ST. EDWARD STATE PARK BALLFIELD IMPROVEMENTS

Critical Areas Report and Conceptual Wetland Mitigation Plan

Prepared for:

City of Kenmore

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DRAFT

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1.0 PROJECT AUTHORIZATION AND SCOPE OF WORK

At the request of the City of Kenmore (City), Environmental Sciences Associates (ESA) prepared this technical report for the ballfield site located within St. Edward State Park in Kenmore, Washington. The City proposes improvements to the existing ballfields in the park to enable expanded use of the ballfields by youth sports organizations.

A critical areas report and conceptual wetland plan was originally prepared for this project in 2008 (ESA Adolfson), but the City did move forward with the project at that time. A new ballfield proposal has been developed, and is currently being considered. ESA's Scope of Work for this project includes updating the wetland delineation on the ballfield development site and updating the conceptual mitigation plan. This report has been prepared to meet the requirements of Kenmore Municipal Code (KMC) Chapter 18.55 Critical Areas.

2.0 SITE DESCRIPTION

The ballfield site is located within St. Edward State Park in the City of Kenmore, Washington (Figure 1). The park is located east of Lake Washington and west of Juanita Drive NE. Much of the 316-acre park is undeveloped and consists of steep, forested ravines, streams, and wetlands. Single-family housing developments are located north and south of the park. Bastyr University is located southeast of the park.

An existing mowed grass ballfield, the site of the proposed improvements, is located in the northeast portion of the park, near the St. Edward seminary buildings. The ballfield is surrounded by forest and wetlands to the east and south. The park entrance roadway runs along the north side of the field. Immediately west of the field is a picnic area with mature evergreen trees, a gravel parking lot, and restroom facilities. The ballfield site is relatively flat. The topography slopes upward from the ballfield to the east and west.

3.0 WETLAND DEFINITION AND REGULATIONS

The characteristics of an area that result in its classification as "wetland" have been formally defined by federal and state agencies, as described in Appendix A. Numerous federal, state, and local regulations govern development and other activities in or near wetlands; at each level, there are typically several agencies charged with such powers. Specific regulatory implications concerning the subject property are summarized later in this report.

4.0 METHODS

Two levels of investigation were conducted for the analysis of wetlands on the subject property: a review of existing information and an on-site investigation.

4.1 Review of Existing Information

A review of existing literature, maps, and other materials was conducted to identify wetlands or site characteristics indicative of wetlands on the subject property. These sources can only indicate the likelihood of the presence of wetlands; actual wetland determinations must be based upon data obtained from field investigations. ESA reviewed several information sources, including the local soil survey, existing wetland and streams mapping, Washington Department of Fish and Wildlife Priority Habitats and Species data, Washington Department of Natural Resources rare plant data, planning documents prepared for St. Edward State Park and Bastyr University, and other sources listed in the References section of this report.

4.2 On-site Investigation

4.2.1 Determining the Presence of Wetlands and Delineating Wetland Boundaries

The study area for the wetland delineation was the vicinity of Wetland A, as previously delineated by ESA (formerly Adolfson Associates) in 2004 and verified in 2007. In 2015 and 2016, ESA staff visited the site to verify the wetlands and re-delineate the previously identified wetland area.

ESA delineated and flagged wetland boundaries located within the study area based upon current methods defined in the Western Mountains, Valleys, and Coast Regional Supplement (Corps, 2010) to the U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual (Manual). Wetland boundary flags were later professionally surveyed by Group Four, Inc. The methods used to assess wetland characteristics are described in greater detail in Appendix A. Please note that common plant names are used throughout this text; the scientific names are presented in Appendix B.

4.2.2 Classifying Wetlands

Two ecological classification systems are commonly used to describe wetlands. The hydrogeomorphic (HGM) system describes wetlands in terms of their position in the landscape and the movement of water in the wetland (Brinson, 1993). The U.S. Fish and Wildlife Service classification system (Cowardin et al., 1979) describes wetlands in terms of their vegetation communities; these include, for example, emergent, scrub-shrub, and forested community types.

4.2.3 Assessing Wetland Functions

Wetlands play important roles that provide valuable benefits to the environment and society. Because detailed scientific knowledge of wetland functions is limited, evaluations of the functions of individual wetlands are somewhat qualitative and dependent upon professional judgment.

The City of Kenmore and other agencies require an assessment of wetland functions in order to assess project impacts to those functions and appropriate mitigation. For this project, wetland functions were assessed using the *Washington State Wetland Rating System for Western Washington* (Hruby, 2004). These assessment methods are described in Appendix C.

5.0 FINDINGS

5.1 Wetlands

5.1.1 Existing Information

The existing federal, King County, and City mapping does not identify wetlands within the park (USFWS, 2016; King County, 2016; Adolfson, 2001). ESA previously identified and delineated one wetland (Wetland A) within the project area (ESA Adolfson, 2008). A wetland study was conducted in the vicinity of the seminary building, including the ballfield area (The Watershed Company, 2016). This study also identified the approximate location of Wetland A.

Soils within the existing ballfield location and surrounding area are mapped by the Natural Resources Conservation Service as Alderwood gravelly sandy loam, 6 to 15 percent slopes (AgC) (Figure 2). The *King County Soil Survey* (Snyder et al. 1973) describes Alderwood soils as moderately well drained, upland soils that formed in glacial deposits under conifers. The AgC soil type is not considered to be a hydric (wetland) soil, but it may contain inclusions or smaller areas of hydric soils in depressional areas (NRCS, 2001).

5.1.2 Wetland Determinations

One wetland on the project site, designated as Wetland A, was delineated by Sara Noland and Adam Merrill on November 23, 2004 and reevaluated by Sara Noland and Teresa Vanderburg on April 19, 2007. An additional site visit was made by Teresa Vanderburg and Christina Hersum in December 2015 to re-visit the wetlands. Later, Teresa Vanderburg, Adam Merrill, and Christina Hersum re-delineated the wetland boundaries of Wetland A on January 28, 2016. During the 2016 site visit, the boundary of the eastern portion of the wetland was modified, based upon current site conditions. The remainder of the wetland boundary was re-verified and determined to be accurate. The revised wetland boundary is shown in Figure 3, and the wetland data sheets are included in Appendix D.

5.1.2.1 Wetland Overview

Wetland A is a palustrine emergent (PEM) and palustrine forested (PFO) wetland located along the eastern and southern sides of the existing ballfield (Figure 3). Wetland A is characterized by sample plots DP-4, DP-1a, DP-3a, DP-5a, and DP-8a (Appendix D).[1]

The emergent portion of Wetland A is located within the east side of the ballfield. This portion of the wetland is subject to ongoing mowing and recreational use (Photo 1). A ditch approximately 2 feet wide runs from north to south through the northern portion of the wetland (Photo 2). The northern portion of Wetland A extends partway up the slope east of the ditch, outside of the project area. The southern portion of the wetland (south of the ballfield) is forested. The forested wetland continues south, beyond the project area boundary (Photo 3).

5.1.2.2 Hydrology

The following wetland indicators were observed in Wetland A during the January 2016 site visit: surface water (A1), high water table (A2), and saturation (A3). In general, soils were saturated to the surface and the water table was observed within 5 inches of the soil surface in the sample plots. Flowing water was also observed in the ditch along the east boundary of the existing ballfield. Based on site observations and discussions with the City and State Parks staff regarding the site history, the ditch was excavated in the past to provide drainage and is periodically cleared of vegetation to allow water to flow south, preventing localized water ponding on the ballfield.

The ditch drains south and empties into the forested portion of the wetland. Soils within the forested wetland were saturated to the surface at the time of the January 2016 delineation, and areas of surface ponding were present.

Similar wetland hydrology indicators were also observed by ESA during the November 2004 and April 2007 site visits.

5.1.2.3 Soils

Soils within the emergent portion of Wetland A (DPs-1a, 3a, 5a, & 8a) were observed to consist of old fill for the existing ballfield surface. The top layer (0 to 4 or 5 inches) consisted of very dark grayish brown (10YR 3/2) sandy loam. The lower layer was generally observed to be dark gray (5Y 4/1) or gray (2.5Y 5/1) sandy loam, with at least 10 percent of the soil matrix containing redoximorphic features (see Appendix D for soil details). The soils met hydric soil criterion S5 (sandy redox). Soils sampled in upland portions of the mowed ballfield area had similar colors and also consist of fill.

Soils within the forested portion of Wetland A (DP-4) were observed to be native soils. From 0 to 10 inches depth, sampled soils were black (10YR 2/1) silty loam with medium size, common,

[1] The plots ending in "a" were sampled during the January 28, 2016 site visit. The remaining plots were sampled during previous site visits, but were reviewed during the January 2016 site visit and determined to be accurate.

dark yellowish brown redoximorphic features (10YR 4/4). From 10 to 18 inches depth the soil was dark grayish brown (2.5Y 4/2) sandy loam with large, common, dark yellowish brown redoximorphic features (10YR 4/6). The soils met hydric soil criterion F6 (redox dark surface).

5.1.2.4 *Vegetation*

Vegetation in the portion of Wetland A adjacent to and within the existing ballfield is dominated by red fescue, soft rush, bluegrass, creeping buttercup, bulrush, and sedge. These species commonly grow where vegetation is mowed and soils are compacted. Much of the wetland within the ballfield is mowed, and vegetation within the ditch is periodically cleared to allow water to flow through the ditch. Shrub vegetation such as Himalayan blackberry, willow, and red alder saplings are also growing along the ditch banks.

Dominant vegetation in the forested wetland habitat includes red alder and black cottonwood with an understory of salmonberry, and emergent species such as slough sedge, water parsley, and mannagrass. Upland species such as Indian plum, sword fern, and trailing blackberry were observed growing on hummocks within the wetland.

5.1.3 Wetland Functions

Using the Washington State Wetland Rating System (Hruby, 2014) Wetland A received generally moderate scores for water quality, hydrologic, and habitat functions (see form in Appendix C).

Characteristics of the wetland that contribute to its water quality functions include the presence of an intermittent outlet (a stream draining south from the wetland); substantial coverage by persistent emergent vegetation; and a large area of seasonal ponding. The wetland's hydrologic functions are largely a result of its position as a headwater wetland for the stream, and the fact that the wetland is relatively large compared to the small upland area that drains to it.

The presence of emergent and forested areas, as well as a diversity of hydroperiods (areas of seasonal flooding, surface saturation, and a seasonally flowing stream), contribute to the habitat score. Since the emergent portion of the wetland is mowed and adjacent to an active ballfield, it is the forested portion of the wetland that contributes most to the quality of habitat in the wetland. The forested area has a high diversity of native plant species and few invasive species. The forest also contains special habitat features such as downed woody debris, standing snags, and persistent emergent vegetation for amphibian breeding. The forested area has also been mapped as a priority habitat (biodiversity area) by the Washington Department of Fish and Wildlife, and it contains riparian priority habitat along the stream channel, further increasing the overall habitat score.

5.1.4 Off-Site Wetlands

Shannon & Wilson delineated wetlands on the Bastyr University property in 2002 through 2004 (City of Kenmore, 2004). They observed five wetlands on or adjacent to the university site. The closest of these to the ballfield site is a palustrine emergent/forested wetland located southeast of

the ballfield, adjacent to the intersection of NE 145th Street and the St. Edward State Park entrance road (approximately 2,000 feet from the ballfield site).

The Watershed Company study (2016), conducted in the vicinity of the seminary building, identified two palustrine forested wetlands located over 250 north of the ballfield site. The wetlands are associated with a perennial stream.

5.1.5 Adjacent Uplands

Data plots were also recorded in upland areas adjacent to Wetland A (Figure 3). Upland habitats in the study area include portions of the existing ballfield, native upland forest east and south of the ballfield, and a picnic area with widely spaced mature trees west of the ballfield.

The upland portion of the existing ballfield is dominated by lawn grasses, common dandelion, and other weedy species (Photo 4). Sample plots DP-2a, DP-4a, DP-6a, and DP-7a characterize this habitat type.

