

**Preliminary Stormwater Site Plan
Stream Bellingham
3509 Meridian Street
Bellingham, Washington**
Tax Parcel Number: 380213 491202

Prepared For:

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STORMWATER SITE PLAN

The Preliminary Stormwater Site Plan (SSP) is intended to provide an overview of the proposed stormwater management approach. A comprehensive SSP will be provided with permit documents.

Existing Conditions Summary

The subject property is located at 3509 Meridian Street in Bellingham, Washington (Tax Parcel Number 380213 491202). The property occupies approximately 133.59 acres of land and forms an irregular shape. The site is situated south of McLeod Road and Interstate 5, west of Meridian Street, and north of Birchwood Avenue. The property is located in the Birchwood Neighborhood Area 5 and zoned Residential Mutli, Planned. Adjacent property uses vary and include medical offices, commercial/retail businesses, assisted living facilities, single family residential and Cornwall Park. Refer to *Figure 1 – Vicinity Map* for the project location.

The property is currently developed with the Bellingham Golf and Country Club, a private club which an 18-hole golf course, paved cart paths, driving range, clubhouse, swimming pool, various out buildings, and parking areas. Remaining areas contain manicured lawn, mature trees, sand pits, ponds, maintenance areas, trails, and wooded sections. There is an undeveloped 5-acre portion of the site fronting Meridian Street which is the subject of this project. Refer to *Figure 2 – Aerial Photograph* for the existing site conditions.

Topography of the site is relatively flat, sloping down slightly from north to south with approximate elevations of 103 to 91 feet. The site abuts Meridian Street to the east which is fully improved with asphalt drive lanes, curb and gutter, and sidewalks along a majority of the frontage. Water, sewer, and storm utilities are available within the Meridian Street right-of-way. Critical areas include a stream corridor (Baker Creek) that runs through the golf course portion of the site to the west. See the *Offsite Analysis* section of this report for a detailed description of the existing drainage system downstream from the project.

Project Overview

The proposed Stream Bellingham project includes a 75-unit residential development with associated parking, utility, and supporting site amenities. The proposal includes (69) 3-story townhome units and (6) 1-story rambler style townhome units. All units will contain 2-car garage

parking, covered front porches, landscape areas, and private open space. Communal open space areas will be provided within the site. Pedestrian sidewalks will be constructed throughout the site providing access from all units to the shared amenities, garbage collection areas, and public sidewalks along Meridian Street. The existing sidewalk on Meridian Street will be extended north along the property frontage. New internal private drive lanes are proposed to provide vehicular access to the development. Drive lanes are currently proposed at 20' widths to accommodate maneuvering. Proposed municipal utility extensions including municipal water, sewer, and storm water lines.

One access point is proposed to Meridian Street, setback equidistant from the existing Orchard Street intersection to the east. A second, gated emergency access point will be located at the north end of the site. The proposed Birchwood/Squaticum/Meridian roundabout is anticipated to require some dedication of right of way along the south side of the site.

The development will be designed utilizing the Infill Toolkit (BMC 20.28) and fee simple lots will be created using a cluster subdivision (BMC 23). A short plat subdivision (SUB2019-0047) was submitted to annex the undeveloped 5-acres from the remaining portion of the property. Preliminary approval for this short plat was received on September 5, 2019. Final approval of the short plat is anticipated to occur after land use permits are approved for the subject project proposal

Stormwater will be managed on site by infiltration of all impervious surfaces. Stormwater from all pollution generating surface (i.e. roads and driveways) and non-pollution generating surfaces will be treated by the native soil or by water quality treatment devices prior to infiltration.

Refer to *Minimum Requirement #6 Runoff Treatment and Minimum Requirement #7 Flow Control* within this report for further discussion about the applicable stormwater management requirements.

Onsite Soils Analysis

According to the Natural Resource Conservation System Online Soil Survey, soils on the site are mapped as Kickerville-Urban land complex (#82), 0 to 3 percent slopes. The Kickerville series consists of deep, well drained soils formed in loess, volcanic ash, and glacial outwash. The

Kickerville series belongs to hydrologic group 'B' which have a moderate infiltration rate when thoroughly wet. See the *Figures* section of the report for the regional soil mapping.

