20

KENNETH D. FUHRER
STATE OF WASHINGTON
29653
REGISTERED
PROFESSIONAL ENGINEER

NOTE: THIS DOCUMENT IS INSCRIBED WITH A DIGITIZED SIGNATURE BY THE ENGINEER AS PROVIDED BY WAC 196-23-070(2)

REFERENCES

Messenger House Care Center Evaluation of Wastewater Drainfield and Stormwater Management Report, Gray and Osborne, Inc., G & O Job #14599, March 2015.

Stormwater Management Manual for Western Washington. Washington State Department of Ecology, 2019

Geotechnical Design Report Messenger House Addition, Myers Biodynamics, Inc., November 16, 1994.

Site Assessment Review: Complete, City of Bainbridge Island, June 5, 2020.

TABLE OF CONTENTS

I. PROJECT DESCRIPTION 1

II. EXISTING SITE CONDITIONS 2

A. EXISTING CONDITIONS PLAN 4

III. STORMWATER MINIMUM REQUIREMENTS 7

IV. PROPOSED STORMWATER SYSTEM 15

A. PRELIMINARY STORMWATER SITE PLAN 16

V. UPSTREAM ANALYSIS 17

VI. QUALITATIVE DOWNSTREAM ANALYSIS 17

VII. SANITARY SEWER NARRATIVE 17

VIII. WATER DISTRIBUTION NARRATIVE 17

APPENDIX A SITE ASSESSMENT REVIEW 18

PRELIMINARY DESIGN REPORT

FOR

MESSENGER HOUSE PHASE 2

I. PROJECT DESCRIPTION

The applicant is proposing to redevelop a portion of the existing Messenger House Care Center by remodeling the interior and exterior of an existing building that was constructed in 1917, and also to remove/replace a single-story Assisted Living wing with a three-story Assisted Living and Independent Living facility. The replacement building will have no increase in the number of beds, and no additional parking is proposed. Other ancillary improvements include modifying a portion of the existing fire lane, adding a new service entry, and providing an updated pedestrian entrance to the facility. Additionally, a non-motorized public trail frontage improvement will be constructed to connect Manitou Park Blvd at the west side of the project to the lower eastern side of the site.

The existing access to the site is from Ocean Drive off of Manitou Beach Road east of Rolling Bay.

Site Address: 10861 Manitou Park Boulevard Bainbridge Island, WA 98110
Tax Parcel no.'s: 4156-002-005-0203 and 4156-002-007-0003

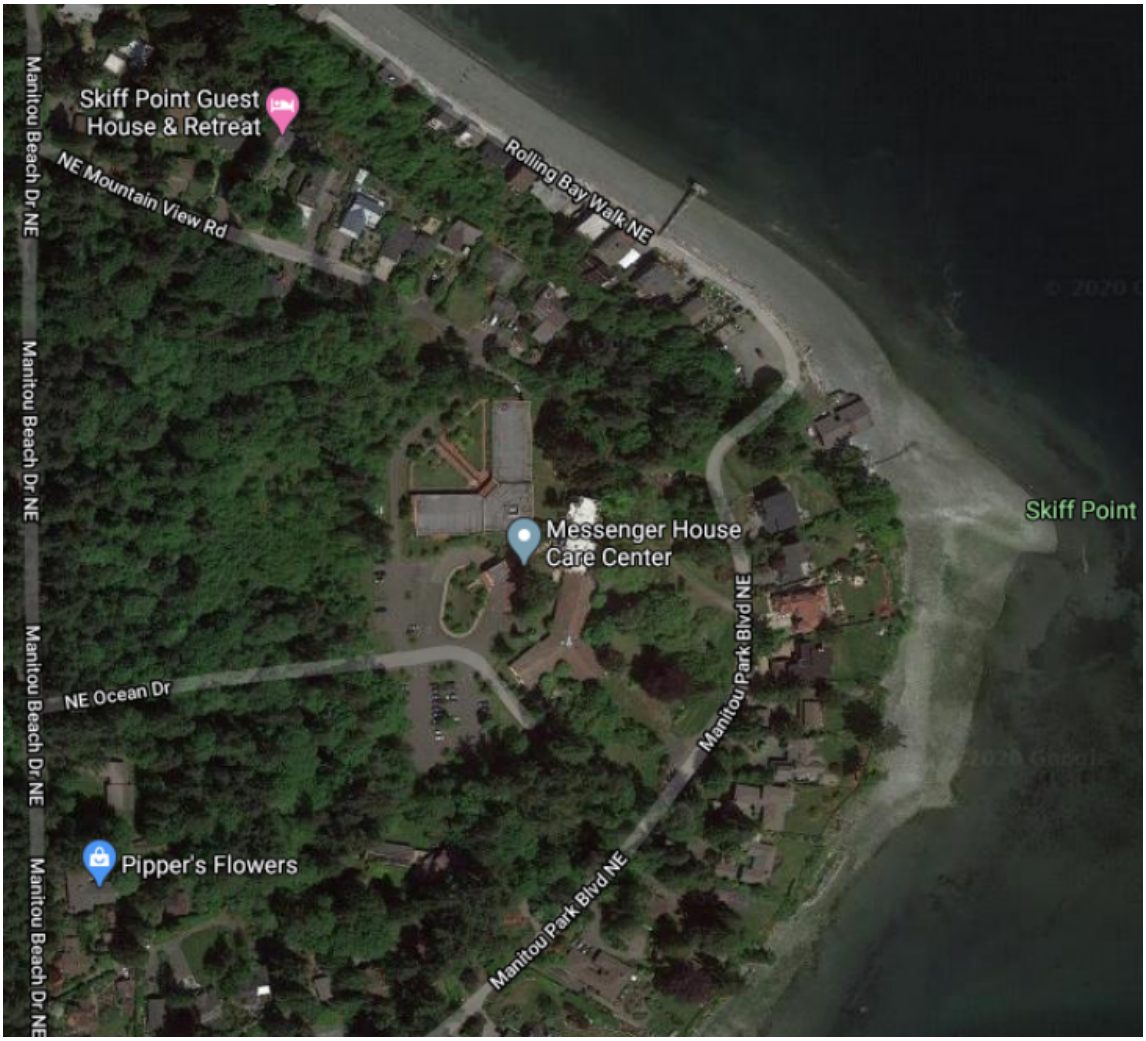
The project is located outside of the City of Bainbridge Island Sewer and Water service boundaries. The project has it's own Wastewater Treatment Plant Facility and operates under Dept of Ecology NPDES Permit #WA0023469 and is maintained by a licensed Washington State Group 3 operator. An existing well provides potable water supply to the use, with a backup supply from the Kitsap Public Utility District. Site Fire flow is also available from KPUD through existing fire hydrants on-site.