Native upland forest east and south of the ballfield contains an overstory of big-leaf maple, black cottonwood, red alder, western red cedar, and Douglas fir. Understory shrubs are predominantly salmonberry, Indian plum, and Himalayan blackberry. Data point DP-3 characterizes this habitat type.

A picnic area is located on the upland slope west of the ballfield. This area has a canopy of mature evergreen trees with widely spaced picnic tables (Photo 5). There is little understory vegetation. This area lies adjacent to a gravel parking lot and is heavily used by recreationists.

5.2 Streams and Fish

5.2.1 Existing Information

King County mapping shows a stream originating near the southeast corner of the existing ballfield. The stream flows south and then west to Lake Washington (Figure 4). The City of Kenmore Stream Map (Adolfson, 2001) shows this stream as an “unknown” stream (i.e., not classified per the City’s critical areas ordinance). This stream appears to be Stream #0226 in the *Washington Catalog of Streams and Salmon Utilization* (Williams et al., 1975).

A stream survey by Shannon & Wilson in June 2004 (City of Kenmore, 2004) indicated that Stream #0226 is seasonally flowing, and the upper portion of the stream does not support salmonids because of downstream barriers and stream gradient. This is supported by Salmonscape mapping (WDFW, 2016a) which shows a fish passage barrier culvert approximately 600 feet south of the existing ballfield. The stream and wetland delineation report by The Watershed Company (2016) also identified the stream and determined it to be non-fish bearing. The study states that the stream is presumed to convey perennial flow, but is presumed to preclude fish use due to the steep gradient (over 16 percent) between the lake shore and the ballfield area.

Salmonscape maps show several anadromous species in Lake Washington (including documented fall Chinook, coho, sockeye, and winter steelhead, and presumed bull trout/Dolly Varden). However, none of these fish species are shown using Stream #0226 (WDFW, 2016a). The Washington Department of Natural Resources maps the stream as Type N (non-fish-bearing).

5.2.2 Field Review

On July 5, 2016, Adam Merrill and Bob Sullivan conducted a site visit to determine the northern extent of the stream to the south of the existing field. The ditch along the eastern side of Wetland A was observed to curve westward near the southern boundary of the ballfield, then the ditch empties into the northern, forested portion of Wetland A. As a constructed feature, the ditch does not meet the criteria to be considered a stream.

Approximately 500 feet south of the existing ballfield, Wetland A narrows and a defined stream channel begins to emerge (Figure 4; Photo 6). The stream channel in this location is approximately 5 feet wide, contains a mud substrate, and is partially vegetated with emergent wetland plant species. During the time of the field investigation, shallow (approximately 3 inches deep) standing water was observed in this area. Approximately 600 feet south of the existing ballfield the stream flows through a culvert underneath the Water Tower Trail. In this location, the stream channel is approximately 2 feet wide, unvegetated, and contains a mud and gravel substrate (Photo 7). Flowing water was observed in the channel during the time of the field investigation.

A linear drainage feature (ditch or swale) is present within the study area along the western side of the ballfield (Figure 3; Photo 8). The swale is mowed and approximately 2 feet wide, and is an artificial feature constructed at some time in the past to facilitate drainage of the ballfield. The ditch drains through upland forest just south of the ballfield and directs surface water to the forested portion of Wetland A. As a constructed feature, the ditch does not meet the criteria to be considered a stream.

5.3 Wildlife

5.3.1 Existing Information

The Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database maps St. Edward State Park as part of an “biodiversity area and corridor” area (WDFW, 2016b). Biodiversity areas are areas that have been identified as biologically diverse and/or areas within a city of an urban growth area that contain habitat that is valuable to fish or wildlife and is mostly comprised of native vegetation (WDFW, 2008). Corridors are areas of relatively undisturbed and unbroken tracts of vegetation that connect fish and wildlife habitat conservations, priority habitats, areas identified as biologically diverse, or valuable habitats with a city of urban growth area. While adjacent areas are developed with single-family housing,

businesses, and a golf course, the park and the adjoining Bastyr University property provide a large area of wildlife habitat in the City of Kenmore and on the eastern side of Lake Washington.

The East Lake Washington Audubon Society observed 64 bird species in St. Edward State Park during surveys in August 2003 – July 2004 (see Appendix E for species list). They recorded waterfowl (presumably on Lake Washington) as well as songbirds, raptors (bald eagle, red-tailed hawk, barred owl), and woodpeckers.

5.3.2 Field Review

Forested uplands and wetlands in the park provide potential habitat for numerous species of birds, mammals, amphibians, reptiles, and invertebrates. ESA staff heard calls of Douglas squirrels in the forest near the ballfield area. Numerous snags with pileated woodpecker excavations were noted within the forested portion of Wetland A. Northern flicker was observed as well as American robin. Other common mammal species are also likely to use forested areas near the ballfield, such as raccoon, Virginia opossum, mice, voles, shrews, Eastern gray squirrel, and coyote. While ESA did not observe abundant wildlife during our site visits, wildlife species may be more abundant or observable at other times of year, or more active at other times of day.

General wildlife habitat types observed in the study area (discussed below) include the existing mowed ballfield, forested uplands and wetlands, and the picnic area.

5.3.2.1 *Existing Ballfield*

The existing ballfield is routinely mowed and experiences frequent recreational use. This area generally has low habitat value, but it is likely used as a foraging area by birds such as American robins, ravens, American crows, and swallows. Mammals may also use the field as part of a larger foraging area or as part of a movement corridor between forested portions of the park. The ditched portion of Wetland A along the east side of the ballfield may provide a seasonal water source for some species. The degraded emergent wetland adjacent to and within the ballfield likely does not provide suitable habitat for amphibians or other wetland-dependent species because it is frequently mowed and functions as a recreational area.

5.3.2.2 *Forested Upland and Wetland*

The forests surrounding the existing ballfield provide high-quality habitat for wildlife. These areas include upland forest dominated by Douglas-fir, big-leaf maple, western red cedar, and salal located to the north of the ballfield (north of the access road) and on the hillside east of the ballfield. Large cottonwood trees and big-leaf maple trees are present in the upland area between the southern edge of the ballfield and Wetland A. These forested areas provide food sources (insects, nuts, and berries), potential breeding or nesting sites, shelter, and movement corridors for wildlife. The forested portion of Wetland A also provides snags, downed wood, and seasonal surface waters for wildlife. Invasive species (mainly Himalayan blackberry) are generally limited to areas around the edge of the ballfield and along trails. The prevalence of native plant species increases the habitat values of these forests.

Many of the bird species on the East Lake Washington Audubon Society's survey list (Appendix E) are associated with forested areas and wetlands.

5.3.2.3 Picnic Area

The picnic area on the western side of the ballfield consists of a mowed grassy slope with an overstory of large evergreen trees. While this area is subject to disturbance by recreationists and vehicles in the adjacent parking lot, it does provide potential habitat for species associated with human food sources (e.g., crows, Eastern gray squirrels). The mature trees likely provide foraging opportunities for bird species such as bushtits, pine siskins, and chickadees that are tolerant of human activity.

5.3.3 Special-Status Species

Two special-status wildlife species are documented to use areas in the vicinity of the ballfield: pileated woodpecker (state candidate species) and bald eagle (state sensitive species; no longer on the federal list of threatened species). Bald eagles and their habitats are designated as a Fish and Wildlife Habitat of Importance by the City of Kenmore.

The WDFW maps St. Edward State Park as a pileated woodpecker breeding area. ESA observed numerous snags with pileated woodpecker excavations within the forested portions of Wetland A. Pileated woodpeckers are important in forest ecosystems because they excavate cavities in tree snags that are subsequently used by other species. Large snags and large decaying live trees in older forests are used for nesting and roosting, while younger forests may be used as foraging habitat. In developing areas, pileated woodpeckers use remnant patches of forest, parks, and greenbelts. Home ranges for breeding pairs are large (more than 1,000 acres); however, it is thought that urbanizing environments can support pileated woodpecker reproduction if the total area of smaller remaining forested tracts is large enough. (Lewis and Azerrad, 2004.)

The WDFW PHS database (WDFW, 2016b) shows a bald eagle nest within the northwestern portion of St. Edward State Park, more than 1,500 feet from the ballfield site. A mapped bald eagle nesting territory encompasses the western side of the park, extending inland approximately 1,000 feet from the shore of Lake Washington. The mapped nesting territory does not include the ballfield site (WDFW, 2016b). No bald eagle nests or active roosts were observed within the study area by ESA staff. The mapped nest was unoccupied during the last WDFW bald eagle survey in 2005. State Parks staff indicated the mapped nest tree in the northwestern portion of the park was subsequently blown down in a winter storm.

Bald eagles were also observed in the park by East Lake Washington Audubon Society in 2003 – 2004. This species is commonly observed near the shoreline of Lake Washington. While bald eagle recently was removed Endangered Species Act species list effective August 8, 2007 (USFWS, 2007a), bald eagles are still protected under other state and federal laws as well as the City of Kenmore Fish and Wildlife Habitats of Importance regulations.

Other state or federally listed sensitive species that could potentially be present in the vicinity of the ballfield include: red-legged frog, western toad, black-crowned night heron, great blue heron,

Vaux's swift, olive-sided flycatcher, big brown bat, long-eared and long-legged myotis, mink, yellow-billed cuckoo, tall bugbane, and bog clubmoss (City of Kenmore, 2004; USFWS, 2007b).

6.0 REGULATORY IMPLICATIONS

The proposed project has been designed to avoid and minimize impacts to wetlands and stream to the extent feasible; no wetland or stream impacts are proposed. However, the project will result in permanent unavoidable impacts to a wetland buffer area. Applicable regulatory considerations are described below.

6.1 Federal and State Regulations

The project does not involve discharges of dredged or fill materials into waters of the United States; therefore, no federal permits or approvals are required.

The ballfield is located in a state park. Proposed ballfield improvements are subject to approval by the Washington State Parks and Recreation Commission.

6.2 Local Regulations

The City of Kenmore regulates critical areas under Chapter 18.55 of the Kenmore Municipal Code (KMC).

6.2.1.1 *Wetlands*

Wetland A meets the City's criteria for a Class 2 wetland because it is greater than 1 acre in size and contains a forested wetland class (KMC 18.55.300(B)). The buffer requirement for Class 2 wetlands is 100 feet, plus a 15-foot building setback (KMC 18.55.320(F), 18.55.270).

Mitigation requirements for wetland impacts are provided in KMC 18.55.330. Mitigation must achieve equivalent or greater ecological functions than are provided by the impacted wetland and buffer.

6.2.1.2 *Stream*

The stream that runs south from Wetland A meets the criteria for a Type 4 stream, as it is not used by fish (KMC 18.55.400(A)). The buffer requirement for Type 4 streams is 25 feet (KMC 18.55.420(B)). As the northern, upstream extent of the stream is located approximately 500 feet from the project area, no portion of the stream buffer lies within the project area.

The one drainage swale/ditch along western side of the existing ballfield is constructed feature that do not convey a natural watercourse. Therefore, pursuant to KMC 18.20.2900, the ditch is not considered a regulated stream. The ditch along the eastern side of the existing ballfield is a constructed ditch within a regulated wetland, and is part of Wetland A.

6.2.1.3 Fish and Wildlife Habitats of Importance

The City of Kenmore defines Fish and Wildlife Habitats of Importance (FWHI) to include those habitat areas that meet any of the following criteria (KMC 18.55.500):

1. Documented presence of species listed by the federal government or the State of Washington as endangered or threatened; or
2. Heron rookeries or active nesting trees; or
3. Class 1 wetlands as defined in the City's regulations; or
4. Type 1 streams as defined in the City's regulations; or
5. Bald eagle habitat shall be protected pursuant to the Washington State Bald Eagle Protection Rules (WAC 232-12-292).

