

LEVEL 1 DOWNSTREAM ANALYSIS

3064 68th Avenue SE

Mercer Island, WA 98040

Parcel Number: 2175100020

December 30, 2022

Prepared for:
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Prepared by:
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The following Level 1 Downstream Analysis was performed on December 27th, 2022. A strong rainfall event had occurred that morning therefore the system was actively draining to the outfall. During the site visit, there were no locations that were observed to be overtopping. There was also no evidence of previous overtopping events. The slope of the surface grades from the proposed project at 3064 68th Ave. SE to the ultimate outfall into Lake Washington at 3265 67th Ave. SE are generally steep ranging from approximately 5% to 20%

The ultimate discharge to Lake Washington was not visible due to its location on private property, however the final catchbasin in 67th Avenue SE was observed and there were no issues at that location.

If any additional questions arise regarding the Level 1 Downstream Analysis, please do not hesitate to contact Green Lake Engineering at 206-898-4269 or email at bob.kehrli@greenlakeengineering.com.

Sincerely,

A handwritten signature in blue ink that reads "Robert Kehrl".

Robert Kehrl PE - Principal

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OFF-SITE ANALYSIS

The project is located in Drainage Basin 18c on Mercer Island. The existing runoff from the site appears to discharge towards 68th Avenue SE uncontrolled as no physical connection to the storm drainage system in 68th Avenue SE was observed or noted on the survey/record maps. The system in 68th Avenue SE eventually discharges via a piped system to Lake Washington at 3265 67th Ave. SE.