COBI Permits needed for this portion of the project will include the following:

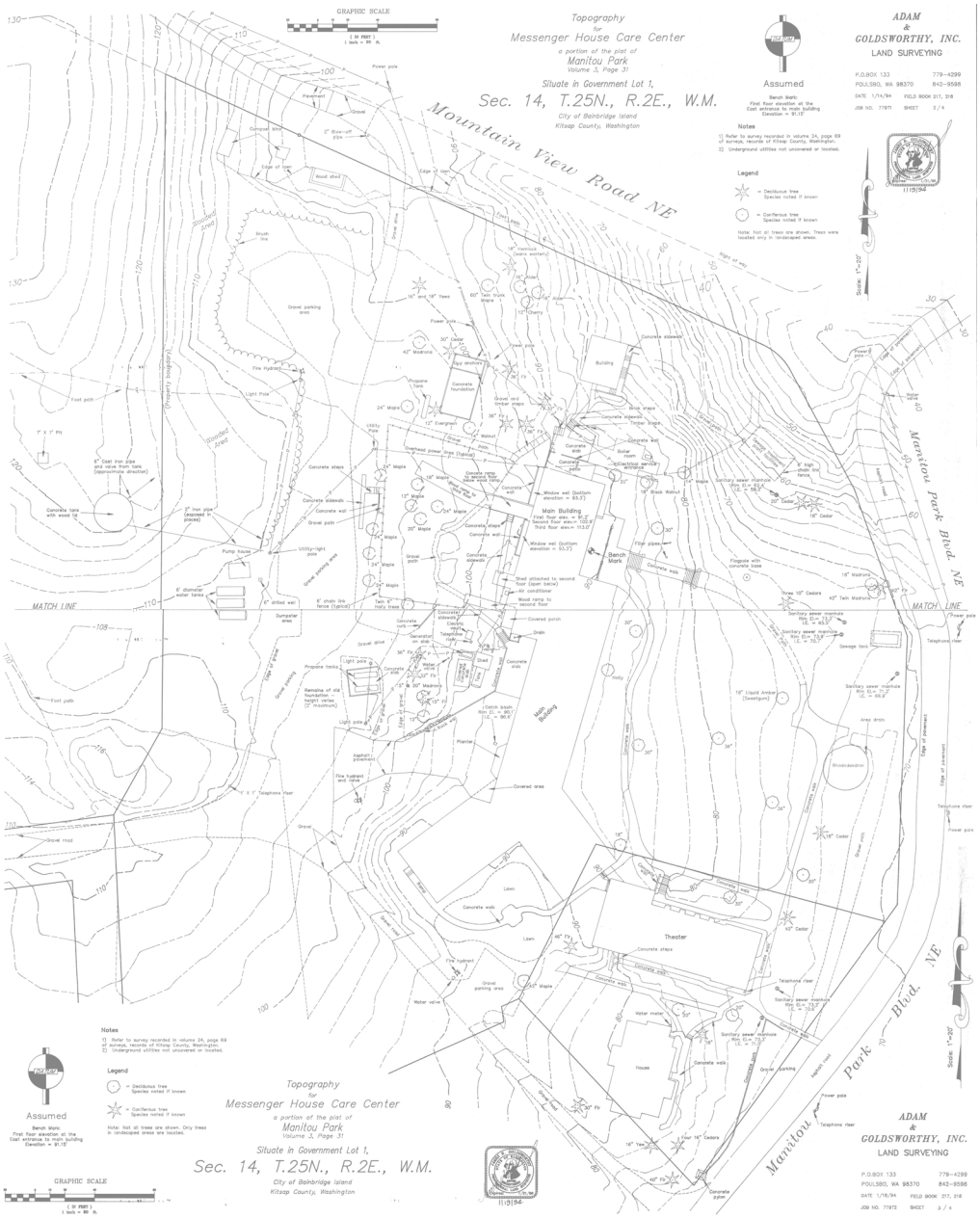
- Site Plan Review and SEPA
- Boundary Line Adjustment to aggregate lots
- Clearing/Grading and Building Permits
- Construction Stormwater Permit (DOE)

II. EXISTING SITE CONDITIONS

The Messenger House Care Center facility is located at 10861 NE Manitou Park Boulevard on the east side of Bainbridge Island in Kitsap County, Washington. The site vicinity map is shown below. The site is comprised of two tax parcels 4156-002-005-0203 and 4156-002-007-0003, and covers 7.01 acres of land. The existing hard surface area of the property is approximately 125,000 sf, which consists of the memory care wing, the 1917 building, and the assisted living wing proposed to be removed, as well as parking and pedestrian improvements. A former theatre building (4,550 s.f. rooftop) and a house (2,400 s.f. rooftop) were also located on the property prior to their removal after 1994, along with some other associated hardscape.