Onsite Soils Testing

PanGEO, Inc. (PanGEO) performed a geotechnical evaluation for the project site in January of 2022. The purpose of the geotechnical investigation was to explore soil and groundwater conditions underlying the project site.

Subsurface explorations were explored by advancement of eight test pits (TP-1 through TP-8) to depths between 10 and 13 feet below the existing grade. Undocumented fill was encountered to depths of approximately 2 to 3½ feet in each test pit. The fill generally consisted of a loose, duffy silty fine, cobble, trace organics (roots and rootlets), and trash debris. Below the fill, each test pit contained a medium dense, well-graded sand with variable amounts of gravel and cobble. Test pits TP- 1, TP-2, TP-3, encountered an approximate 1- to 2-foot-thick layer of fine-grained soils ranging from silty sand to clayey silt beginning at approximately 7-foot below grade. This layer generally slopes down to the north and was not encountered in test pits TP-4 through TP-8. All test pits terminated within this unit. No groundwater was observed during the investigation.

The geotechnical observations led to the conclusion that infiltration is feasible at this site. A copy of the complete PanGEO report dated January 28, 2022 is included with this *Preliminary SSP*.

Offsite Analysis

Downstream from the site, the entire drainage system is owned and maintained by the City of Bellingham. Using topographic maps, CityIQ, field investigation, experience from similar projects in the vicinity, and the 2007 City of Bellingham Comprehensive Stormwater Plan, no erosion or flooding problems have been identified within 1/4 mile from the project site. The proposed project plans to infiltrate 100% of stormwater and thus is not anticipated to affect the capacity of the existing conveyance system downstream from the site.

Receiving Water Analysis

Stormwater is only anticipated to leave the site during rare circumstances when the proposed infiltration facilities overflow. Stormwater runoff from the project site drains to Squalicum Creek from the municipal stormwater system and ultimately into Bellingham Bay. Downstream from the project site, Squalicum Creek is listed as an impaired water body in Department of Ecology's

Water Quality Assessment 303(d) list for Washington. According to the department's online Assessment tool, Squalicum Creek is listed for bacteria (category 5) and pH (category 2). See Table 1 below for the full list of impairments and *Figure 5-Water Quality Assessment Map* for additional information.

Table 1 DOE Water Quality Assessment				
Name	Parameter	Medium	Category	Waterbody ID
Squalicum Creek	Bacteria	Water	5	17110004014419
Squalicum Creek	pH	Water	5	17110004014419

The proposed residential development is not expected to create new pollutant sources. No sources of bacteria are known to exist on site or are proposed, and the project will include a connection to the municipal sewer system. Furthermore, chemicals for grounds and landscape maintenance, including detergents, cleaning products, and fertilizers will be stored indoors to prevent contact with stormwater.

DOE AND CITY OF BELLINGHAM MINIMUM REQUIREMENTS

Minimum stormwater management requirements for this project have been determined using BMC 15.42.060 and the 2019 Department of Ecology Stormwater Management Manual for Western Washington (2019 DOE SWMM or DOE Manual). With more than 5,000 square feet new plus replaced hard surface area, the project is subject to Minimum Requirements 1 through 9 per BMC 15.42.060.

MINIMUM REQUIREMENT SUMMARY NEW DEVELOPMENT					
Minimum Requirement		Not Applicable	Variance Requested	Standard Requirements Incorporated	Comments (Report Section Reference or BMP Identifier)
#	Description				
1	Preparation of Stormwater Site Plans			✓	
2	Construction Stormwater Pollution Prevention Plan			✓	See "Additional Comments"
3	Source Control of Pollution			✓	
4	Preservation of Natural Drainage Systems and Outfalls			✓	
5	On-Site Stormwater Management			✓	
6	Runoff Treatment			✓	
7	Flow Control			✓	
8	Wetlands Protection			✓	
9	Operation and Maintenance			✓	
#	Additional Comments				
2	The Construction SWPPP is included in the civil construction drawings.				

