



Construction Stormwater Pollution Prevention Plan

Helix Design Build Mercer Island

Helix Design Build Mercer Island
6922 SE 33rd Street
Mercer Island, WA 98040

October 2022



2106 Pacific Avenue, Suite 300
Tacoma, WA 98402

CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

October 2022

PROJECT:

Helix Design Build Mercer Island
6922 SE 33rd Street
Mercer Island, WA 98040

OWNER:

Erin Jacobsen
206-910-8758
erin@helixdesignbuild.com

ENGINEER:

BCRA Civil Engineering
2106 Pacific Avenue, Suite 300
Tacoma, WA 98402

PREPARED BY:

Bowen Spellman, EIT
bspellman@bcradesign.com

REVIEWED BY:

Justin Goroch, PE
jgoroch@bcradesign.com

I hereby state that this report for the Helix Design Build Mercer Island has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community for professional engineers.



11/4/2022



TABLE OF CONTENTS

Section 1 – Proposed Project Description..... 3

Section 2 – Existing Site Conditions 3

Section 3 – Adjacent Areas and Critical Areas 3

Section 4 – Soil 3

Section 5 – Potential Erosion Problem Areas 3

Section 6 – Construction Stormwater Pollution Prevention Elements..... 3

 Element #1 - Preserve Vegetation/Mark Clearing Limits..... 3

 Element #2 - Establish Construction Access 4

 Element #3 - Control Flow Rates..... 4

 Element #4 - Install Sediment Controls 4

 Element #5 - Stabilize Soils 4

 Element #6 - Protect Slopes..... 4

 Element #7 - Protect Drain Inlets..... 5

 Element #8 - Stabilize Channels and Outlets 5

 Element #9 - Control Pollutants..... 5

 Element #10 - Control Dewatering 5

 Element #11 - Maintain BMPs 5

 Element #12 - Manage the Project 6

 Element #13 - Protect Low Impact Development BMPs..... 6

Section 7 – Construction Phasing..... 6

APPENDICES

Appendix A – SWPPP PLANS



Section 1 – Proposed Project Description

The Helix Design Build Mercer Island project is a single-family home. There are single-family residences to the north, west, and east of the site, a single-family residence across SE 33rd St. on the south, the site slopes from the east to west.

On-site improvements will include a new building and driveway. The total new impervious surface area is 4,650 sf (770 sf of driveway, 3,618 sf of roof area, and 262 sf of other miscellaneous hard surfaces (window well, top of retaining walls, utility pads, path, etc). The preliminary stormwater concept for the site proposes capturing stormwater from impervious surfaces, conveying it into the prescribed Mercer Island detention system, and releasing the detained water to the Mercer Island municipal stormwater system.

Section 2 – Existing Site Conditions

There are no known existing on-site stormwater systems, but there is a catch basin at the base of the driveway within the right of way in SE 33rd St. Any stormwater not captured by this catch basin is assumed to either disperse along the lawn or flow off-site to the north-west and into a private open watercourse in the adjacent property. No run-on is anticipated from adjacent sites and all storm runoff will be managed on site in the developed condition. Subsurface geotechnical exploration did not reveal perched groundwater on the site.

Section 3 – Adjacent Areas and Critical Areas

The site is within an erosion hazard zone and adjacent to a seismic hazard zone.

Adjacent areas to the project site include single-family residences to the north, west, and east of the site, a single-family residence across SE 33rd St. on the south

Section 4 – Soil

A Geotechnical Engineering Report was prepared by Cobalt Geosciences, dated 03/12/2022. Cobalt found Vashon Advance Outwash consisting of fine to medium grained sand with minor silt and gravel. No groundwater was encountered in any of their explorations. Cobalt did not recommend infiltration systems for this site due to the topography.

Section 5 – Potential Erosion Problem Areas

The site is within an erosion hazard zone.

Section 6 – Construction Stormwater Pollution Prevention Elements

The following paragraphs describe how the Construction Stormwater Pollution Prevention Plan (SWPPP) elements have been addressed in this plan. The SWPPP plans accompanying this narrative can be found in Appendix A.