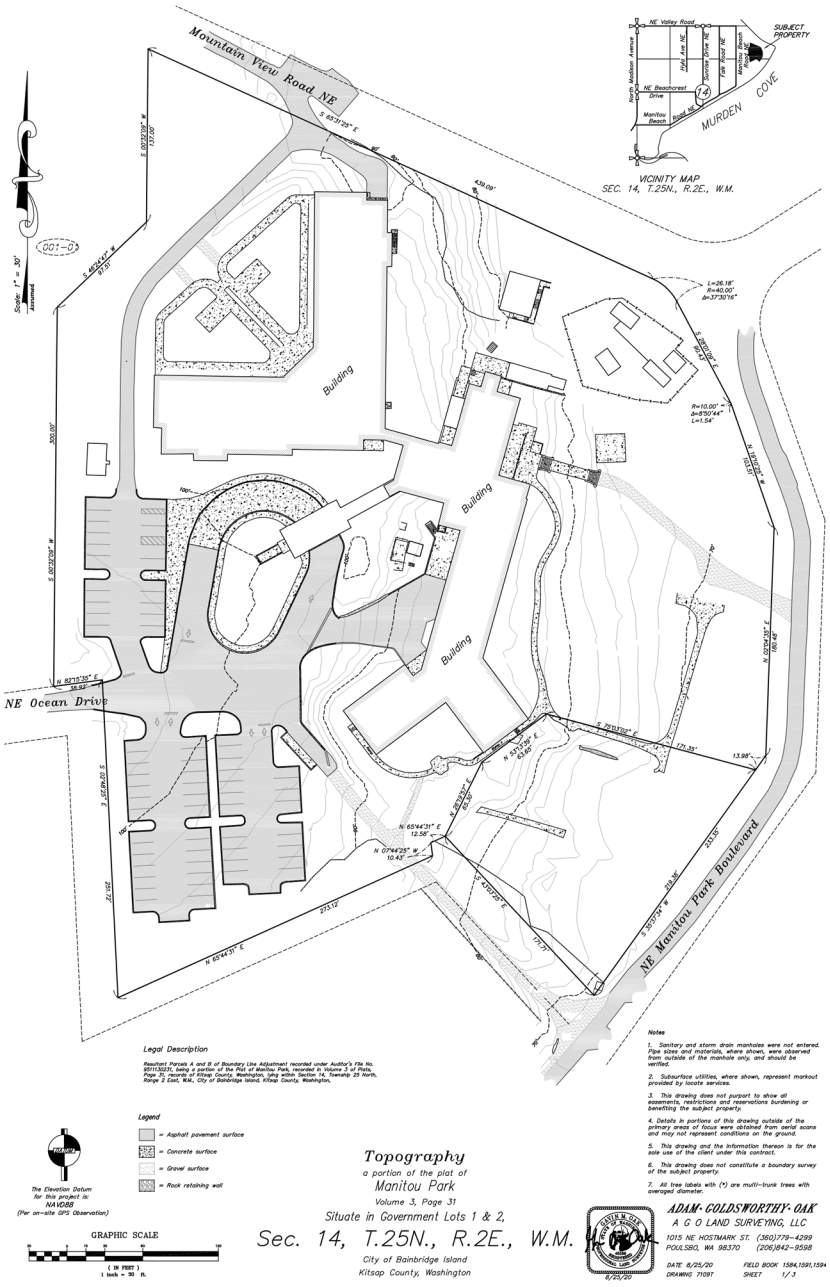


In 1996, improvements constructed included the Memory Care Wing and an additional parking area on the southwest side of the project. Below are copies of the 1994 topo survey of the site prior to those improvements:



A. *Existing Conditions Plan*

An updated topo survey was performed for the portion of the project site that comprises the Phase 2 application work area, and is shown below:



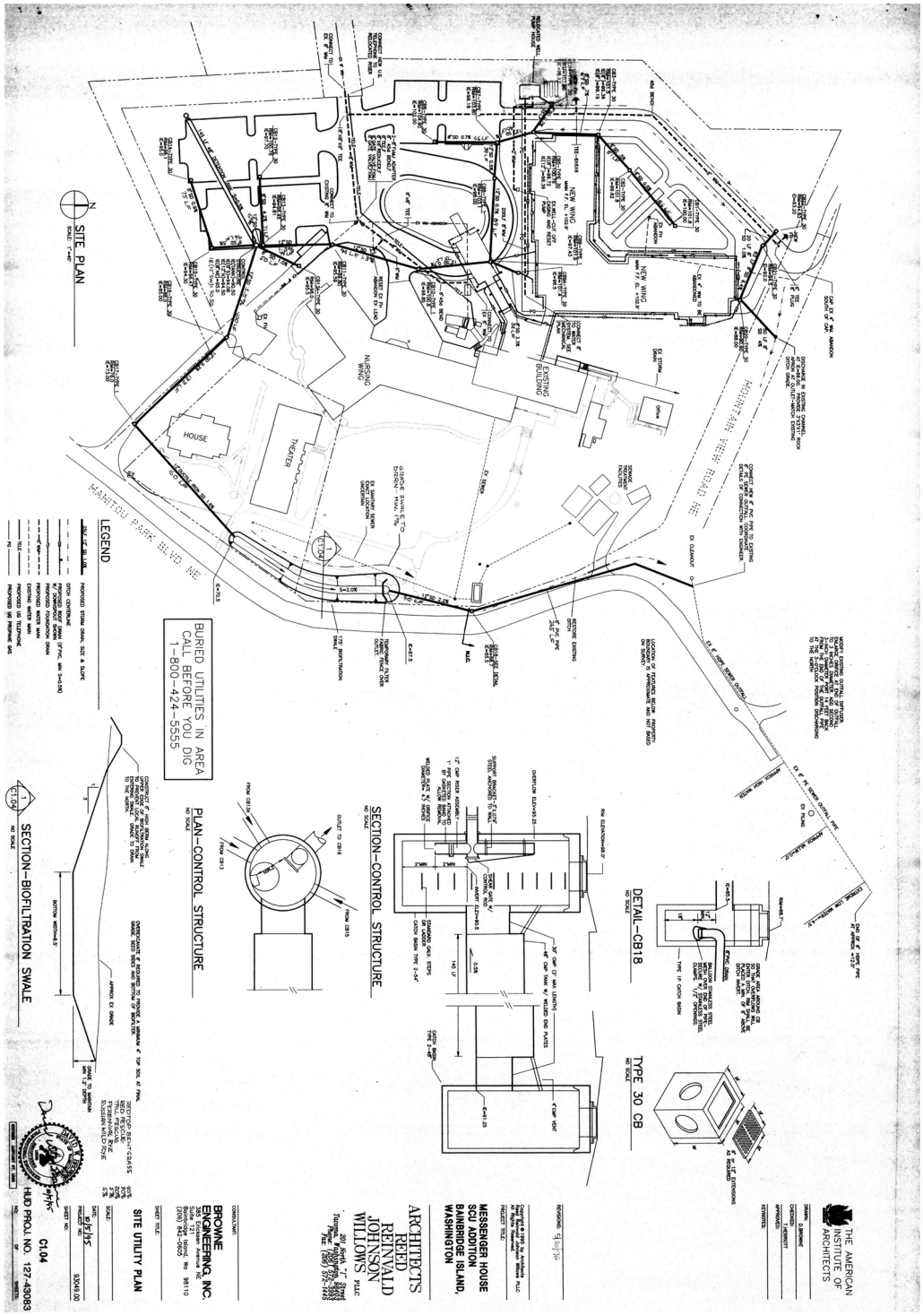
The majority of the site topography is generally level to gently sloping within the project area. The site slopes down towards the east, with elevation ranging from elevation 124 to elevation 46 along NE Manitou Park Boulevard. North of the proposed Phase 2 improvements, there are some manmade slopes on the order of 30%.