No fish and wildlife habitats of importance, as defined by KMC 18.55.500, are found in the project area. As stated above, while bald eagle habitat is identified within St. Edward State Park, the mapped habitat does not include the ballfield site.

6.2.1.4 Public Agency and Utility Exception

Because much of the existing ballfield is located within the 100-foot buffer of Wetland A, it will not be possible for the proposed ballfield improvements to meet minimum buffer requirements. KMC 18.55.160 provides for a Public Agency and Utility Exception (PAUE) process in situations where application of critical area requirements would prohibit a development proposal by a public agency. The public agency must provide a critical area report, mitigation plan, SEPA documents, and other required reports. The criteria for review and approval of a PAUE include: (1) There is no other practical alternative to the development proposal with less impact on the critical area or buffer; (2) The development proposal benefits the public; (3) The strict application of Chapter 18.55 would restrict or prohibit the development proposal; (4) The development proposal minimizes impacts to the critical area or buffer to the maximum extent practical; and (5) The development proposal mitigates impacts to the critical area functions and values to the maximum extent practical.

If a PAUE is not utilized for the proposed project, it may potentially be permitted through a variance process (KMC 18.55.170).

6.2.1.5 Tree Management and Protection

The City of Kenmore regulates the protection, retention, and replacement of trees on sites that are being developed (KMC 18.57). For the purposes of the regulation, "trees" are defined by the City as having a main stem or trunk of at least six inches diameter at breast height (dbh) or a multiple stemmed or trunk system with a definite crown, maturing at a height of at least 12 feet above ground level (KMC 18.42.020.19). Pursuant to KMC 18.57.050, a tree protection plan was developed for the proposed project (Tree Solutions, 2016).

7.0 PROJECT DESCRIPTION AND CONSTRUCTION METHODS

The existing ballfield (approximately 3.5 acres) will be renovated to a new public ballfield. The City proposes a field designed to accommodate two little league fields, two youth soccer fields, one full-size soccer field, and one full size cricket field (Figure 5). The new ballfield will be shifted to the west and moved outside of Wetland A.

As part of ballfield site preparation, approximately 131,000 square feet of sod will be removed from under the field. Once the sod is stripped, a 6-inch thick layer of free-draining aggregate will be placed over the subgrade, which will be covered with a 6-inch thick plastic grating system. The field will be graded flat and covered with a non-toxic synthetic turf and contain a sand infill. The new 100,632 square foot synthetic turf field will be pervious, and a subsurface stormwater system will be installed to provide drainage for the field. Controlled stormwater detention will maintain the natural hydrology to the surrounding wetland.

Porous concrete will be used to provide a walking path around the perimeter of the fields, support the backstop posts and to provide a floor surface in the new dugouts. An ADA-accessible permeable trail, approximately 6 feet wide, will be installed to connect the western side of the fields to the parking areas and access road.

Ten LED floodlight poles will be installed around the perimeter of the field to accommodate field use. Field lighting may be constructed as a later phase. Lighting hours will be outlined in the lease agreement between the City of Kenmore and the State Park Commission. The proposed lighting will consist of LED floodlights mounted on 70 feet tall galvanized steel poles. The poles will be installed as close to the field as possible so as to not compromise the safety of the players, to allow for pedestrian access, and to minimize impacts to wildlife habitat in the vicinity to the extent possible. Lighting will be designed to minimize glare and light spillage.

The old backstop in the northwest corner of the field will be removed, and two new backstops will be installed. The backstops will be approximately 28 feet high and made from chainlink fencing material supported by metal posts. The dugouts will also be constructed of chainlink fencing with roofs. Covered bleachers are proposed and a small equipment shed (10’ x 25’) will be constructed near the southwest corner of the field.

Construction of the project will create temporary noise typical for clearing, filling, grading, light installation, and construction of backstops, fencing, seating and dugouts, and perimeter walkway. The construction period is anticipated to last 4 to 6 months. Heavy machinery, large trucks and power tools will be required to complete this project.

8.0 TEMPORARY CONSTRUCTION IMPACTS AND MITIGATION

8.1 Impacts

The proposed sports field improvements could result in the following temporary impacts to critical areas:

- Use of heavy equipment would result in temporary disturbance of wildlife during the approximately 4 to 6 month construction period.
- Since the site is generally flat, erosion is not considered to be a major issue but it is possible. Sediments could enter downstream waters if erosion is not properly controlled.
- Existing trees near the construction areas could be damaged by equipment if not property protected during construction.

8.2 Mitigation

The following will be implemented to mitigate for construction-related temporary impacts:

8.2.1 Erosion Control

A Temporary Erosion and Sediment Control Plan will be developed for the sports field improvement project. This plan will include measures to control surface water runoff and capture sediments prior to reaching off-site waters. The construction will also take place in the spring or summer, during a drier period of time to minimize surface water runoff issues. The project will comply with City of Kenmore drainage requirements. The City will also apply for a Construction Stormwater permit through the Department of Ecology, which is required for projects that disturb one acre or more of land. This permit requires completion of a Notice of Intent form and a Stormwater Pollution Prevention Plan.

8.2.2 Tree Protection

A tree protection plan has been developed, in accordance with KMC 18.42.090 (Tree Solutions, 2016). The plan includes measures to protect and preserve trees near construction areas, such as installation of temporary construction fencing around the critical root zones of nearby trees.

8.2.3 Temporary Disturbance to Mowed Wetland

Approximately 4,725 square feet of mowed buffer would be filled during site grading, but not covered with synthetic turf. After construction, these areas will be planted with native vegetation (see Section 11.0).

9.0 PERMANENT IMPACTS AND MITIGATION

9.1 Impacts

Installation of the non-toxic synthetic turf field would permanently grade, fill, and cover 37,932 square feet of Wetland A buffer (Figure 6). All of this buffer area is existing mowed grass and active ballfield (Photo 1).

9.2 Mitigation

To compensate for the 37,932 square feet of permanent wetland buffer impact, the City will enhance and protect the remaining mowed wetland and buffer areas outside of the project footprint, for a total enhancement area of approximately 55,000 square feet. Further details on the proposed wetland buffer mitigation are presented in Section 11.0 (Conceptual Mitigation Plan).

10.0 OPERATIONAL IMPACTS AND MITIGATION

10.1 Impacts

Use of the proposed improved sports field sports field improvements could result in the following impacts to critical areas:

- Increased disturbance of wildlife is possible due to the proposed field lighting, as well as more intensive use of the ballfield.
- Some of the large evergreen trees in the picnic area on the western side of the field may require occasional pruning to keep branches out of the line of play.

10.2 Mitigation

The following will be implemented to mitigate for operational impacts:

10.2.1 Wildlife Disturbance Mitigation

The use of the proposed LED floodlights during nighttime field use has the potential to disturb nearby wildlife. Several mitigation measures are proposed to minimize light and glare impacts, which include:

- The poles will be installed as close to the field as possible to minimize impacts to wildlife habitat in the vicinity.

- Lighting will only be operational during gameplay.
- Lighting has been designed to have an average maintained lighting of 50 footcandles in the infield and 30 footcandles in the outfield.
- An additional 45 western red cedar trees are proposed to be planted adjacent to the north side of the field to further buffer field lighting from the rest of the park.

Impacts to foraging or breeding bald eagles are not anticipated from this project. The ballfield site is outside of the management zone distances specified by regulatory agencies for activities in the vicinity of bald eagle nesting or foraging areas (Watson and Rodrick, 2004; USFWS 2007c). The ballfield is screened from the mapped bald eagle nest location by intervening vegetation and topography. In addition, the bald eagles that use St. Edward State Park for foraging and breeding are likely accustomed to human disturbances such as mowing, hikers and bicyclists, and water activities (jet skis, boats).

10.2.2 Tree Impacts

Any necessary pruning will be performed in the presence of a qualified arborist.

11.0 CONCEPTUAL MITIGATION PLAN

11.1 Mitigation Sequencing

Mitigation sequencing was used during site design planning in order to avoid and minimize impacts to the wetland and wetland buffer area, as required by KMC 18.55.210. Mitigation sequencing includes:

1. Avoiding the impact altogether by not taking a certain action or parts of actions;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and/or
5. Compensating for impacts by replacing or providing substitute resources or environments.

The ballfield improvements were positioned as far away from Wetland A as possible, in order to avoid direct wetland impacts. Impacts to forested buffer areas were also avoided. The new fields will be located entirely within an existing mowed ballfield, avoiding the need for removal of native vegetation.

11.2 Mitigation for Permanent Buffer Impacts

Approximately 37,932 square feet of Wetland A buffer would be graded, filled, and covered with non-toxic synthetic turf (Figure 6). Due to site constraints it is not possible to provide buffer averaging or to achieve the minimum standard buffer and buffer setback required under City code. Therefore a PAUE or other exception would be required for the project.

Installation of improved sports fields will not result in a major impact on the limited buffer functions provided by the existing mowed grass fields (Photos 1 and 4). However, increased use of the improved fields may result in increased disturbance of wildlife in the forested portion of Wetland A. The proposed buffer enhancement plan, described below, will provide a greater diversity and density of native plants, increase the habitat value for native wildlife species, and help screen the existing forested habitat from light impacts.

Enhancement of the existing mowed wetland and wetland buffer areas is proposed along the eastern and southern sides of the ballfield (Figure 7). Approximately 30,000 square feet of wetland and 25,000 square feet of wetland buffer will be enhanced (Table 1).

Table 1. Summary of Buffer Impact Mitigation

Mitigation Type and Approximate Area	Mitigation Activities	Plant Species List	Functions Provided by Mitigation
Wetland enhancement (~30,000 square feet)	Removal of invasive species in forested area adjacent to field, and installation of native plant species.	Slough sedge (*Carex obnupta*) Small-fruited bulrush (*Scirpus microcarpus*) Water parsley (*Oenanthe sarmentosa*) Sitka willow (*Salix sitchensis*) Red-osier dogwood (*Cornus stolonifera*) Black twinberry (*Lonicera involucrata*)	Dense emergent plantings will help to slow and filter surface flows and absorb excess nutrients. Added shrubs will also increase wildlife habitat value.
Buffer enhancement (~25,000 square feet)	Removal of invasive species and installation of native species.	Indian plum (*Oemleria cerasiformis*) Nootka rose (*Rosa nutkana*) Red-flowering currant (*Ribes sanguineum*) Salmonberry	Buffer plantings will increase screening of wetland from human activity and provide increased wildlife habitat values.

Mitigation Type and Approximate Area	Mitigation Activities	Plant Species List	Functions Provided by Mitigation
		(*Rubus spectabilis*) Pacific ninebark (*Physocarpus capitatus*) Red-osier dogwood (*Cornus sericea*)	

In the forested wetland and buffer areas adjacent to the ballfield, invasive species such as Himalayan and evergreen blackberry, English ivy, and English holly will be removed by hand. Native emergent and shrub species will be planted in the mowed areas. The existing ditch that runs along the east side of the field would no longer be cleared of vegetation, and it is expected that native volunteer species would colonize the remaining portions of the ditch over time.

The existing and enhanced wetland and buffer areas around the perimeter of the sports field (east and south sides) will be fenced and marked with sensitive area signage as specified by the City of Kenmore and Washington State Parks.

A detailed mitigation plan, including a planting plan, will be prepared and submitted to the City along with the grading and engineering permit applications.

12.0 MITIGATION GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

12.1 Wetland Mitigation

12.1.1 Goals

The goal for the wetland mitigation area is to enhance the wildlife habitat functions of the existing wetland through removal of invasive species and establishment of native emergent and scrub-shrub wetland communities adjacent to the sports field.

12.1.2 Objectives

The objective for the wetland mitigation areas is to enhance approximately 30,000 square feet of existing mowed emergent wetland along the east side of the sports field.

12.1.3 Performance Standards

12.1.3.1 *Native Vegetation*

Year 1:

- 100% survival of installed woody species one year following installation. Plants that die during this period will be replaced by the City or landscape contractor under the one-year installation warranty.
- 50% cover of native or naturalized emergent vegetation (may include both installed and volunteer species).