Minimum Requirement #1 - Preparation of Stormwater Site Plans (“SSP”)

A final Stormwater Site Plan (SSP) shall be provided with permit documents after preliminary plat approval.

Minimum Requirement #2 - Construction Stormwater Pollution Prevention Plan (SWPPP)

A SWPPP narrative will be provided within the civil site plan drawings to ensure that the SWPPP is on site during construction. Each of the thirteen elements of a SWPPP (as identified in BMC 15.42.060(F)(2)(e)) shall be considered and included in a Construction SWPPP unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the narrative of the SWPPP. The SWPPP shall include, at a minimum, the narrative and copies of Best Management Practice detail sheets that will be utilized as a part of the SWPPP.

During construction, the contractor shall maintain a copy of the SWPPP on site and shall update or modify the SWPPP as necessary for the current conditions on site. The contractor's schedule and available crew, equipment, and materials will be determined after the project is submitted for permits, but prior to the start of construction. Accordingly, some BMPs that have been specified may not be necessary, while other additional BMPs may be required.

This project will disturb more than one acre of soil and will require a Construction General Stormwater NPDES permit from Washington State Department of Ecology. As such, the project shall retain a Certified Erosion and Sediment Control Lead (CESCL) to determine which BMPs are necessary as site conditions change during construction. The contractor and/or CESCL shall add any BMP specifications that have not already been included in the SWPPP prepared by Freeland & Associates, Inc.

Minimum Requirement #3 - Source Control of Pollution

Pollutant sources for residential projects include vehicular traffic, fertilizers, and other detergents or chemicals typical to residential building maintenance activities. Pollution will be controlled at the source to the maximum extent possible. All known, available and reasonable source control BMPs have been applied to the design and layout of the site and stormwater plans.

Vehicular traffic is anticipated to be a primary source of potential pollutants. Parking for the project will be located outside of the proposed building footprints and any stormwater runoff from this area will receive stormwater treatment prior to discharge.

Secondary sources of pollutants include garbage and recycling enclosures and landscape areas. Garbage and recycling will be collected in individual covered bins. To minimize landscaping maintenance and to reduce potential erosion, BMP T5.13 will be applied to all landscaped areas to promote healthy plants and appropriate groundcover.

Minimum Requirement #4 - Preservation of Natural Drainage Systems and Outfalls

The project anticipates infiltrating 100% of onsite stormwater, which mimics the existing onsite forest and soil hydrology, preserving natural drainage systems and outfalls.

Minimum Requirement #5 - On-site Stormwater Management

BMC 15.42.060(F)(5) states, "Projects shall employ On-site Stormwater Management BMPs to infiltrate, disperse, and retain stormwater runoff onsite to the maximum extent feasible without causing flooding or erosion impacts. On-site Stormwater Management BMPs shall be designed and provided in accordance with the Ecology Manual."

As a project triggering Minimum Requirements #1 through #9, and a project that is inside the City of Bellingham Urban Growth Area (UGA), this project may use On-site Stormwater Management BMPs from List #2 for all surfaces within each type of surface in List #2 or demonstrate compliance with the LID Performance Standards. **This project will meet the LID Performance standard by utilizing infiltration BMPs.**

Preliminary geotechnical investigations and stormwater modeling have been used to size the proposed infiltration galleries. Further soils investigation and groundwater monitoring at the proposed infiltration gallery locations are ongoing and will be used to validate the proposed design.

Minimum Requirement #6 - Runoff Treatment

Greater than 5,000 square feet of pollution-generating hard surfaces are proposed. Runoff treatment will be provided by the native soils if they meet the minimum parameters for CEC and Organic Content. Otherwise, runoff treatment will be provided prior to infiltration. Further **geotechnical investigation** of the native soils will confirm which approach is acceptable.

Minimum Requirement #7 - Flow Control

This project will infiltrate stormwater from all impervious surfaces, rendering them ineffective, and thus not trigger any of the applicable flow control thresholds. If full infiltration is not feasible, a combination of infiltration and flow control structures will be utilized to meet MR#7.