The site is well-vegetated with many trees and landscaped ground covers, and many of the significant trees will be retained by the Phase 2 addition.

Stormwater runoff from the site has been modified over the years, with the latest improvements constructed in 1996 as part of the Memory Care Addition and parking improvements. Stormwater runoff from the parking addition was collected and stored in an underground detention pipe, which was then connected to a biofiltration swale to filter the runoff. Downstream of the biofiltration swale, the runoff enters a catch basin which is connected by a 6" siphon pipe to the site's Wastewater Treatment outfall pipe to Puget Sound. Provisions for overflow at this catch were made for the runoff to "bubble-up" if the capacity of the 6" siphon was exceeded, and an overflow would enter a drainage ditch alongside Manitou Park Boulevard and flow to Puget Sound. No evidence of erosion scour was observed in the downstream drainage course by the Project Engineer in several site inspections during 2020.

Sanitary Sewer service is provided by an on-site wastewater treatment plant, which operates under license from the Department of Ecology NPDES Permit # WA0023469 and is managed by a license Group 3 operator. An on-site well provides potable water to the site, with a backup meter connection to KPUD and a metered fireflow connection to KPUD.

The civil utility plan from the 1996 project is shown on the next page.



Engineering • Surveying • Planning

III. STORMWATER MINIMUM REQUIREMENTS

This redevelopment project will result in approximately 24,000 s.f. of new and replaced hard surface areas consisting of rooftops, pollution generating impervious surfaces, concrete and paved pedestrian walkways/patios, and new gravel pedestrian paths. The total site disturbance for construction of these proposed improvements and landscaping features will be approximately 1.94 Acres.

This project is required to demonstrate compliance with Minimum Requirements #1 - #9 in accordance with BIMC 15.20 and the attached Site Assessment Review dated June 5, 2020 by the City of Bainbridge Island.

1. Minimum Requirements Compliance Narrative

2.5.1 Minimum Requirement #1: Preparation of Stormwater Site Plans

All projects meeting the thresholds in Section 2.4 shall prepare a Stormwater Site Plan for local government review. Stormwater Site Plans shall use site-appropriate development principles, as required and encouraged by local development codes, to retain native vegetation and minimize impervious surfaces to the extent feasible. Stormwater Site Plans shall be prepared in accordance with Chapter 3 of this volume.

A Stormwater Site plan will be prepared for this project which retains native vegetation and minimizes impervious surfaces to the extent feasible, while implementing other required components of the code.

2.5.2 Minimum Requirement #2: Construction Stormwater Pollution Prevention (SWPP)

Compliance with the 13 SWPP elements will be demonstrated in narrative form and the future project's Civil Construction Stormwater Pollution Prevention Plan.

2.5.3 Minimum Requirement #3: Source Control of Pollution

All known, available and reasonable source control BMPs must be applied to all projects. Source control BMPs must be selected, designed, and maintained according to this manual.

Source control BMP's for this project will include spill-control oil-water separation within the Type 1 catch basins proposed for the new service entrance drive and the modified fire lane.

2.5.4 Minimum Requirement #4: Preservation of Natural Drainage Systems and Outfalls

Natural drainage patterns shall be maintained, and discharges from the project site shall occur at the natural location, to the maximum extent practicable. The manner by which runoff is discharged from the project site must not cause a significant adverse impact to downstream receiving waters and downgradient properties. All outfalls require energy dissipation.

This project will maintain the existing discharges to the on-site and downstream man-made drainage system to Puget Sound and creates no new discharge location.

2.5.5 Minimum Requirement #5: On-site Stormwater Management

Projects shall employ On-site Stormwater Management BMPs in accordance with the following projects thresholds, standards, and lists to infiltrate, disperse, and retain stormwater runoff on-site to the extent feasible without causing flooding or erosion impacts.

Projects qualifying as flow control exempt in accordance with Section 2.5.7 of this chapter do not have to achieve the LID performance standard, nor consider bioretention, rain gardens, permeable pavement, and full dispersion if using List #1 or List #2. However, those projects must implement BMP T5.13; BMPs T5.10A, B, or C; and BMP T5.11or T5.12, if feasible.