Year 2:

- 25% cover of installed or volunteer native woody species.
- 60% cover of native or naturalized emergent vegetation (may include both installed and volunteer species).

Year 3:

- 30% cover of installed or volunteer native woody species.
- 70% cover of native emergent vegetation (may include both installed and volunteer species).

Year 4:

- 30% cover of installed or volunteer native woody species.
- 80% cover of native emergent vegetation (may include both installed and volunteer species).

Year 5:

- 35% cover of installed or volunteer native woody species.
- 90% cover of native emergent vegetation (may include both installed and volunteer species).
- No more than 5% bare ground shall remain in the mitigation site.

12.1.3.2 *Non-Native Invasive Vegetation*

- No more than 15% cover of non-native invasive species including, but not limited to, non-native blackberries, hedge bindweed, and all species of ivy, during any of the five years of monitoring.

12.1.3.3 *Signage and Fencing*

- Installed signage and fencing around wetland areas will be present as specified in the as-built plan.

12.2 Buffer Mitigation

12.2.1 Goals

The goal for the buffer mitigation area is to enhance the wildlife habitat functions of the existing buffer through removal of invasive species and establishment of native shrub habitat adjacent to the sports field.

12.2.2 Objectives

The objective for the buffer mitigation areas are to enhance approximately 25,000 square feet of existing buffer along the eastern and southern sides of the sports field.

12.2.3 Performance Standards

12.2.3.1 Native Vegetation

Year 1:

- 100% survival of installed woody species one year following installation. Plants that die during this period will be replaced by the landscape contractor under the one-year installation warranty.

Year 2:

- 25% cover of installed or volunteer native woody species.

Year 3:

- 30% cover of installed or volunteer native woody species.

Year 4:

- 30% cover of installed or volunteer native woody species.

Year 5:

- 35% cover of installed or volunteer native woody species.

12.2.3.2 Non-Native Invasive Vegetation

- No more than 15% cover of non-native invasive species including, but not limited to, non-native blackberries, hedge bindweed, and all species of ivy, during any of the five years of monitoring.

12.2.3.3 Signage and Fencing

- Installed signage and fencing around buffer areas will be present as specified in the as-built plan.

13.0 MONITORING AND MAINTENANCE OF MITIGATION AREAS

As required by the City of Kenmore, five years of maintenance and monitoring of the wetland and buffer mitigation areas will be performed. The five-year period will commence upon submittal of an as-built plan showing installed plant species and quantities to the City of Kenmore, and approval of the mitigation installation by the City. The as-built plan will be prepared by or under the supervision of a qualified biologist. All installed woody plants will be flagged so they can be easily relocated during subsequent years.

The mitigation sites will be monitored twice per year for the first two years, and then once per year for the last three years of the monitoring period. The monitor will record general site conditions and make maintenance recommendations, and document success in achieving the performance standards. Photopoints will be established in the mitigation areas, and photos will be taken from these points as part of the annual monitoring.

Annual monitoring reports will be submitted to Washington State Parks and the City. The reports will be prepared by or under the supervision of a qualified biologist, and will include at a minimum:

- Percent plant survival in wetland and buffer mitigation areas based on a count of all installed woody plants.
- Percent cover of native shrub and emergent species in wetland mitigation areas.
- Percent cover of non-native invasive species.
- Wetland hydrology indicators.
- Wildlife use of sites.
- Condition of sensitive areas signage.
- Progress in achieving performance standards.
- Maintenance recommendations.

14.0 CONTINGENCY

The City of Kenmore will implement a contingency plan, with approval of Washington State Parks, if the mitigation areas fail to meet the success criteria. The above-described maintenance and monitoring section may remedy failure of any species specified by the planting plan, before a formal contingency plan is required. Contingency plans are prepared on a case-by-case basis to remedy the aspect of the mitigation that does not meet the goals and objectives of the plan.

15.0 LIMITATIONS

Within the limitations of schedule, budget, scope-of-work, and seasonal constraints, we warrant that this study was conducted in accordance with generally accepted environmental science practices, including the technical guidelines and criteria in effect at the time this study was performed, as outlined in the Methods section. The results and conclusions of this report represent the authors' best professional judgment, based upon information provided by the project proponent in addition to that obtained during the course of this study. No other warranty, expressed or implied, is made.

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FIGURES AND PHOTOGRAPHS

Photo 1. Emergent portion of Wetland A and adjacent buffer on east side of field, looking north (April 2016).

Photo 2. Ditch near the east side of Wetland A with flowing water, looking north (April 2016).

Photo 3. Forested portion of Wetland A, south of ballfield (November 2004).

Photo 4. Center portion of ballfield (upland), looking southeast (April 2007).

Photo 5. Looking northwest towards picnic area (November 2004).

Photo 6. Northern end (headwaters) of Stream A, looking south (July 2016).

Photo 7. Stream A just downstream Water Tower Trail crossing, looking south (July 2016).

Photo 8. Drainage ditch along west side of existing playfield, looking north (November 2007).

APPENDIX A:
METHODS USED TO EVALUATE WETLAND CHARACTERISTICS

Wetlands are formally defined by the U.S. Army Corps of Engineers (Corps) (Federal Register 1982), the Environmental Protection Agency (EPA) (Federal Register 1988), the Washington Shoreline Management Act (SMA) of 1971 and the Washington State Growth Management Act (GMA) as follows:

> *… those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas* (Federal Register, 1982, 1986).

In addition, the SMA and the GMA definitions add:

> *Wetlands do not include those artificial wetlands intentionally created from non-wetland site, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990 that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificially created wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.*

Methods defined in the *Washington State Wetlands Identification and Delineation Manual* (Ecology, 1997) were used to determine the presence and extent of wetlands on the subject property. Washington state and all local governments must use the state delineation manual to implement the Shoreline Management Act and/or the local regulations adopted pursuant to the Growth Management Act.

The Washington state manual is consistent with the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987). The Corps has been working with states, federal agencies, and others to develop supplemental regional criteria to refine the 1987 delineation manual. Two regions fall within the state of Washington: The Arid West (dry lands west of the Continental Divide, from Idaho and eastern Washington south to the U.S. - Mexico border) and the Western Mountains, Valleys, and Coast. Regional Supplements to the Corps of Engineers 1987 Wetlands Delineation Manual have been completed by the Corps for both regions in Washington, and the appropriate supplement is now used, along with the Washington State Delineation Manual, when conducting delineations in those regions (Corps, 2008, 2010).

The methodology outlined in the manuals is based upon three essential characteristics of wetlands: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology. Field indicators of these three characteristics must all be present in order to determine that an area is a wetland (unless problem areas or atypical situations are encountered). These characteristics are discussed below.

Vegetation

Plants must be specially adapted for life under saturated or anaerobic conditions to grow in wetlands. The Corps of Engineers has determined the estimated probability of each plant species' occurrence in wetlands and has accordingly assigned a "wetland indicator status" (WIS) to each species (Corps, 2014). Plants are categorized as obligate (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), upland (UPL), not listed (NL), or no indicator status (NI). Definitions for each indicator status are listed below. Species with an indicator status of OBL, FACW, or FAC are considered adapted for life in saturated or anaerobic soil conditions. Such species are referred to as "hydrophytic" vegetation.

Key to Wetland Indicator Status codes:

OBL	Obligate: species that almost always occur wetlands under natural conditions (est. probability >99%).
FACW	Facultative wetland : species that usually occur in wetlands (est. probability 67 to 99%), but are occasionally found in non-wetlands.
FAC	Facultative: Species that are equally likely to occur in wetlands or non-wetlands (est. probability 34 to 66%).
FACU	Facultative upland: species that usually occur in non-wetlands (est. probability 67 to 99%), but are occasionally found in wetlands.
UPL	Upland: species that almost always occur in non-wetlands under normal conditions (est. probability >99%).
NL	Not listed: species that are not listed by USFWS (1988, 1993) and are presumed to be upland species.
NI	No indicator: species for which insufficient information is available to determine status, or which were not evaluated by USFWS.

Areas of relatively homogeneous vegetative composition can be characterized by "dominant" species. The indicator status of the dominant species within each vegetative stratum is used to determine if the plant community may be characterized as hydrophytic. The vegetation of an area is considered to be hydrophytic if more than 50% of the dominant species have an indicator status of OBL, FACW, or FAC. The Regional Supplements provide additional tests for evaluating the presence of hydrophytic vegetation communities including the prevalence index, morphological adaptations, and wetland non-vascular plants. The Supplements also address difficult situations where hydrophytic vegetation indicators are not present but hydric soils and wetland hydrology are observed.

Soils

Hydric soils are indicative of wetlands. Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (Federal Register, 1994). The Natural Resources Conservation Service (NRCS), in cooperation with the National Technical Committee for Hydric Soils, has compiled lists of hydric soils (NRCS, 1995). These lists identify soil series mapped by the NRCS that meet hydric soil criteria. It is common, however, for a map unit of non-wetland (non-

hydric) soil to have inclusions of hydric soil, and vice versa. Therefore, field examination of soil conditions is important to determine if hydric soil conditions exist.

The NRCS has developed a guide for identifying field indicators of hydric soils (NRCS, 2010). This list of hydric soil indicators is considered to be dynamic; revisions are anticipated to occur on a regular basis as a result of ongoing studies of hydric soils. In general, anaerobic conditions create certain characteristics in hydric soils, collectively known as "redoximorphic features," that can be observed in the field (Vepraskas, 1999). Redoximorphic features include high organic content, accumulation of sulfidic material (rotten egg odor), greenish- or bluish-gray color (gley formation), spots or blotches of different color interspersed with the dominant or matrix color (mottling), and dark soil colors (low soil chroma) (NRCS, 2010; Vepraskas, 1999). Soil colors are described both by common color name (for example, "dark brown") and by a numerical description of their hue, value, and chroma (for example, 10YR 2/2) as identified on a Munsell soil color chart (Munsell Color, 2000). Soil color is determined from a moist soil sample.

The Regional Supplements provide methods for difficult situations where hydric soil indicators are not observed, but indicators of hydrophytic vegetation and wetland hydrology are present.

Hydrology

Water must be present in order for wetlands to exist; however, it need not be present throughout the entire year. Wetland hydrology is considered to be present when there is permanent or periodic inundation or soil saturation at or near the soil surface for more than 12.5% of the growing season (typically two weeks in lowland Pacific Northwest areas). Areas that are inundated or saturated for between 5% and 12.5% of the growing season in most years may or may not be wetlands. Areas inundated or saturated for less than 5% of the growing season are non-wetlands (Ecology, 1997).

Indicators of wetland hydrology include observation of ponding or soil saturation, water marks, drift lines, drainage patterns, sediment deposits, oxidized rhizospheres, water-stained leaves, and local soil survey data. Where positive indicators of wetland hydrology are observed, it is assumed that wetland hydrology occurs for a sufficient period of the growing season to meet the wetland criteria, as described by Ecology (1997). The Regional Supplements provide methods for evaluating situations in wetlands that periodically lack indicators of wetland hydrology but where hydric soils and hydrophytic vegetation are present.