Element #1 - Preserve Vegetation/Mark Clearing Limits

The clearing limits are shown on the site plan. Prior to beginning land disturbing activities, including clearing and grading, all clearing limits will be clearly marked. Any areas that are to be protected or restricted from construction activities shall be clearly marked. Silt fencing per BMP C103: High Visibility



Silt Fence will be placed on the project site boundaries where stormwater has the potential to be released from the site, as indicated on the site plan. Existing vegetation shall be preserved to the maximum extent feasible throughout construction.

Element #2 - Establish Construction Access

The construction access point for this site is the existing driveway. It is located on the southeast portion of the property, and can be seen on the site plan.

Sediment shall not be tracked onto adjacent streets. If sediment is tracked offsite, clean the affected roadway or access thoroughly at the end of each day, or more frequently as necessary. Remove sediment from roads by shoveling, sweeping, or pick up and transport the sediment to a controlled sediment disposal area. Street washing will be conducted only after sediment is removed.

Element #3 - Control Flow Rates

This project is flow control exempt.

Element #4 - Install Sediment Controls

The SWPPP plans in Appendix A specify various erosion/sediment control measures, including silt fencing and inlet protection. Silt Fence (BMP C103: High Visibility Silt Fence) or similar measures shall be installed to prevent the transport of coarse sediment from leaving a construction site. The contractor shall make a daily surveillance of all sediment control measures and maintain as required.

A catch basin inlet protection (BMP C220: Storm Drain Inlet Protection) shall be installed per Demolition and Erosion Control plan and in all catch basins within 500 feet downstream of all proposed improvements. Sediment controls shall be installed prior to initial site disturbance.

Element #5 - Stabilize Soils

From October 1 through April 30, no soils shall remain exposed and unworked for more than 2 days. From May 1 to September 30, no soils shall remain exposed and unworked for more than 7 days. Soils must also be stabilized at the end of a shift before a holiday or weekend if needed based on the weather forecast. These previous conditions apply to all soils on site, whether at final grade or not. During construction activity, the amount of exposed soil should be minimized.

Soil stabilization BMPs include, but are not limited to BMP C120: Temporary and Permanent Seeding, BMP C124: Sodding, BMP C121: Mulching, BMP C123: Plastic Covering, erosion control fabrics and matting, BMP C126: Polyacrylamide for Soil Erosion Protection, the early application of gravel base on areas to be paved, and BMP C140: Dust Control.

Element #6 - Protect Slopes

Any temporary slopes must be mulched (BMP C121: Mulching), covered with nets or blankets (BMP C122: Nets and Blankets), or covered with plastic sheeting (BMP C123: Plastic Covering) to minimize erosion due to sheet flow runoff.



Element #7 - Protect Drain Inlets

All existing drain inlets, both on and off-site within 500 feet of the proposed project site, that may receive runoff from the construction site shall be provided with inlet protection (BMP C220: Storm Drain Inlet Protection). Inlets shall be inspected weekly at a minimum and daily during storm events. Inlet protection devices should be cleaned or removed and replaced when sediment has filled one-third of the available storage (unless a different standard is specified by the product manufacturer).

Element #8 - Stabilize Channels and Outlets

There are no channels in this project.

Element #9 - Control Pollutants

Control of pollutants other than sediments is the responsibility of the construction superintendent. Maintenance, fueling, and repair of heavy equipment and vehicles must be conducted using spill prevention and control measures. Contaminated surfaces must be cleaned immediately following any discharge or spill incident. Oil changes, hydraulic system drain down, solvent and de-greasing cleaning operations, fuel tank drain down and removal, and other activities that may result in discharge or spillage of pollutants to the ground or into stormwater runoff must be conducted using spill prevention measures, such as drip pans.

All pollutants, including waste materials and demolition debris that occur on-site during construction shall be handled and disposed of in a manner that does not cause contamination of stormwater. Cover, containment, and protection from vandalism must be provided for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment per BMP C153: Material Deliver, Storage and Containment. Any slurry or process water that is generated by sawcutting or other surface operations must be prevented from entering the waters of the state (BMP C151 Concrete Handling, BMP C152: Sawcutting and Surfacing Pollution Prevention, BMP C154 Concrete Washout Area).