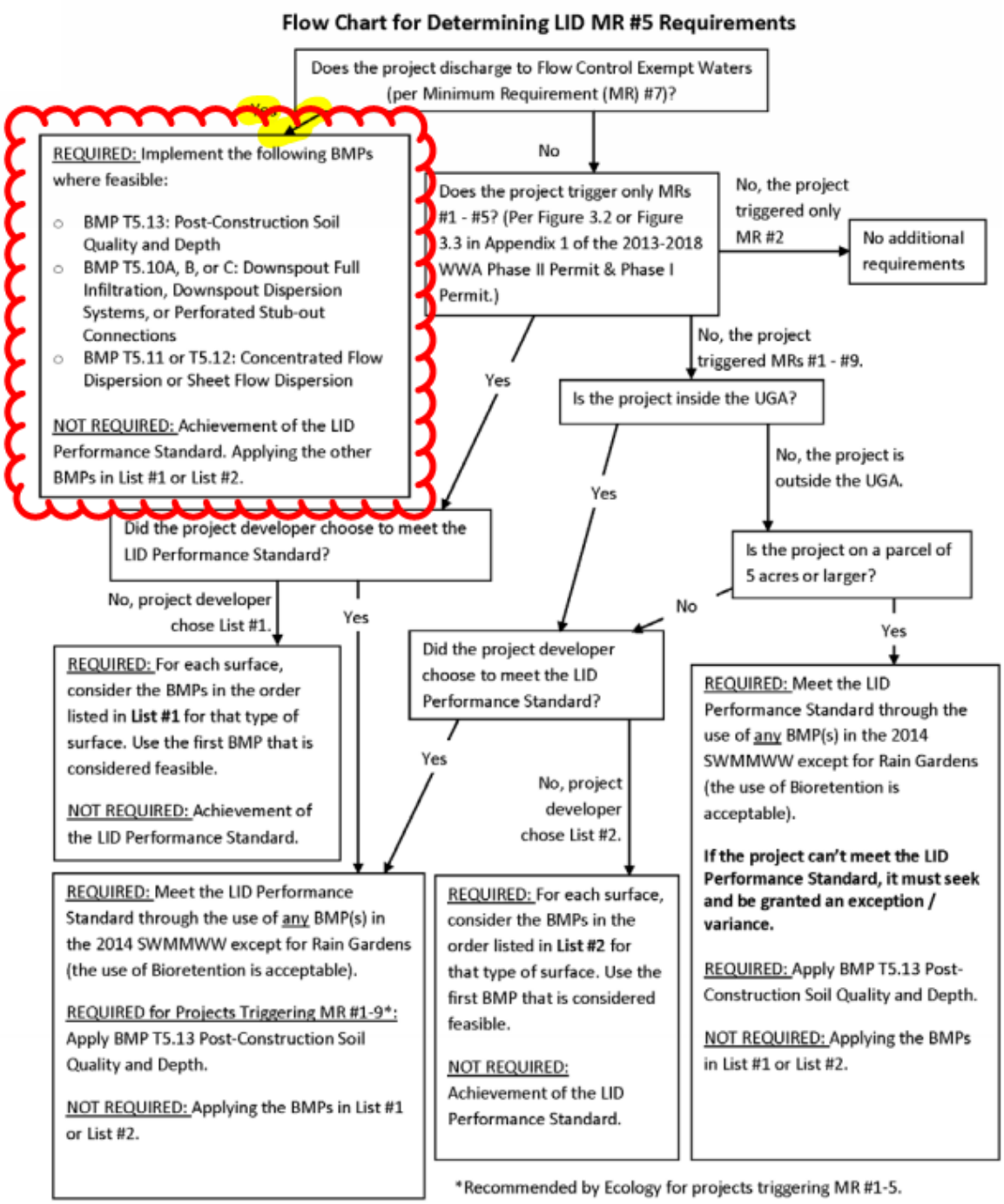


Figure 2.5.1 – Flow Chart for Determining LID MR #5 Requirements

BMP T5.13: Post-Construction Soil Quality and Depth

Purpose and Definition

Naturally occurring (undisturbed) soil and vegetation provide important stormwater functions including: water infiltration; nutrient, sediment, and pollutant adsorption; sediment and pollutant biofiltration; water interflow storage and transmission; and pollutant decomposition. These functions are largely lost when development strips away native soil and vegetation and replaces it with minimal topsoil and sod. Not only are these important stormwater functions lost, but such landscapes themselves become pollution generating pervious surfaces due to increased use of pesticides, fertilizers and other landscaping and household/industrial chemicals, the concentration of pet wastes, and pollutants that accompany roadside litter.

Establishing soil quality and depth regains greater stormwater functions in the post development landscape, provides increased treatment of pollutants and sediments that result from development and habitation, and minimizes the need for some landscaping chemicals, thus reducing pollution through prevention.

Applications and Limitations

Establishing a minimum soil quality and depth is not the same as preservation of naturally occurring soil and vegetation. However, establishing a minimum soil quality and depth will provide improved on-site management of stormwater flow and water quality.

Soil organic matter can be attained through numerous materials such as compost, composted woody material, biosolids, and forest product residuals. It is important that the materials used to meet the soil quality and depth BMP be appropriate and beneficial to the plant cover to be established. Likewise, it is important that imported topsoils improve soil conditions and do not have an excessive percent of clay fines.

This BMP can be considered infeasible on till soil slopes greater than 33 percent.

This BMP is feasible and will be specified on all pervious disturbed areas (in conjunction with the final landscape plans) that are less than 33% sloped on the final civil construction plans.

BMP T5.10A: Downspout Full Infiltration

Please refer to Section 3.1.1 in Volume III of this manual.

BMP T5.10B: Downspout Dispersion Systems

Please refer to Section 3.1.2 in Volume III of this manual.

BMP T5.10C: Perforated Stub-out Connections

Please refer to Section 3.1.3 in Volume III of this manual.

BMP T5.10A is considered infeasible for this project in my professional opinion and that of previous Geotechnical studies due to the disturbed nature of the on-site soils, the seasonal high groundwater table, the potential for flooding and/or erosion potential on downstream foundations, slopes and infrastructure, and the lack of a vegetated flow path length and finish grade slope less than 15%. Once precise downspout locations are identified at the time of final design, BMP T5.10B downspout dispersion and/or BMP T5.10C perforated stub-out connections can be evaluated and specified.

BMP T5.11: Concentrated Flow Dispersion

Purpose and Definition Dispersion of concentrated flows from driveways or other pavement through a vegetated pervious area attenuates peak flows by slowing entry of the runoff into the conveyance system, allowing for some infiltration, and providing some water quality benefits. See Figure 5.3.1.

BMP T5.12: Sheet Flow Dispersion

Purpose and Definition Sheet flow dispersion is the simplest method of runoff control. This BMP can be used for any impervious or pervious surface that is graded to avoid concentrating flows). Because flows are already dispersed as they leave the surface, they need only traverse a narrow band of adjacent vegetation for effective attenuation and treatment.

Both of these BMP's are considered infeasible for this project in my professional opinion due to the lack of a vegetated slope with a flowpath of 25-50 feet adjacent to the new service entrance and the modified fire access lane.

2.5.6 Minimum Requirement #6: Runoff Treatment

Thresholds

When assessing a project against the following thresholds, only consider those hard and pervious surfaces that are subject to this minimum requirement as determined in Section 2.4 of this chapter.

The following require construction of stormwater treatment facilities:

- **Projects in which the total of, pollution-generating hard surface (PGHS) is 5,000 square feet or more in a threshold discharge area of the project, or**
- **Projects in which the total of pollution-generating pervious surfaces (PGPS) – not including permeable pavements – is three-quarters (3/4) of an acre or more in a threshold discharge area, and from which there will be a surface discharge in a natural or man-made conveyance system from the site.**

Since this project proposes to construct 3,670 s.f. of new PGHS surfaces with the new service entrance and the modified fire lane, MR #6 is not applicable.