Minimum Requirement #8 - Wetlands Protection

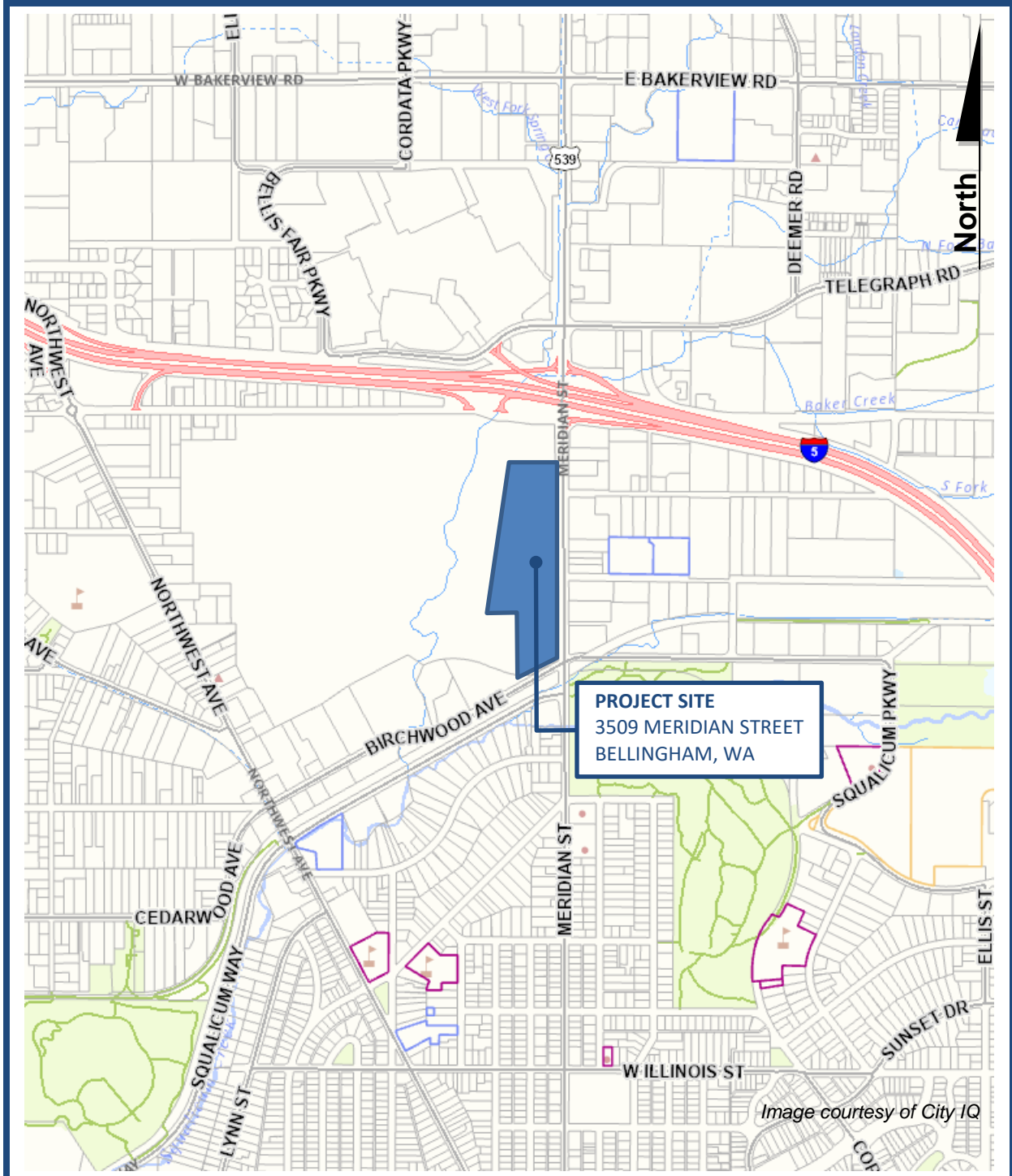
No critical areas were identified in the area of proposed building development. Baker Creek runs to the west of the site through the golf course but will not be impacted by the proposed construction.