Element #10 - Control Dewatering

Discharge foundation, vault, and trench dewatering water, which have characteristics similar to stormwater runoff at the site, into a controlled conveyance system before discharge to a sediment trap. Clean, non-turbid dewatering water shall be discharged to systems tributary to, or directly into surface waters of the State, provided the dewatering flow does not cause erosion or flooding of receiving waters or interfere with the operation of the system.

Highly turbid or otherwise contaminated dewatering water, such as from construction equipment operation should be handled separately from stormwater. Other treatment or disposal options may include: 1) transport off-site in a vehicle, such as vacuum flush truck, for legal disposal in a manner that does not pollute waters of the State or 2) Ecology-approved on-site chemical treatment or other suitable treatment technologies.

Element #11 - Maintain BMPs

All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. All



maintenance and repair shall be conducted in accordance with standard procedures for the BMPs. Sediment control BMPs must be inspected weekly at the end of each work week, after a runoff-producing storm event during the dry season, and daily during the wet season.

Protection should be provided for 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.

All temporary erosion and sediment control BMPs should be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil areas resulting from removal of BMPs or vegetation shall be permanently stabilized.

Element #12 - Manage the Project

Site demolition and grading shall be performed after the erosion and sediment control measures have been constructed.

The contractor shall inspect, maintain, and repair all BMPs as needed to ensure continued performance of their intended function. A Certified Erosion and Sediment Control Lead (CESCL) who can be on-site or on-call at all times, must be identified by the contractor. The Construction SWPPP shall be retained on-site or within reasonable access to the site at all times. The SWPPP shall be modified to include any additional or modified BMPs that are deemed necessary to manage erosion and sediment on the site. Revisions to the SWPPP must be completed within seven days.

Element #13 - Protect Low Impact Development BMPs

All BMPs implemented on site must be maintained and repaired until after the site is completely stabilized in order to protect the function of the BMP in erosion control practice.

Section 7 – Construction Phasing

Note: Upon implementation and installation of the following areas: trailer, parking, lay down, concrete washout, fuel and material storage containers, solid waste containers, etc., immediately denote them on the Erosion and Sediment Control (ESC) Plans and note any changes in location as they occur throughout the construction process.

Note: Permitting through Washington State Department of Ecology (WA DOE) is required for chemical treatment.

The recommended construction sequence includes the following steps in this order. However, some portions of the steps may be performed out of sequence as conditions require.

BMP Sequence of Construction

1. Stake and flag limits of disturbance.
2. Install tree protection per landscape plans.
3. Install inlet protection and construction entrance.



4. Install silt fence.
5. Begin rough grading the site.
6. Install underground utilities.
7. Install storm drain pipes and rip rap pads at outfall locations.
8. Fine grade and pave site per plans.
9. Permanently stabilize site according to landscape plans.
10. Remove all accumulated sediment/debris in storm system.
11. Remove TESC measures after site is permanently stabilized per landscape plans.
12. Continue discharge of monitoring reports with Washington State Department of Ecology (WA DOE) until site is fully stabilized and submit Notice of Termination to WA DOE.