There is not more than ¾ acre of PGPS associated with the Phase 2 Messenger House project, therefore MR #6 is not applicable.

2.5.7 Minimum Requirement #7: Flow Control

Applicability

Projects must provide flow control to reduce the impacts of stormwater runoff from hard surfaces and land cover conversions. The requirement below applies to projects that discharge stormwater directly, or indirectly through a conveyance system, into a fresh waterbody.

Flow Control is not required for projects that discharge directly to, or indirectly to a water listed in Appendix I-E - Flow Control-Exempt Receiving Waters subject to the following restrictions:

- **Direct discharge to the exempt receiving water does not result in the diversion of drainage from any perennial stream classified as Types 1, 2, 3, or 4 in the State of Washington Interim Water Typing System, or Types "S", "F", or "Np" in the Permanent Water Typing System, or from any category I, II, or III wetland; and**
- **Flow splitting devices or drainage BMP's are applied to route natural runoff volumes from the project site to any downstream Type 5 stream or category IV wetland:**
  - **Design of flow splitting devices or drainage BMP's will be based on continuous hydrologic modeling analysis. The design will assure that flows delivered to Type 5 stream reaches will approximate, but in no case exceed, durations ranging from 50% of the 2-year to the 50-year peak flow.**
  - **Flow splitting devices or drainage BMP's that deliver flow to category IV wetlands will also be designed using continuous hydrologic modeling to preserve pre-project wetland hydrologic conditions unless specifically waived or exempted by regulatory agencies with permitting jurisdiction; and**
- **The project site must be drained by a conveyance system that is comprised entirely of manmade conveyance elements (e.g., pipes, ditches, outfall protection) and extends to the ordinary high water line of the exempt receiving water; and**
- **The conveyance system between the project site and the exempt receiving water shall have sufficient hydraulic capacity to convey discharges from future build-out conditions (under current zoning) of the site, and the existing condition from non-project areas from which runoff is or will be collected; and**
- **Any erodible elements of the manmade conveyance system must be adequately stabilized to prevent erosion under the conditions noted above.**

Flow Control is not required for this project since the downstream conveyance system is comprised entirely of man-made elements which extend to the OHWM of the receiving water of Puget Sound. This conveyance system has demonstrated sufficient hydraulic capacity to convey discharges from this site without causing any observable-impact, and given the fact that the amount impervious surface coverage is not increasing beyond what was included in the 1996 improvement plans.

2.5.8 Minimum Requirement #8: Wetlands Protection

Applicability

The requirements below apply only to projects whose stormwater discharges into a wetland, either directly or indirectly through a conveyance system.

This project does not discharge stormwater directly or indirectly to a wetland, therefore MR #8 is not applicable.

2.5.9 Minimum Requirement #9: Operation and Maintenance

An operation and maintenance manual that is consistent with the provisions in Volume V shall be provided for proposed stormwater facilities and BMPs, and the party (or parties) responsible for maintenance and operation shall be identified. At private facilities, a copy of the operation and maintenance manual shall be retained on-site or within reasonable access to the site, and shall be transferred with the property to the new owner. For public facilities, a copy of the operation and maintenance manual shall be retained in the appropriate department. A log of maintenance activity that indicates what actions were taken shall be kept and be available for inspection by the local government.

A stormwater Operation and Maintenance Manual will be prepared by the Project Engineer prior to completion of the project meeting the requirements above and submitted to the City of Bainbridge Island and the project owner's to ensure that MR #9 is achieved.

IV. PROPOSED STORMWATER SYSTEM

Rooftop runoff from the west side of the Phase 2 Assisted Living Wing will most likely be connected to the existing storm drainage conveyance system in the service drive area, and the downslope-eastern side will be able to either use downspout dispersion and/or perforated stubouts daylighting to the landscaped areas below.

Runoff generated from the new service entrance and the modified fire Lane will be collected by surface grading to catch basins fitted with SC-type oil/water separator baffles and piped to the nearest existing conveyance pipe.

A. *Preliminary Stormwater Site Plan*

V. UPSTREAM ANALYSIS

There are no sources of upstream basin runoff onto the project.

VI. QUALITATIVE DOWNSTREAM ANALYSIS

Referring to the 1995 Civil Site Utility Plan on Page 6, all of the stormwater runoff from this Phase 2 portion of the site is conveyed to the existing biofiltration swale and/or an interceptor swale that ultimately flows to a catch basin located in Manitou Park Boulevard NE. This catch basin has a 6" siphon pipe that connects to the sanitary sewer submerged outfall into Puget Sound. If the capacity of this siphon pipe is exceeded, the catch basin will bubble-up and overflow into an existing roadside ditch which daylights onto a gravel parking area and sheet flows into Puget Sound. No erosion of the existing ditch or real evidence of overland flow downstream of the catch basin has been observed in the downstream overflow route after several inspections during rainfall events in 2020.

VII. SANITARY SEWER NARRATIVE

Sanitary Sewer connection from the Phase 2 Assisted Living building will connect to the existing sewer conveyance system that serves the existing nursing wing.

The Wastewater Treatment Plant (WWTP) that services this project was upgraded and improved in 1999 to a design flow of 16,000 gallons per day. The WWTP operates under WA State Department of Ecology NPDES Permit #WA023469 and conditions of approval with regards to operation and maintenance. The WWTP is under contract with a licensed Operator, who reports flows and other testing requirements and parameters directly to Ecology.

Historically, a total of 96 beds were licensed for this project, and that total will not be exceeded after completion of the Phase 2 Assisted Living wing. Flow data between 2012 and the cessation of the previous population in 2017 show that a daily flow of greater than 13,600 gpd (85% of design) was exceeded 4 times over the 5-yr period, with the highest daily flow reported of 14,757 gpd. This project replaces water fixtures in a nursing facility that are over 34 years old, with new low-flow code compliant water fixtures, which studies have shown reduces water consumption by 30%. Therefore, it is my professional opinion that this addition to the project will not cause an increase in the historical record of daily flow to the WWTP.

VIII. WATER DISTRIBUTION NARRATIVE

The project potable water supply is from an existing well on the property, with a backup source from the Kitsap Public Utility District. The site fire hydrants and the building's fire sprinkler system are fed from the KPUD public main as well.