Minimum Requirement #9 - Operation & Maintenance

A separate operations and maintenance manual shall be prepared for the proposed storm drainage improvements for permit document submittal.

FIGURES





PROJECT SITE
 3509 MERIDIAN STREET
 BELLINGHAM, WA

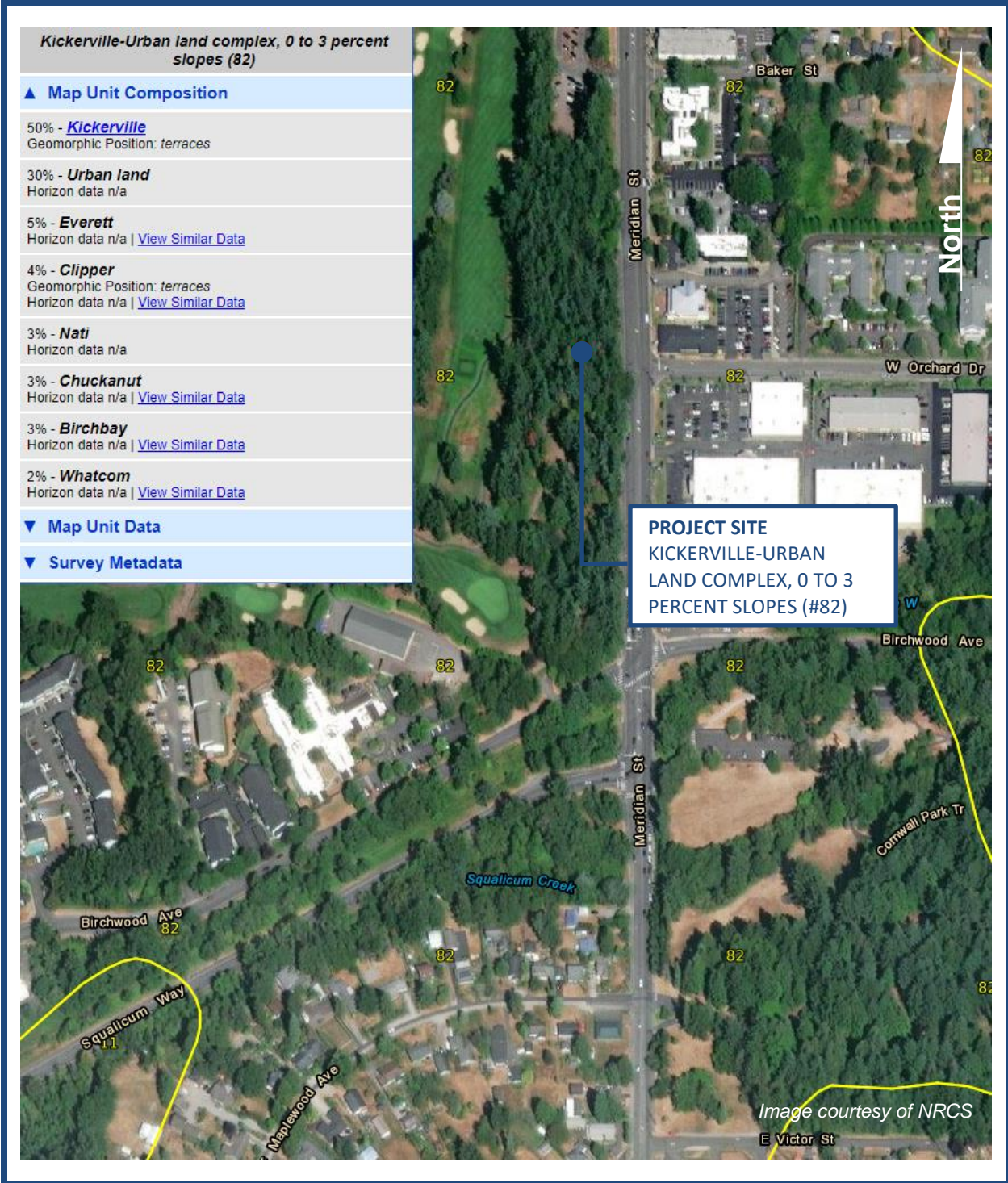
Image courtesy of City IQ

	<p>Vicinity Map</p>	<p>Figure 1</p>
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Aerial Imagery