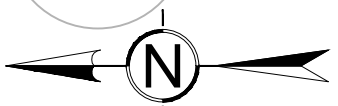
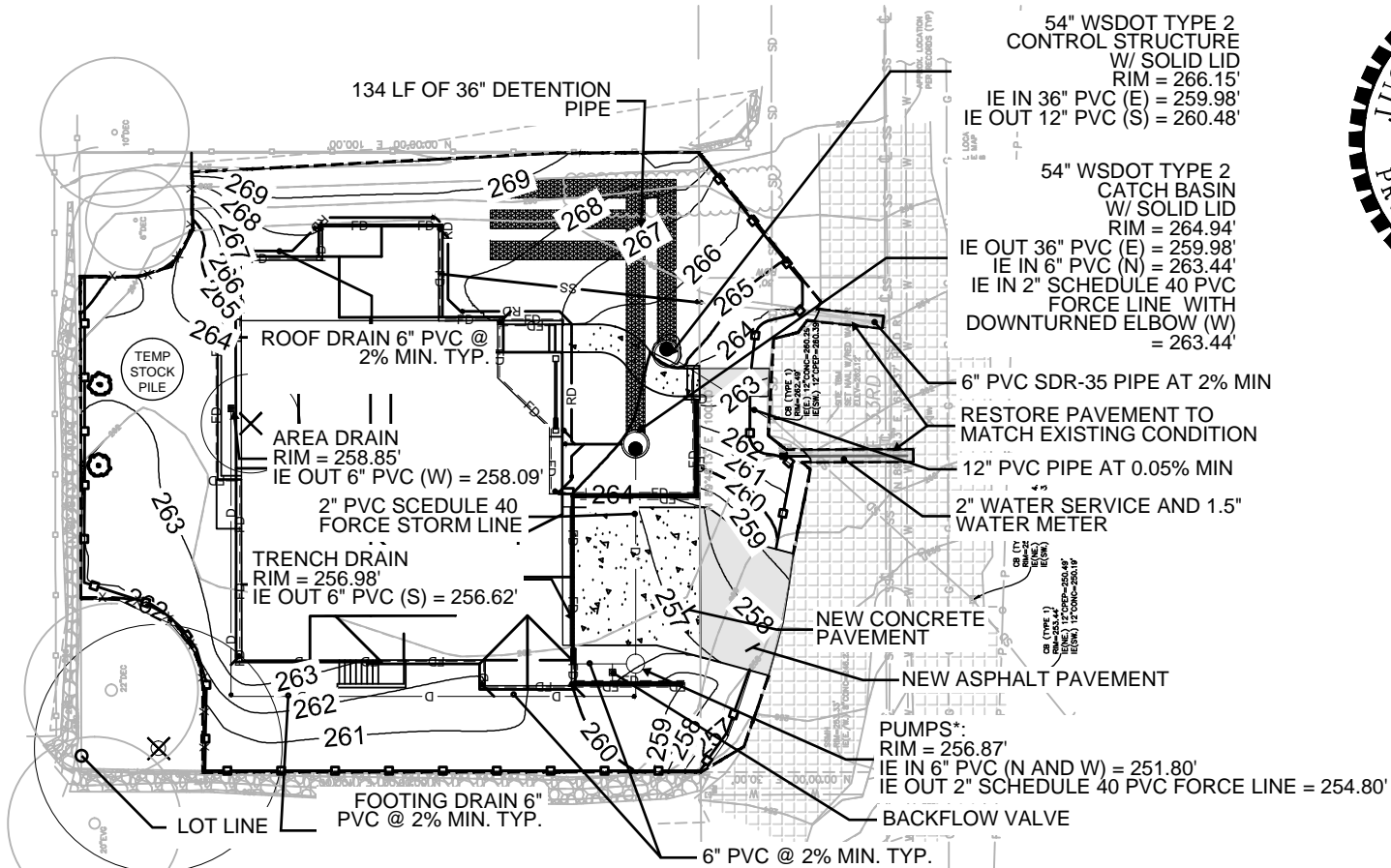


APPENDIX A

SWPPP PLANS

DRAINAGE & EROSION CONTROL PLAN

6922 33RD ST. MERCER ISLAND, WA 98040



SCALE: 1"=30'

PROVIDE STRAW OR PLASTIC COVER TO ANY EXPOSED SOILS THROUGHOUT CONSTRUCTION CYCLE

SOIL ON ENTIRE SITE CONSISTS OF ARENTS, ALDERWOOD MATERIAL (HSG B/D)

FOOTING DRAINS GO INTO DETENTION SYSTEM SINCE A PUMP IS NEEDED, A BACKFLOW VALVE IS PROVIDED

ALL PERVIOUS SURFACES WITHIN LIMITS OF DISTURBANCE WILL RECEIVE SOIL AMMENDMENTS

INFORMATION TAKEN FROM TOPO & BOUNDARY SURVEY DATED 02/09/2022 BY TERRANE

*PUMPS ARE A DUPLEX PUMP SYSTEM UTILIZING ZOELLER N57 SERIES PUMPS, ZOELLER DUPLEX ELECTRICAL ALTERNATOR CONTROL PANEL/ALARM, APAK Z CONTROL ALARM, AND A TYPE 2 BASIN