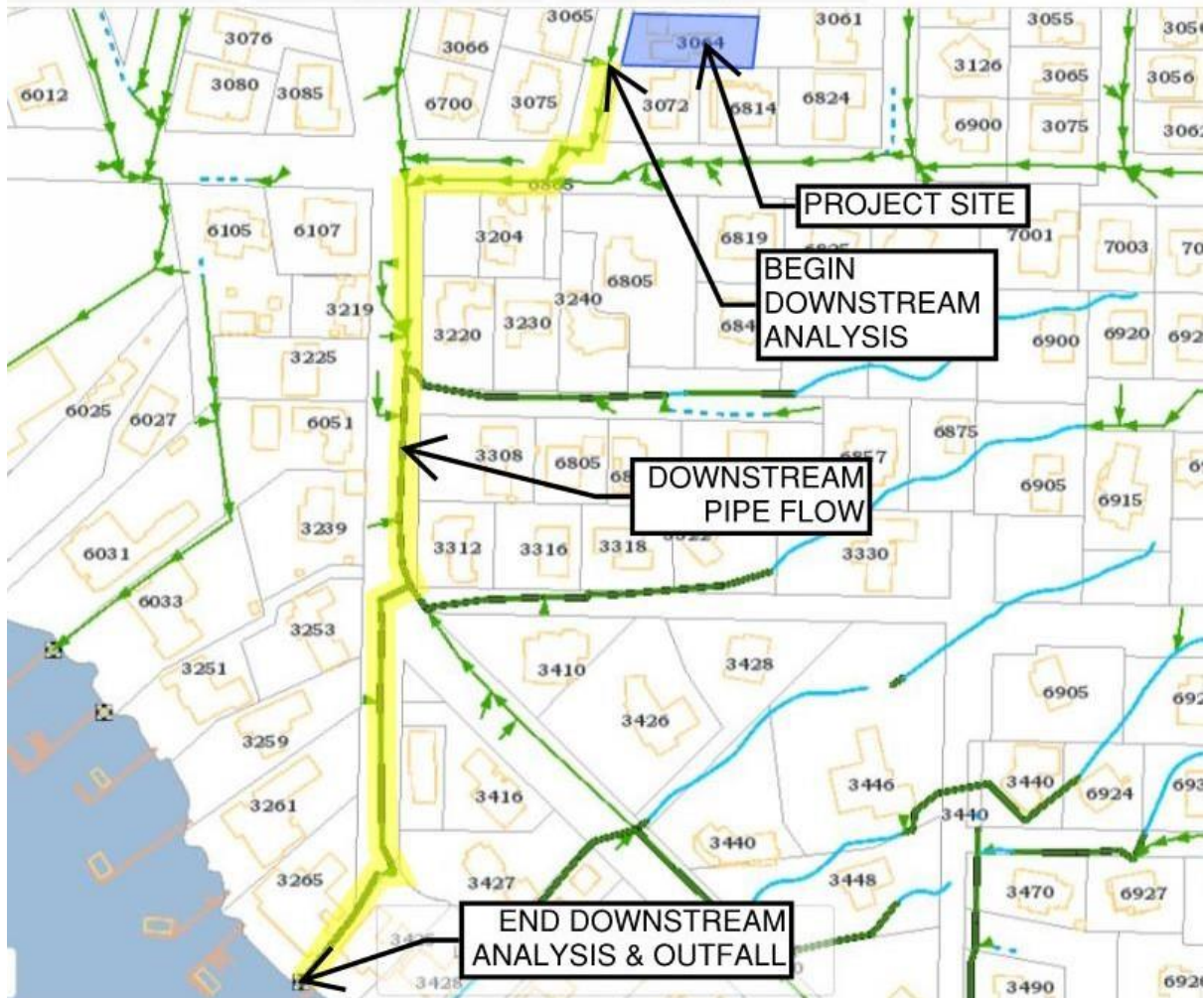


Figure 1: Downstream Analysis Map

Task 1: Study Area Definition and Maps

Runoff from the project will be directly discharged to the public drainage system in 68th Avenue SE to the west of the project. The high point of the project site is along the eastern edge of the site at an elevation of 163 NAVD 88. The low point is at the southwest corner of the site at elevation of 124 NAVD 88.

All disturbed areas on-site will be collected and connected to the public storm drain system that is solely made up of piped storm drain lines downstream of the project site and which directly discharges into Lake Washington. No runoff will be directed towards steep slopes on the project site.



Photo 1: Looing North on 68th Ave. SE (project site to right)

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Photo 2: Looing West on SE 32nd Street (W Mercer Way is first cross street)



Photo 3: Looing South on W Mercer Way (from SE 32nd Street)

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Photo 4: Looing North on W Mercer Way (at 67 Ave. SE; CB 18C-143 in foreground)



Photo 5: Looing South on 67 Ave. SE

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Photo 6: Catchbasin 18C-163 (looking west towards discharge point)

Off-Site Flows

Upstream Analysis

To the north, east and south are developed parcels with single-family residences. To the west is 68th Avenue SE which is sloped north to south with the storm drain line running along the eastern edge of the road. The project site is likely to receive minimal run-on from landscaped areas from the property to the east at 3051 69th Ave. SE.

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Downstream Analysis

A Level 1 Downstream Analysis was performed by Green Lake Engineering, demonstrating that the project will discharge to a public storm drain system in 68th Ave. SE that directly discharges to Lake Washington. The system starts with a catch basin at the southwest corner of the site. It then runs south in 68th Avenue SE for approximately 125 feet before turning to the west and flowing down SE 32nd Street for 215 feet. After flowing one block east in SE 32nd Street, the system then turns to the south in West Mercer Way for approximately 460 feet. The system then crossed West Mercer Way and continues in a southerly direction in 67th Avenue SE for approximately 350 feet. Finally, the system turns to the west and flows through the private residence at 3265 67th Avenue SE for approximately 170 feet to the discharge point at Lake Washington.

Task 2: Resource Review

The below was reviewed for existing and proposed problems in the study area.

City of Mercer Island Stormwater System per online GIS Maps

<https://chgis1.mercergov.org/Html5Viewer/Index.html?viewer=PubMaps&viewer=PubMaps>

King County GIS for Critical Areas

<https://gismaps.kingcounty.gov/iMap/>

Geotechnical Report

Geo Group NW reviewed the site and performed a slope stability analysis along with providing geotechnical recommendations for the proposed project.

FEMA Flood Insurance Rate Map

<https://msc.fema.gov/portal/home>

Task 3: Field Inspection

A field visit was conducted on December 27, 2022, which confirmed that the project drains west to the existing storm drain line in 68th Avenue SE. The outfall at Lake Washington was not observed as it is located on private property.

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Task 4: Mitigation of Existing or Potential Problems

The proposed project is located in a steep sloped area and is also located in the Infiltration LID Facilities are not permitted area per Figure 3: Low Impact development infiltration feasibility on Mercer Island map. Because of this storm runoff from the proposed project will be directed away from the site via on-site drainage pipes to the public storm drain system. The proposed project will increase storm water flow rates slightly, however, will not increase flow rates to the point where any existing drainage problems will be increase or worsened.