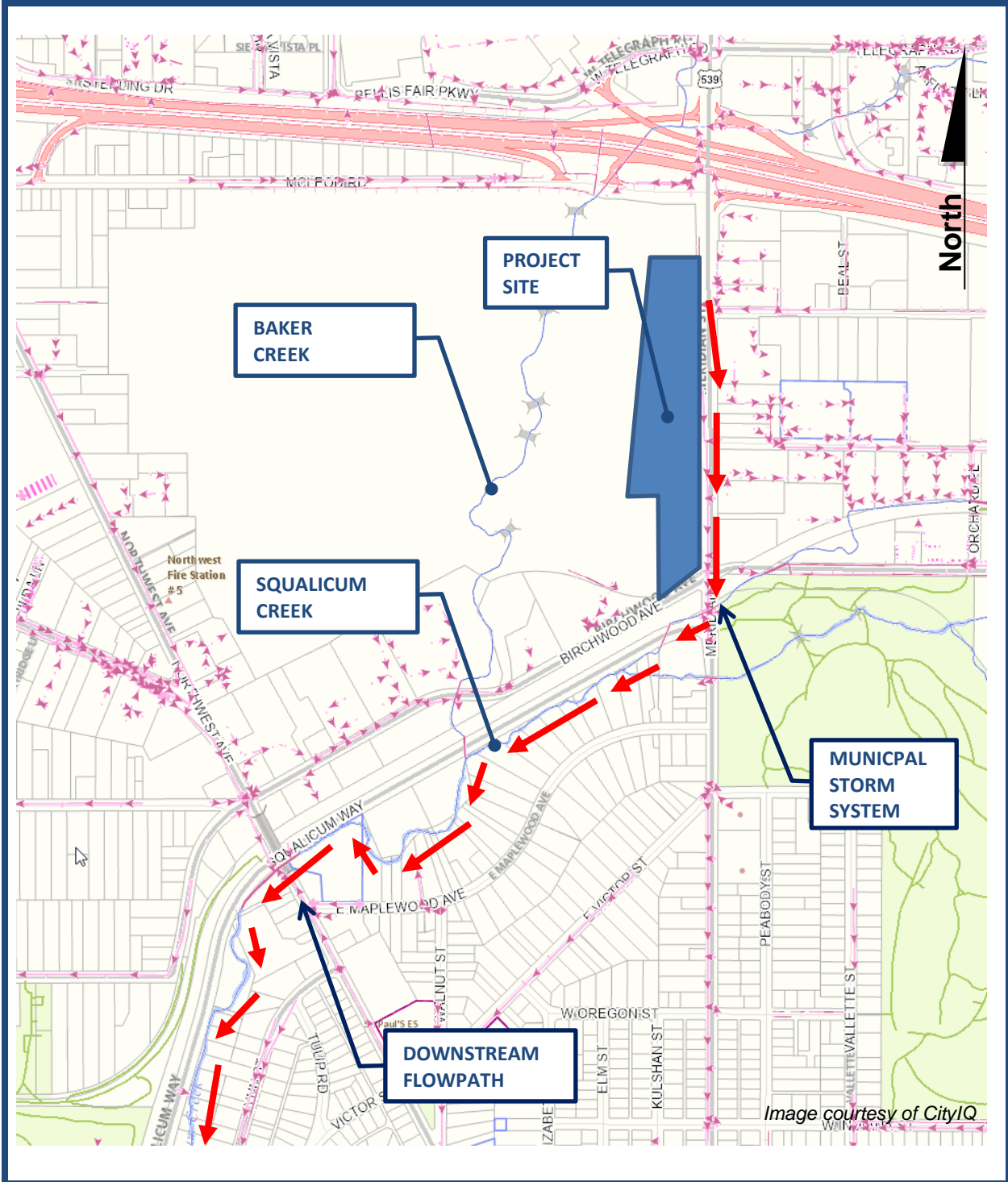
Figure 2



NRCS Soil Survey Map

Figure 3