APPENDIX B:
COMMON AND SCIENTIFIC NAMES OF PLANTS AND THEIR WETLAND INDICATOR STATUS

PLANT SPECIES LIST FOR THE ST. EDWARD STATE PARK FIELD IMPROVEMENTS, IDENTIFIED IN NOVEMBER 2004, APRIL 2007, AND JANUARY 2016

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS*
Trees		
big-leaf maple	*Acer macrophyllum*	FACU
black cottonwood	*Populus trichocarpa (Populus balsamifera ssp. trichocarpa)*	FAC
black hawthorn	*Crataegus douglasii*	FAC
Douglas fir	*Pseudotsuga menziesii*	FACU*
red alder	*Alnus rubra*	FAC
western red cedar	*Thuja plicata*	FAC
Shrubs		
beaked hazelnut	*Corylus cornuta*	FACU
black twin-berry	*Lonicera involucrata*	FAC+*
dull Oregongrape	*Berberis nervosa*	NL
English holly	*Ilex aquifolium*	NL
Himalayan blackberry	*Rubus discolor (Rubus armenicus)*	FACU
Indian plum (osoberry)	*Oemleria cerasiformis*	FACU
red huckleberry (red bilberry)	*Vaccinium parvifolium*	NL
rose	*Rosa sp.*	FACW - FACU
salal	*Gaultheria shallon*	FACU*
salmonberry	*Rubus spectabilis*	FAC+
Sitka willow	*Salix sitchensis*	FACW
swamp gooseberry	*Ribes lacustre*	FAC+
thimbleberry	*Rubus parviflorus*	FAC-
vine maple	*Acer circinatum*	FAC-
Herbs		
American brooklime (American speedwell)	*Veronica americana*	OBL
American water–parsley	*Oenanthe sarmentosa*	OBL
bluegrass	*Poa sp.*	FAC
climbing nightshade (bittersweet)	*Solanum dulcamara*	FAC+
colonial bentgrass	*Agrostis tenuis (Agrostis capillaris)*	FAC
common cattail	*Typha latifolia*	OBL
common dandelion	*Taraxacum officinale*	FACU
common plantain	*Plantago major*	FACU+
common velvetgrass	*Holcus lanatus*	FAC
Cooley's hedge-nettle	*Stachys cooleyae*	FACW
creeping buttercup	*Ranunculus repens*	FACW

COMMON NAME	SCIENTIFIC NAME	WETLAND INDICATOR STATUS*
deer fern	*Blechnum spicant*	FAC+
Dewey's sedge	*Carex deweyana*	FACU*
duckweed	*Lemna minor*	OBL
giant horsetail	*Equisetum telmateia*	FACW
hardstem bulrush	*Scirpus acutus*	OBL
lady fern	*Athyrium filix-femina*	FAC
licorice fern	*Polypodium glycyrrhiza*	NL
mannagrass	*Glyceria sp.*	FACW - OBL
orchard-grass	*Dactylis glomerata*	FACU
Pacific blackberry (dewberry)	*Rubus ursinus*	FACU
red clover	*Trifolium pratense*	FACU
red fescue	*Festuca rubra*	FAC+
reed canarygrass	*Phalaris arundinacea*	FACW
shield fern	*Dryopteris expansa*	FACW
skunk cabbage	*Lysichitum americanum (Lysichiton americanus)*	OBL
slough sedge	*Carex obnupta*	OBL
small-fruited bulrush	*Scirpus microcarpus*	OBL
soft rush	*Juncus effusus*	FACW
sword fern	*Polystichum munitum*	FACU
tall fescue	*Festuca arundinacea (Lolium arundinaceum)*	FAC-
white clover	*Trifolium repens*	FAC*

*Key to Wetland Indicator Status codes – Northwest Region (Source: USFWS, 1988, 1993):

OBL Obligate: species that almost always occur wetlands under natural conditions (est. probability >99%).

FACW Facultative wetland: species that usually occur in wetlands (est. probability 67 to 99%), but are occasionally found in non-wetlands.

FAC Facultative: Species that are equally likely to occur in wetlands or non-wetlands (est. probability 34 to 66%).

FACU Facultative upland: species that usually occur in non-wetlands (est. probability 67 to 99%), but are occasionally found in wetlands.

UPL Upland: species that almost always occur in non-wetlands under normal conditions (est. probability >99%).

NL Not listed: species that are not listed by USFWS (1988, 1993) and are presumed to be upland species.

NI No indicator: species for which insufficient information is available to determine status, or which were not evaluated by USFWS.

\+ indicates a species that is more frequently found in wetlands

\- indicates a species that is less frequently found in wetlands

* identifies a tentative assignment based upon either limited information or conflicting reviews

APPENDIX C: ASSESSMENT OF WETLAND FUNCTIONS

Washington State Wetland Rating System

The observed wetlands were rated using the Washington State Department of Ecology's *Wetland Rating System for Western Washington* (Hruby, 2014). This system was developed by Ecology to differentiate wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the beneficial functions they provide to society. Wetlands are categorized using the Ecology rating system according to the following criteria:

Category I wetlands represent a unique or rare wetland type; or are more sensitive to disturbance; or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime.

Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions.

Category III wetlands have a moderate level of function. They have been disturbed in some ways, and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.

Category IV wetlands have the lowest levels of functions and are often heavily disturbed.

For the St. Edward State Park field improvements project, the state rating system was used to assess wetland functions. However, the wetland category rating used for local regulatory purposes and to establish buffer width is based on Kenmore Municipal Code, not the state rating system.

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A (St. Edwards Ball field) Date of site visit: 1/28/16

Rated by A. Merrill Trained by Ecology? X Yes ___ No Date of training 2006

HGM Class used for rating depressional Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map Arc GIS airphoto basemap

OVERALL WETLAND CATEGORY II (based on functions X or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H (M) L	H (M) L	H (M) L	
Landscape Potential	H (M) L	H (M) L	H (M) L	
Value	(H) M L	H M (L)	(H) M L	**TOTAL**
Score Based on Ratings	7	5	7	19

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	X

Wetland name or number A

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	2
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	4
Map of the contributing basin	D 4.3, D 5.3	4
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	3
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	—

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants *(can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number ~~B~~ A

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   If your wetland can be classified as a Freshwater Tidal Fringe use the forms for Riverine wetlands. If it is Saltwater Tidal Fringe it is an Estuarine wetland and is not scored. This method cannot be used to score functions for estuarine wetlands.

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   If your wetland can be classified as a Flats wetland, use the form for Depressional wetlands.

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (slope can be very gradual),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES** – The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number A

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? This means that any outlet, if present, is higher than the interior of the wetland.

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as Depressional for the rating.

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	2
Total for D 1 Add the points in the boxes above	7

Rating of Site Potential If score is: ___ **12-16 = H** X **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3 or 4 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Lk. Washington Yes = 1 No = 0	1
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	2

Rating of Value If score is: X **2-4 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number A

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	2
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	3
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	5
Total for D 4 Add the points in the boxes above	10

Rating of Site Potential If score is: ___ **12-16 = H** X **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	0
Total for D 5 Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): ☐ Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 ☐ Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____ points = 0 There are no problems with flooding downstream of the wetland. points = 0	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for D 6 Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

___ Aquatic bed	4 structures or more: points = 4
X Emergent	3 structures: points = 2
___ Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
X Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

X The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

___ Permanently flooded or inundated	4 or more types present: points = 3
X Seasonally flooded or inundated	3 types present: points = 2
___ Occasionally flooded or inundated	2 types present: points = 1
X Saturated only	1 type present: points = 0
___ Permanently flowing stream or river in, or adjacent to, the wetland	
X Seasonally flowing stream in, or adjacent to, the wetland	
___ **Lake Fringe wetland**	**2 points**
___ **Freshwater tidal wetland**	**2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

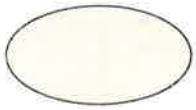
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle

If you counted: > 19 species	points = 2
5 - 19 species	points = 1
< 5 species	points = 0

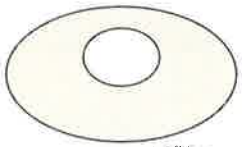
2

H 1.4. Interspersion of habitats

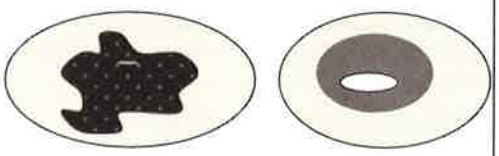
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

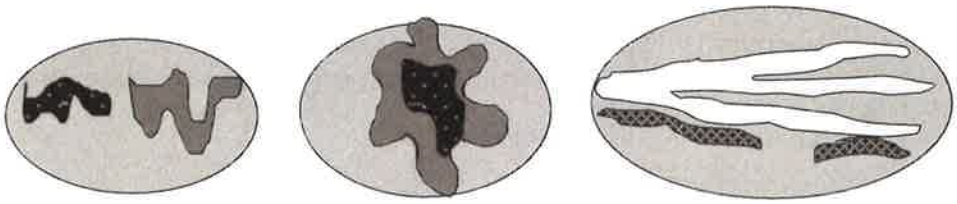


Low = 1 point



Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points



1

Wetland name or number A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ___ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	4
Total for H 1 — Add the points in the boxes above	11

Rating of Site Potential If score is: ___ **15-18 = H** X **7-14 = M** ___ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat___ + [(% moderate and low intensity land uses)/2]___ = _____% If total accessible habitat is: > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 50 + [(% moderate and low intensity land uses)/2] 10 = 55 % Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	3

Rating of Landscape Potential If score is: ___ **4-6 = H** X **1-3 = M** ___ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 X It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) X It is mapped as a location for an individual WDFW priority species Pileated woodpecker ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	2

Rating of Value If score is: X **2 = H** ___ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number A

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: NOTE: This question is independent of the land use between the wetland unit and the priority habitat.

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☒ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (full descriptions in WDFW PHS report).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – see web link above).

☒ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161 – see web link above).

☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* If you answer YES you will still need to rate the wetland based on its functions. SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number A

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? If you answer YES you will still need to rate the wetland based on its functions. ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon**	**Cat. I**
SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions. In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating**	**Cat I**
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2**	**Cat. II**
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3**	**Cat. III**
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	N/A

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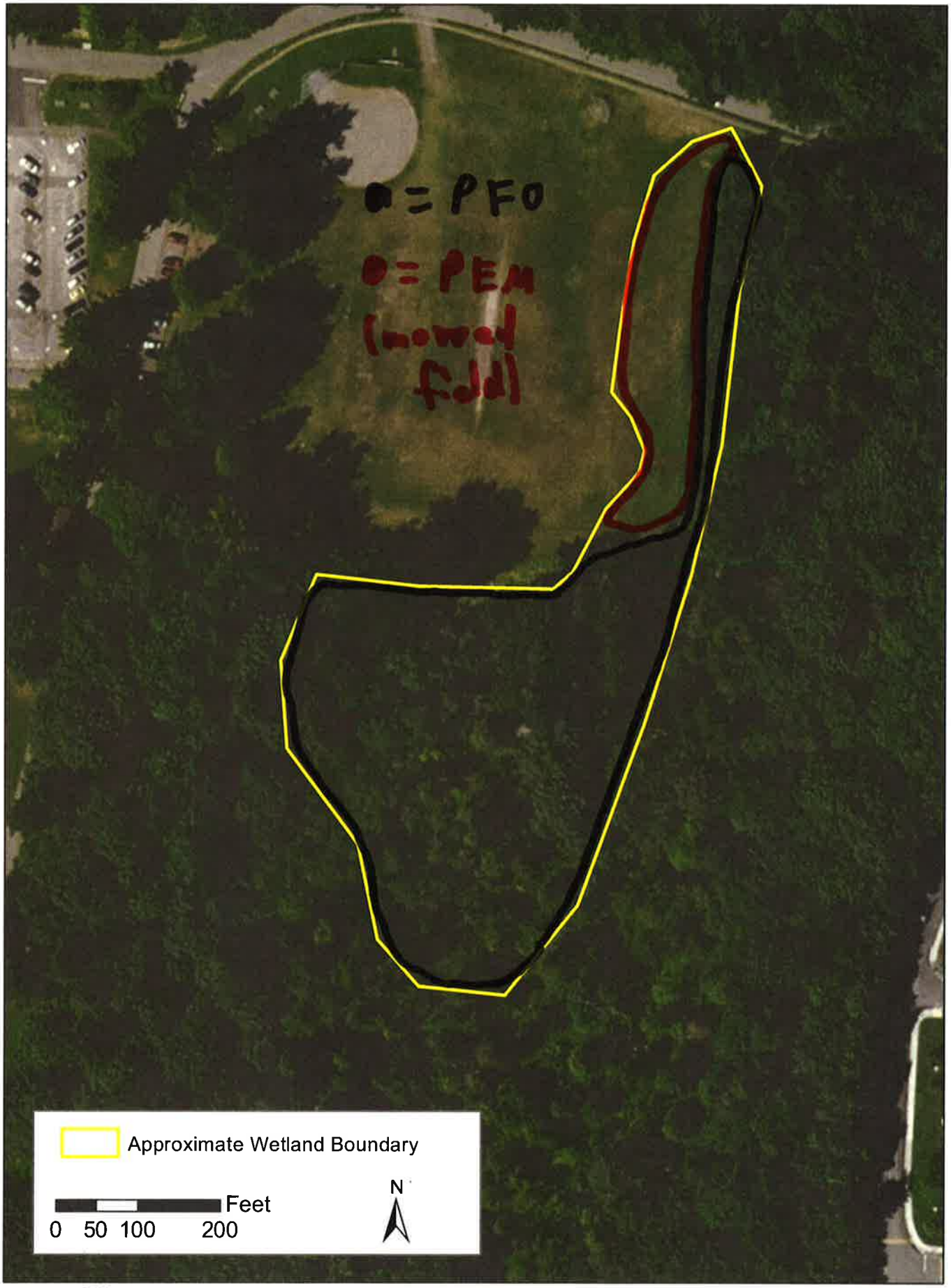