APPENDIX A SITE ASSESSMENT REVIEW

CITY OF BAINBRIDGE ISLAND

280 Madison Avenue N
Bainbridge Island, Washington 98110
www.bainbridgewa.gov
206.842.2016

SITE ASSESSMENT REVIEW: COMPLETE

Date: June 5, 2020
SmartGov Case No.: SAR80359
Owner: Cascadia Development, 509.426.2756
Mailing Address: 506 N 40th Ave Suite 100 | Yakima, WA 98903
Applicant/Agent: Wenzlau Architects, 206.780.6882; charlie@wenzlauarchitects.com
Project: Messenger House Phase II
Site Location: 10861 Manitou Park BLVD. | Bainbridge Island, WA 98110
Tax Identification No.: 4156-002-005-0203, 4156-002-007-003

This completed Site Assessment Review (SAR) letter serves as an endorsement from the Department of Public Works of the project with recommendations to achieve Low Impact Development (LID) to the maximum extent practicable based on the Department of Ecology's Storm Water Management Manual for Western Washington (SWMMWW). The following LID recommendations apply to the site as it has been presented in the application to reduce vegetation removal, minimize hard surface installation, and mimic natural hydrology. This assessment is non-binding, unless the recommendations are as required under BIMC 15.20. Application for permits with the City of Bainbridge Island for which a SAR is required shall be in substantial conformance with this proposal, or, else a new SAR shall be required.

Project Surfaces/Thresholds:

Threshold	Proposed Project
Proposed New/Replaced Hard Surface Total	~ 24,000 sf
Proposed Land Clearing/Disturbance	~ 40,000 sf
Existing Site Impervious Coverage	~125,027 sf
Total Site Area	305,355 sf
Site Previously Developed Under Adopted Stormwater Regulations (after 2/10/1999)	NO
Type of Development (New or Redevelopment)	Redevelopment

Recommendations

- This project proposes changes to an existing established health care facility that has not been operating recently. Proposed changes include demolition of an existing residential wing and subsequent reconstruction of a three story residential wing while revising and expanding existing hard surfaces to include service entrances and pedestrian access serving the facility creating 24000sf of new and replaced hard surfaces. Site disturbance for the total project may exceed 1.0 acre. Existing site consists of two irregularly shaped parcels generally surrounded by residential development. Initial analysis indicates no likely environmental critical areas on site, but the work is located within the zone of influence of a recently active landslide hazard located on the north facing slope overlooking Rolling Bay Walk approx. 175' north of the proposed residential wing. This project is subject to both Land Use permits (Conditional Use Permit and/or Site Plan Review) and the work itself would be reviewed, approved, constructed, and inspected via a Building permit issued by COBI Planning and Community Development (PCD).
- The existing hard surface on the site exceeds 35% and thus the project is classified as 'Redevelopment' for the purpose of determining project requirements. Where the value of the proposed improvements (including interior improvements) exceeds 50% of the assessed value (or replacement value) of the existing site improvements currently assessed at $684,290, all MRs shall apply to the new and replaced hard surfaces and converted vegetation areas. An application for any of the required follow on permits will require the project demonstrate compliance with applicable minimum requirements (MRs) # 1 through 9 of the City's adopted stormwater manual.

- MR#1 – Develop a Permanent Stormwater Site Plan (SSP).
- MR#2 – Develop a Construction Erosion Control Plan: Also known as Stormwater Pollution Prevention Plan (SWPPP).
- MR#3 – Source Control of Pollution – Generally N/A for projects of a residential scope.
- MR#4 – Preservation of Natural Drainage Systems and Outfalls
- MR#5 – On-Site Stormwater Treatment
- MR#6 – Runoff Treatment (Water Quality)
- MR#7 – Flow Control (Impound and control excess runoff due to larger hard surface quantity)
- MR#8 – Wetlands Protection
- MR#9 – Operations and Maintenance (For larger projects, an O&M manual is required to ensure installed stormwater control facilities are adequately maintained and operated properly.

- *Develop a Permanent Stormwater Site Plan* (MR #1): The SSP is the collection of all the technical information and analysis necessary for the City Development Engineer to evaluate a proposed development project for compliance with state and local stormwater requirements and lays out the long term, **permanent** solution for the runoff generated by the project. Contents of the SSP will vary with the type and size of the project, and individual site characteristics, and contain site-appropriate development principles, as required, to retain native vegetation and minimize impervious surfaces to the extent feasible.
  - Project is more than 5,000sf of new/replaced hard surface so this plan **is** required and shall be created by (or under the direction of) a professional engineer licensed to practice in Washington State. The SWMMWW volume I, section I-3.1.5, Step 5 offers additional guidance on content and format of the plan and narrative.
  - Initial analysis and submittal documents indicate soils and conditions which are not generally feasible for infiltration or dispersion. There are existing stormwater facilities which may be utilized as part of the final stormwater solution for the proposed project. (see MR#5 for additional information).
  - A qualitative downstream analysis of the site outfalls shall be conducted per BIMC 15.20.
  - The geotechnical reports included with the SAR submittal will likely need a current update and the project will require geotechnical engineer evaluation of the stormwater site plan based on the proximity of the geological hazard to the north.
- MR#2 *Develop a Construction Erosion Control Plan* requires submittal and approval of a Construction Stormwater Pollution Prevention Plan (SWPPP) with the building permit application, also called an Erosion Control Plan. The SWPPP applies to all land-disturbing activities and temporary impacts associated with construction of the project. A well followed SWPPP with established clearing and disturbance limits and clearly thought out phasing helps to minimize unnecessary destruction of healthy soils during the construction process.
  - Erosion control devices shall be installed to prevent sedimentation of any existing drainage system and to retain sediment on-site during site preparation operations, both airborne (dust) and water borne (sediment laden runoff).
  - Temporary construction entrances and access roads shall be constructed of inert materials. Recycled concrete is strictly prohibited.
  - Construction laydown, parking and material storage areas should be carefully located and maintained to minimize vehicular and pedestrian traffic through exposed soil areas.
  - Applicant should complete COBI form B109D (available online) or equivalent and annotate the location of intended erosion control elements on the stormwater site plan drawing and maintain that with the building permit when issued by COBI Planning and Community Development.
  - In addition to the SWPPPP submitted for City review and approval the project will require General Stormwater Construction Permit (GSWCP) coverage from the Washington State Department of Ecology for earth disturbance **in excess of 1 acre**. If required, a copy of the Notice of Coverage letter shall be submitted to the City prior to issuance of the building permits.
- MR#3 *Source Control of Pollution* – This project likely considered N/A due to projected absence of point source pollutants.