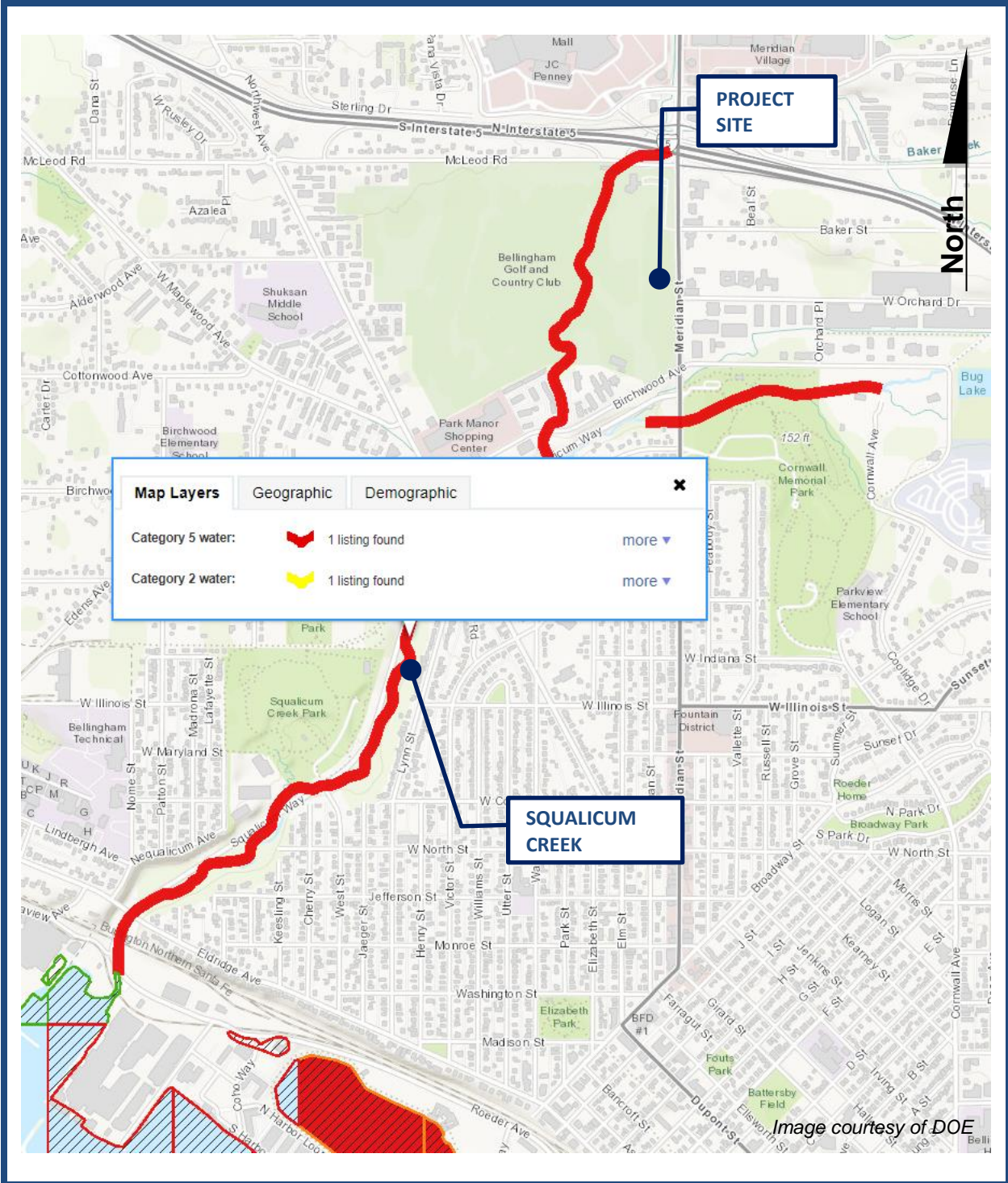




Downstream Drainage Map

Figure 4





Water Quality Assessment Map

Figure 5