= PFO
= PEM
(mowed
field)
Approximate Wetland Boundary
Feet
0 50 100 200
N

Fig. 1

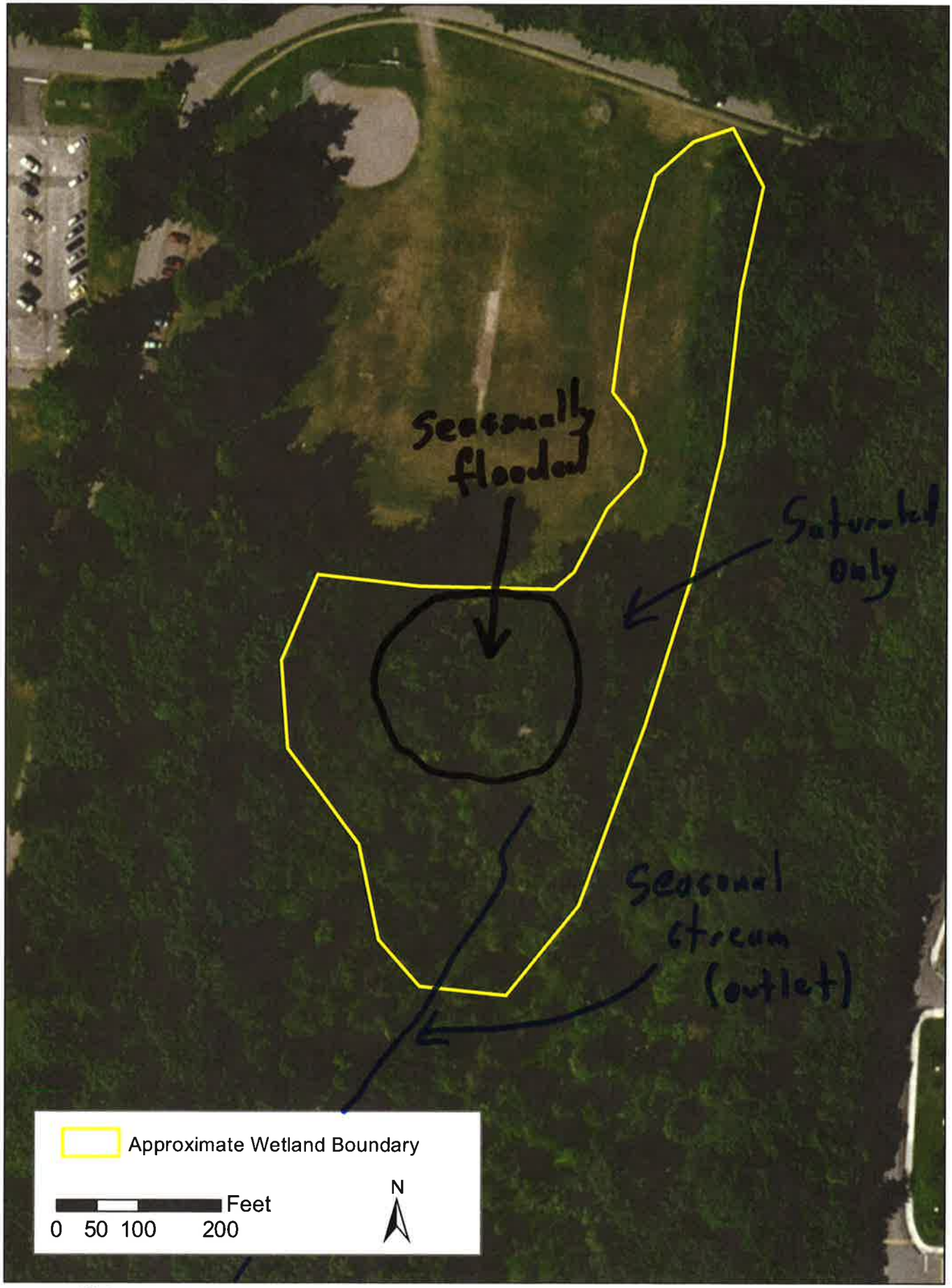

Seasonally flooded
Saturated only
Seasonal stream (outlet)
Approximate Wetland Boundary
Feet
0 50 100 200
N

Fig. 2

Fig. 3

* several roads and popular trails are located throughout the park (not visible on air photo.

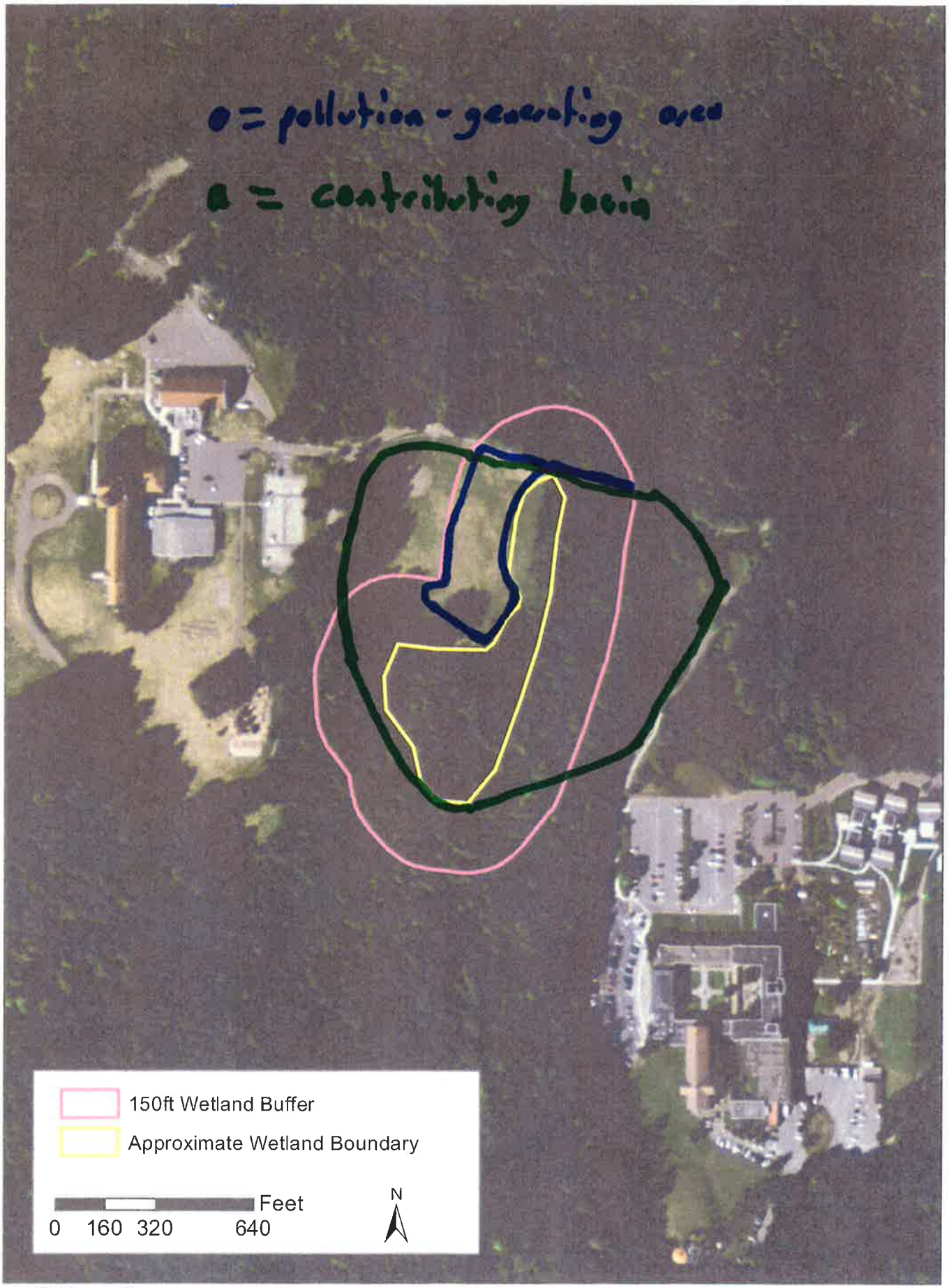

= pollution-generating area
= contributing basin
150ft Wetland Buffer
Approximate Wetland Boundary
Feet
0 160 320 640
N

Fig. 4

Water Quality Assessment for Washington

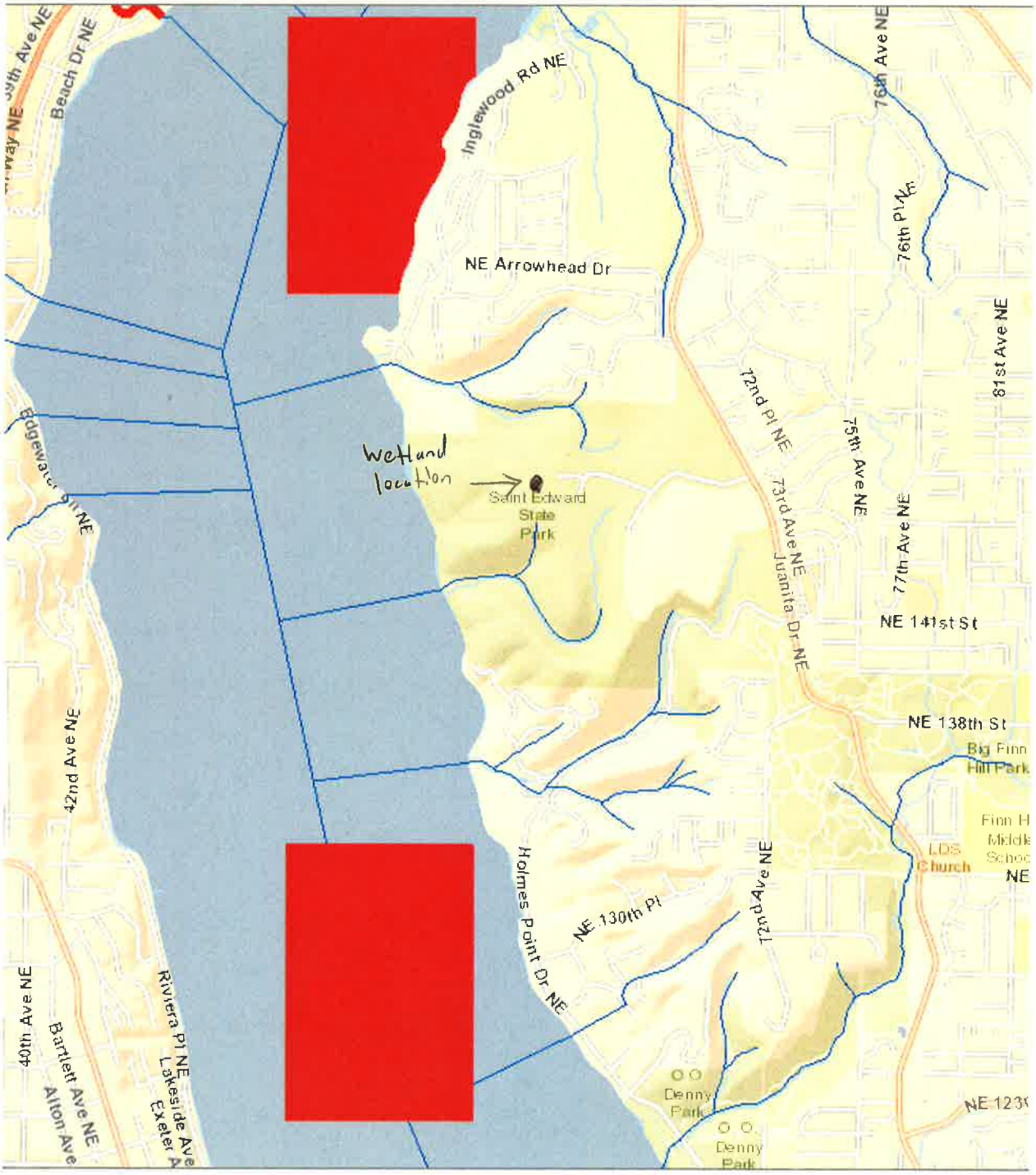


Fig. 5

APPENDIX D: WETLAND DETERMINATION DATA SHEETS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: St. Edwards State Park City/County: Kenmore/King Sampling Date: 1-28-2015
Applicant/Owner: City of Kenmore State: WA Sampling Point: DP 1-a
Investigator(s): AM, CH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: n/a
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐				
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks: **DP located at northern end of field.**