- MR#4 *Preservation of Natural Drainage Systems and Outfalls.* Existing drainage patterns are anticipated to continue to occur at the natural location to the max extent practicable as a result of this project. The manner by which any runoff is discharged from the project site shall not cause a significant adverse impact (or increase the risk of such impact beyond professionally acceptable levels) to downstream receiving waters, environmental critical areas, or downgradient properties.
- MR#5 – *On-Site Stormwater Management*. Project shall employ on site BMP's to infiltrate, disperse, and retain stormwater runoff on-site to a feasible extent without causing flooding or erosion impacts. Use list #2 (SWMMWW Vol I, I-2.5.5) for each runoff generating surface (Lawn, Roofs or Other Hard Surfaces) and select the first BMP that is considered feasible or optionally the consulting engineer may choose to show that the drainage plan meets the LID standard in the 2015 SWMMWW via an approved stormwater management model.
    - Selection rationale and Infeasibility criteria per the SWMMWW shall be documented in the SSP overview, especially when a BMP is deemed infeasible and the next lowest priority BMP is considered. Submitted COBI Form B109b may be included as part of the final SSP submittal. Supporting geotechnical documents will need to be updated by current geotechnical engineer of record.
    - The privately maintained existing conveyance and outfall serving the site may be ***considered*** part of the final stormwater site plan for this project but only if the applicant adequately demonstrates that the system has sufficient capacity at its discharge point, currently complies with, and will continue to comply with, the currently adopted stormwater management manual (BIMC 15.20 and DOE 2014 SWMMWW) surfaces without adversely affecting the current drained basin or downstream property/discharge.. Contractor will be expected to protect existing drainage and to demonstrate it is in good working order prior to Final Occupancy (to include the outfall offsite).
    - Site soils and areas that support infiltration (i.e. shown not to meet the infeasibility criteria of the stormwater manual) would require full-downspout infiltration or a rain garden sized per the Rain Garden Handbook for Western Washington meeting the 'GOOD' performance standard.
- MR#6 – *Runoff Treatment (Water Quality)*. If the hard pollution generating surface exceeds 5,000 sf, water quality treatment will be required as part of the engineered stormwater drainage plan. SWMMWW Volume I, section I-2.5.6 addresses sizing, selection, design, and other considerations of water quality BMPs.
- MR#7 - *Flow Control* (Impound and control excess runoff due to larger hard surface quantity). The required engineered drainage plan shall address the flow control requirements (or exemption from) as part of the SSP. SWMMWW Volume I, section I-2.5.7 provides the relevant information.
- MR#8 – *Wetlands Protection* Stormwater from the proposed hard surfaces will likely discharge into a wetland (either directly or through conveyance/stream). The engineered drainage plan shall address wetland protection requirements per SWMMWW Volume I, section I-2.5.8.
- MR#9 – *Operations and Maintenance manual.* An O&M manual shall be provided for proposed stormwater facilities and BMPs, and the party (or parties) responsible for maintenance and operation shall be identified. As this project is a private facility, a copy of the O&M manual shall be retained on-site or within reasonable access to the site and shall be transferred with the property to any subsequent new owner. In addition, a Declaration of Covenant for the maintenance and operation of stormwater facilities will be required for recording to title prior to any issuance of a certificate of occupancy.

Aquifer Recharge Protection Area (ARPA)

- Any proposed development or activity requiring a site assessment review (SAR), located within the R-0.4, R-1 or R-2 zoning designation, requires designation of an Aquifer Recharge Protection Area (unless exempt under BIMC 16.20.100.E.1(a-d)). Initial Public Works evaluation is that this property **will likely** require designation of an ARPA, based on the work proposed being located in the shoreline jurisdiction which is exempt from ARPA.
    - **COBI Planning and Community Development holds the final determination authority for ARPA designation and compliance and will address this requirement during the permit review process**. If you have questions about the Aquifer Recharge Protection Area (ARPA) or other critical areas requirements for critical areas located on or adjacent to your property, please contact the Planning Department at PCD@bainbridgewa.gov or (206) 780-3770.

CITY OF BAINBRIDGE ISLAND

280 Madison Avenue N
Bainbridge Island, Washington 98110
www.bainbridgewa.gov
206.842.2016

Other Low Impact Development design considerations

- Location of survey elements (property corners/lines) and existing surface features (driveway, drain fields, wetlands, etc.) shall be derived from survey completed by a Public Land Surveyor certified to practice in Washington State for the building permit application submittal documentation.
- Placement of any onsite stormwater management systems shall comply with the Kitsap County Health Ordinance 2008A-01 for setbacks from wells, primary septic fields and reserve areas, and septic system components. (see Table 1B of the ordinance).
- BIMC 15.20.060.A(9) requires that a geotechnical engineer evaluate all stormwater or infiltration facilities within the zone of influence (200') of a geologically hazardous area. (steep slope >40% and more than 10' of vertical relief). Geotechnical engineer concurrence on the drainage plan as designed will be submitted via a COBI "Step 2 form", and on the drainage system as installed post construction submitted via a COBI "Step 3 form".
- Retaining or planting trees within 20 feet of hard surfaces where feasible is recommended to reduce peak stormwater runoff amounts.
- Hardscaping should be constructed of permeable materials or contain wide permeable jointing where feasible to allow infiltration or shallow subsurface filtration of surface stormwater.

Summary

These recommendations are not fully inclusive of all requirements for the site proposal and do not constitute an approval, permit or a planning level review (or an endorsement of any required land use approval/plat amendment request required for approval). They represent a site-specific analysis and review of low impact development principles based on the project proposal and define some of the civil site design and documentation requirements going forward in the permitting process for this project. Please don't hesitate to contact COBI Development Engineering with any questions or concerns. This letter will be required as a submittal with the follow-on application for the Building Permit Application associated with the Commercial Healthcare project on this site.

Paul Nylund, P.E.
Development Engineer
Public Works, Engineering