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. ____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *none*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Agrostis sp.*	60	yes	FAC
2. *D. glomerata*	10	no	FACU
3. *R. Repens*	20	yes	FAC
4. *Poa*	10	no	FAC
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *none*	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: St. Edwards State Park

SOIL

Sampling Point: DP 1-a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					sandy loam	
5-16	2.5Y 5/1	90	10 YR 4.4	10	C	M	sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	_____
Water Table Present?	Yes	☒	No	☐	Depth (inches):	5
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	to surface

Wetland Hydrology Present? **Yes** ☒ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: St. Edwards State Park City/County: Kenmore/King Sampling Date: 1-28-2015
Applicant/Owner: City of Kenmore State: WA Sampling Point: DP 2-a
Investigator(s): AM, CH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: n/a
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. ____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *none*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Agrostis sp.*	30	yes	FAC
2. *DAGL*	70	yes	FACU
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *none*	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: St. Edwards State Park

SOIL

Sampling Point: DP 2-a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	5Y 5/1	100					clay loam	
6-16	5Y 5/1	60	10 YR 4/4	40	C	M	clay loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: St. Edwards State Park | City/County: Kenmore/King | Sampling Date: 1-28-2015
Applicant/Owner: City of Kenmore | State: WA | Sampling Point: DP 3-a
Investigator(s): AM, CH | Section, Township, Range: _____
Landform (hillslope, terrace, etc.): _____ | Local relief (concave, convex, none): none | Slope (%): 1
Subregion (LRR): A | Lat: _____ | Long: _____ | Datum: _____
Soil Map Unit Name: _____ | NWI classification: n/a
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐		
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Agrostis sp.*	80	yes	FAC
2. *DAGL*	20	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *none*			
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	1	x3 =	3
FACU species	1	x4 =	4
UPL species		x5 =	
Column Totals:	2 (A)		7 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☒ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: Area highly disturbed (mowed); assumed wetland due to presence of hydric soils and a high water table in early spring.

Project Site: St. Edwards State Park

SOIL

Sampling Point: DP 3-a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					sandy loam	
4-16	5 Y 4/1	70	2.5 Y 4/4	30	C	M	loamy sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: St. Edwards State Park City/County: Kenmore/King Sampling Date: 1-28-2015
Applicant/Owner: City of Kenmore State: WA Sampling Point: DP 4-a
Investigator(s): AM, CH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: n/a
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Agrostis sp.*	20	yes	FAC
2. *DAGL*	80	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *none*			
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: St. Edwards State Park

SOIL

Sampling Point: DP 4-a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					sandy loam	
4-16	2.5 Y 4/2	75	10 YR 4/4	25	C	M	sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: St. Edwards State Park City/County: Kenmore/King Sampling Date: 1-28-2015
Applicant/Owner: City of Kenmore State: WA Sampling Point: DP 5-a
Investigator(s): AM, CH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: n/a
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐				
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Agrostis sp.*	80	yes	FAC
2. *DAGL*	10	no	FACU
3. *Poa sp.*	10	no	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *none*			
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	1	x3 =	3
FACU species	1	x4 =	4
UPL species		x5 =	
Column Totals:	2 (A)		7 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☒ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: St. Edwards State Park

SOIL

Sampling Point: DP 5-a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					sandy loam	
4-16	5 Y 4/1	80	5 YR 2/4	20	C	M	sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soils saturated to surface, standing water at 5" in soil pit.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: St. Edwards State Park City/County: Kenmore/King Sampling Date: 1-28-2015
Applicant/Owner: City of Kenmore State: WA Sampling Point: DP 6-a
Investigator(s): AM, CH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: n/a
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐	**No** ☒
Hydric Soil Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. ____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *none*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Agrostis sp.*	15	no	FAC
2. *DAGL*	70	yes	FACU
3. *Poa sp.*	15	no	____
4. _____	_____	____	____
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *none*	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	1	x3 =	3
FACU species	1	x4 =	4
UPL species	_____	x5 =	_____
Column Totals:	2 (A)		7 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: St. Edwards State Park

SOIL

Sampling Point: DP 6-a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/2	100					sandy loam	
5-16	5 Y 4/1	30	5 YR 4/6	70	C	M	sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: St. Edwards State Park City/County: Kenmore/King Sampling Date: 1-28-2015
Applicant/Owner: City of Kenmore State: WA Sampling Point: DP 7-a
Investigator(s): AM, CH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: n/a
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?**	**Yes**	☐	**No** ☒
Hydric Soil Present?	Yes	☐	No	☒				
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Agrostis sp.*	30	yes	FAC
2. *DAGL*	60	yes	FACU
3. *Poa sp.*	10	no	
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *none*			
2.			
50% = _____, 20% = _____		= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	1	x3 =	3
FACU species	1	x4 =	4
UPL species		x5 =	
Column Totals:	2 (A)		7 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☐ 1 – Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: St. Edwards State Park

SOIL

Sampling Point: DP 7-a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					sandy loam	
4-16	5 Y 4/1	10	5 YR 4/6	90	C	M	sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches): _____
Water Table Present?	Yes	☐	No	☐	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☐	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Saturated 0-1", but dry below 1"

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: St. Edwards State Park City/County: Kenmore/King Sampling Date: 1-28-2015
Applicant/Owner: City of Kenmore State: WA Sampling Point: DP 8-a
Investigator(s): AM, CH Section, Township, Range: _____
Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): A Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: n/a
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?**	**Yes**	☒	**No** ☐
Hydric Soil Present?	Yes	☒	No	☐				
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. ____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *none*	_____	____	____
2. _____	_____	____	____
3. _____	_____	____	____
4. _____	_____	____	____
5. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	
Herb Stratum (Plot size: 10')			
1. *Agrostis sp.*	70	yes	FAC
2. *DAGL*	10	no	FACU
3. *Poa sp.*	10	no	____
4. *TAOF*	10	no	FACU
5. _____	_____	____	____
6. _____	_____	____	____
7. _____	_____	____	____
8. _____	_____	____	____
9. _____	_____	____	____
10. _____	_____	____	____
11. _____	_____	____	____
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 15')			
1. *none*	_____	____	____
2. _____	_____	____	____
50% = _____, 20% = _____	_____	= Total Cover	

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	1	x3 =	3
FACU species	1	x4 =	4
UPL species	_____	x5 =	_____
Column Totals:	2 (A)		7 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

- ☒ 1 – Rapid Test for Hydrophytic Vegetation
- ☒ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: St. Edwards State Park

SOIL

Sampling Point: DP 8-a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10 YR 3/2	100					sandy loam	
5-16	5 Y 4/1	30	5 YR 4/6	70	C	M	sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Soils in area are disturbed. Hydric soil assumed due to the presence of a hydrophtic plant community, and a high water table in early spring.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 4"
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

DATA FORM 1
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: St. Edwards State Park Ballfields	Date: 11/23/04
Applicant/Owner: City of Kenmore	County:
Investigator(s): Sara N. + Adam M.	State: King CO S/T/R:
Do normal circumstances exist on the site? (Yes) No Is the site significantly disturbed (atypical situation)? Yes (No) Is the area a potential problem area? Yes (No)	Community ID: UPL Forest Transect ID: Plot ID: DP-3

VEGETATION

	Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
*	Sword fern (Polystichum munitum)	H	30	FACU	Hawthorn (Crataegus spp.)	S	Trace	FAC- to FAC
*	salmonberry (Rubus spectabilis)	S	25	FAC+	B-L maple (Acer macrophyllum)	T	5	FACU
*	Indian plum (Oemleria cerasiformis)	S	70	FACU	Red alder (Alnus rubra)	T	60	FAC *
	Dewey's sedge (Carex deweyana)	H	Trace	FACU	red cedar (Thuja plicata)	T	3	FAC
*	Rubus ursinus	H	20	FACU	moss	H	75	NL
	Rubus discolor ~~armeniacus~~	H	5	FACU				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 2 of 5 = 40%

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) ✓ OTHER _____
Physiological or reproductive adaptations _____ Morphological adaptations _____
Technical literature _____ Wetland plant data base _____

Hydrophytic vegetation present: Yes (No)
Rationale for Decision/Remarks:
Less than 50% of dom. species are FAC or wetter.

HYDROLOGY

Is it the growing season: Yes (No) Based on: time of year	Water Marks: Yes (No) Drift Lines: Yes (No)	Sediment Deposits: Yes (No) Drainage Patterns: Yes (No)
Dept. of inundation: 0 inches	Oxidized Root (live roots) Channels <12 in. Yes (No)	Local Soil Survey: Yes (No)
Depth to free water in pit: >16 inches Depth to saturated soil: >16 inches	FAC Neutral: Yes No	Water-stained Leaves: Yes (No)
Check all that apply & explain below: Stream, lake or gage data: _____ Aerial photographs: _____ Other:	Other:	

Wetland hydrology present? Yes (No)
Rationale for decision/remarks:
Soil is dry at DP-3

DP-3

SOILS

Map Unit Name (Series & Phase): Alderwood / Alderwood gravelly sandy loam

Taxonomy (subgroup): 6-45% slopes

Drainage Class: mod. well drained

Field observations confirm mapped type? Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-16	A	2.5Y 4/2	7.5YR 4/6	Faint, few, fine	loamy sand	

Hydric Soil Indicators: (Check all that apply)

- _____ Histosol
- _____ Histic Epipedon
- _____ Sulfidic Odor
- _____ Aquic moisture regime
- _____ Reducing conditions
- ✓ Gleyed or low-chroma colors
- _____ Concretions
- _____ High organic content in surface layer of sandy soils
- _____ Organic streaking in sandy soils
- _____ Listed on Local Hydric Soils List
- _____ Listed on National Hydric Soils List
- _____ Other (explain in remarks)

Hydric soils present? (Yes) No

Rationale for decision/remarks:

Low chroma (2) with mottles

Wetland Determination (circle)

Hydrophytic vegetation present? Yes (No)

Hydric soils present? (Yes) No

Wetland hydrology present? Yes (No)

Is the sampling point within a wetland? Yes (No)

Rationale/Remarks:

Area at DP-3 is topographically higher than nearby wetland; soil is marginally hydrophytic (weak mottling).

NOTES: Area lacks wetland hydrology (compare to saturated/ponded soil inside wetland A1).

DATA FORM 1
Routine Wetland Determination
(WA State Wetland Delineation Manual or
1987 Corps Wetland Delineation Manual)

Project Site: St Edwards Skate Park Ballfield	Date: 11-23-04
Applicant/Owner: City of Kenmore	County: King Co
Investigator(s): Sam N + Adam M	State:
	S/T/R:
Do normal circumstances exist on the site? (Yes) No	Community ID: Wetland A (PFO)
Is the site significantly disturbed (atypical situation)? Yes (No)	Transect ID:
Is the area a potential problem area? Yes (No)	Plot ID: DP-4

VEGETATION

Dominant Plant Species	Stratum	Percent cover	Indicator	Dominant Plant Species	Stratum	Percent cover	Indicator
* salmonberry (Rubus spectabilis)	S	50	FACU+	(Rubus ursinus) trailing blackberry	H	20	FACU *
* Indian plum (Oemleria cerasiformis)	S	60	FACU	shield fern (Dryopteris expansa)	H	Trace	FACW
American brooklime (Veronica americana)	H	1	OBL	Skunk cabbage (Lysichiton americanum)	H	Trace	OBL
* Red alder (Alnus rubra)	T	90	FAC				
* (Populus trichocarpa) black cottonwood	T	30	FAC				
red cedar (Thuja plicata)	T	10	FAC				

HYDROPHYTIC VEGETATION INDICATORS:

% of dominants OBL, FACW, & FAC: 3 of 5 (100%)

Check all indicators that apply & explain below:

Regional knowledge of plant communities _____ Wetland Plant List (Natl or regional) ✓ OTHER _____
Physiological or reproductive adaptations _____ Morphological adaptations _____
Technical literature _____ Wetland plant data base _____

Hydrophytic vegetation present: (Yes) No
Rationale for Decision/Remarks:
60% of dom. species are FAC or wetter. FAC U species are on hummocks.

HYDROLOGY

Is it the growing season: Yes (No)	Water Marks: Yes (No)	Sediment Deposits: Yes (No)
Based on: time of yr. "	Drift Lines: Yes (No)	Drainage Patterns: Yes (No)
Dept. of inundation: 1 inches (small puddles)	Oxidized Root (live roots) Channels <12 in. Yes (No)	Local Soil Survey: Yes (No)
Depth to free water in pit: 12 inches	FAC Neutral: Yes No	Water-stained Leaves: Yes (No)
Depth to saturated soil: 0 inches		
Check all that apply & explain below: Stream, lake or gage data: _____ Aerial photographs: _____ Other:	Other:	

Wetland hydrology present? (Yes) No
Rationale for decision/remarks:
Saturated soil, free water in pit, small puddles.

DP-4

SOILS

Map Unit Name (Series & Phase) Alderwood

Taxonomy (subgroup) Alderwood gravelly sandy loam 6-15% slopes

Drainage Class mod. well drained

Field observations confirm mapped type? (Yes) No (poorly drained inclusion)

Profile Description

Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance size & contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0-10	A	10YR 2/1	10YR 4/4	med size common	silty loam	
10-18	B	2.5Y 4/2	10YR 4/6	large common	sandy loam	

Hydric Soil Indicators: (Check all that apply)

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic moisture regime
- ____ Reducing conditions
- ✓ Gleyed or low-chroma colors
- ____ Concretions
- ____ High organic content in surface layer of sandy soils
- ____ Organic streaking in sandy soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (explain in remarks)

Hydric soils present? (Yes) No

Rationale for decision/remarks:

Low chroma (1+2) with mottles

Wetland Determination (circle)

Hydrophytic vegetation present? (Yes) No

Hydric soils present? (Yes) No

Wetland hydrology present? (Yes) No

Is the sampling point within a wetland? (Yes) No

Rationale/Remarks:

NOTES:

DP-4 is in a depression near toe of slope at south end of ball field.

APPENDIX E: AUDUBON SPECIES LIST

St. Edwards SP Survey Summary

August 2003 - July 2004

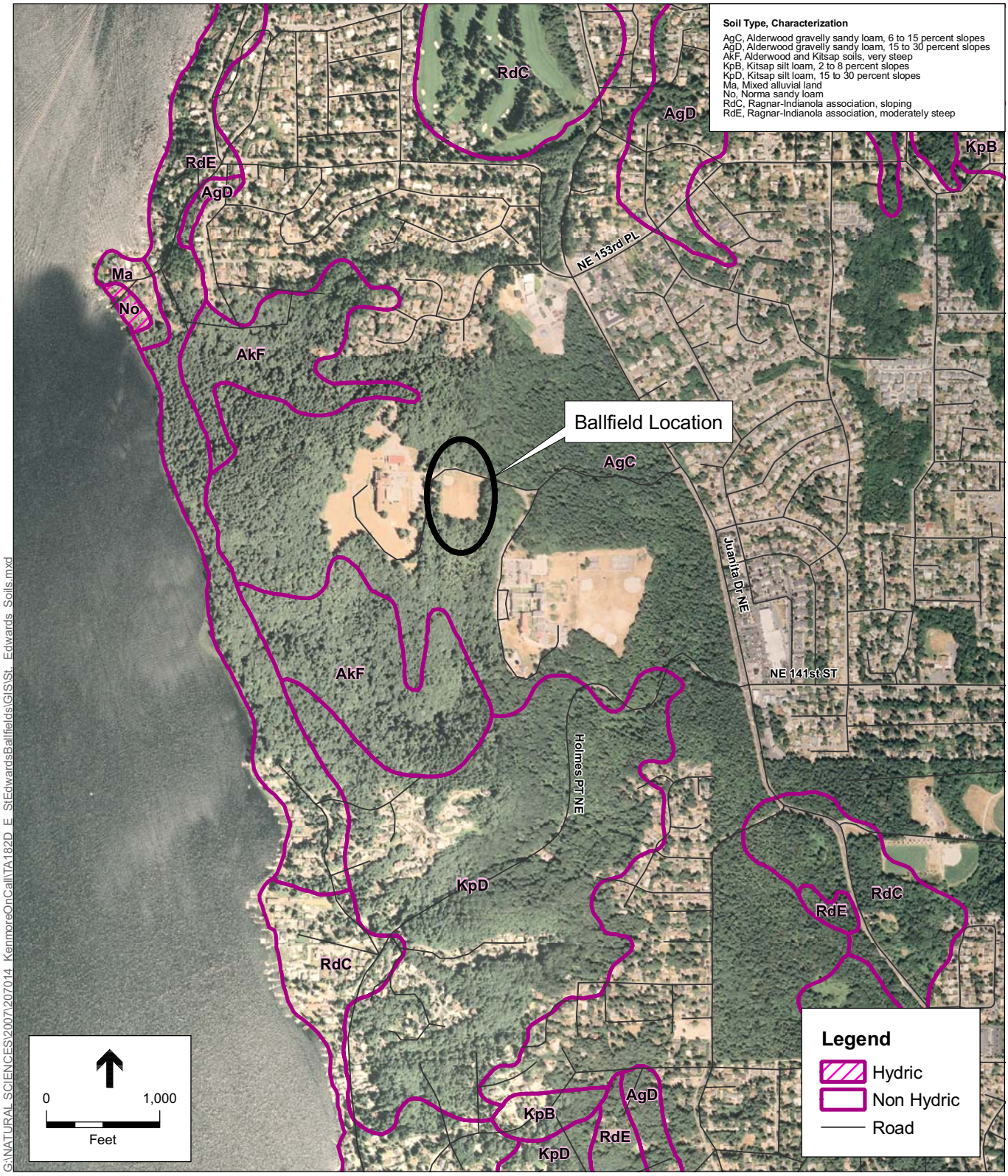
				Total No. Seen										
	Species	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Total**
	Start Time	0815	0830	0830		1000		1000	0900	1000	0930			
	End Time	1200	1200	1200		1300		1300	1200	1245	1230			
	Weather	Clr	Cldy	Fog		Cldy		Cldy	Cldy	Cldy	Cldy			
	Ave. Temperature	60	65	60		45		43	40's		58			
1	Bufflehead	1							1	5				7
2	Bushtit	1							1					2
3	Chickadee, Chestnut-backed	5	4	6	10	2		3	24	3	25	10	9	101
4	Chickadee,Black-Capped	21	37	6		12	9	8	25	15	1	15	13	162
5	Coot, American								50					50
6	Cormorant, Double-Crested								1	1				2
7	Creeper. Brown	4	1	2	6	1	3	3	5	1	1	5	1	33
8	Crow, American	4	4	4	13	3	6	3	6	5	9	3	5	65
9	Eagle, Bald	1											2	3
10	Finch, House			2					6		2			10
11	Finch Purple									2	2			4
12	Flicker, Northern		1	2	1	3	1	1	1	1	1		1	13
13	Flycatcher, Olive Sided								1					1
14	Flycatcher, Pacific Slope									1		6		7
15	Goose, Canada							1	12					13
16	Grebe, Horned							1						1
17	Grebe, Red-necked							1						1
18	Grebe, Western								1					1
19	Grosbeak, Black-headed										2	1		3
20	Gull, Unidentified								2	10				12
21	Hawk, Red-tailed				1									1
22	Hummingbird, Rufous								1	1				2
23	Jay, Steller's	7	5	1	1	1			1		2		7	25
24	Junco, Dark-Eyed		1	10	8	6	4		6	2			6	43
25	Kestrel, American						1							1
26	Kingfisher, Belted	1	1		1	1								4
27	Harrier, Northern									1				1
28	Kinglet, Ruby-Crowned	5	4	4	7	11	2	7	4				1	45
29	Kinglet, Golden-crowned	16	16	14		10	10	10	11	3	8		2	100
30	Mallard			3		2		2	2					9
31	Merganser, Common							5			2			7
32	Merganser, Hooded					5								5
33	Nuthatch, Red-breasted	7	3	1	3	1	1		2	1	3	2		24
34	Owl, Barred								1	1	1			3
35	Pigeon, Band-tailed	10								1				11
36	Robin, American	2	2	11	1	2	17	1	9	12	63	37	5	162
37	Sapsucker, Red-breasted							1					1	2
38	Shoveler, Northern													0
39	Siskin, Pine							6						6
40	Sparrow, House												1	1
41	Sparrow, White-crowned									1				1

	St. Edwards SP Survey Summary													
			August 2003 - July 2004											
				Total No. Seen										
	Species	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Total**
	---	---	---	---	---	---	---	---	---	---	---	---	---	---
42	Sparrow, Song	2	7	9	21	6	17	4	3	7	20	7		103
43	Starling, European							1						1
44	Swallow, Barn								4		6		11	21
45	Swallow, Tree												1	1
46	Swallow, Violet-green										1	1	1	3
47	Swift, Vaux's								1					1
48	Tanager, Western											2		2
49	Thrush, Swainson's										1	1	3	5
50	Thrush, Varied							1				2		3
51	Towhee, Spotted	1	4	2	3		5	1	7	6	26	17	1	73
52	Vireo, Hutton's									1	1			2
53	Warbler, Black-throated Gray									1				1
54	Warbler, Orange-crowned		1											1
55	Warbler, Wilson's										2	2		4
56	Warbler, Yellow										4			4
57	Warbler, Yellow-rumped									1				1
58	Wigeon, American								1					1
59	Wood-Pewee, Western												1	1
60	Woodpecker, Downy	1	2			1		1						5
61	Woodpecker, Hairy	1	1		2		1					1	1	7
62	Woodpecker, Pileated		2	1	4		2	1	1			1		12
63	Wren, Bewick's	3	2	5	4	1	2	3		3	5	1	6	35
64	Wren, Winter	8	9	3	3	3	2	3	7	9	9	5	5	66
	Total bird species	101	107	86	89	71	83	68	197	95	197	119	84	1297

SOURCE: Rand McNally & Company, 2006.

St. Edwards Ballfield . 207014.182E

Figure 1
Vicinity Map
Kenmore, Washington



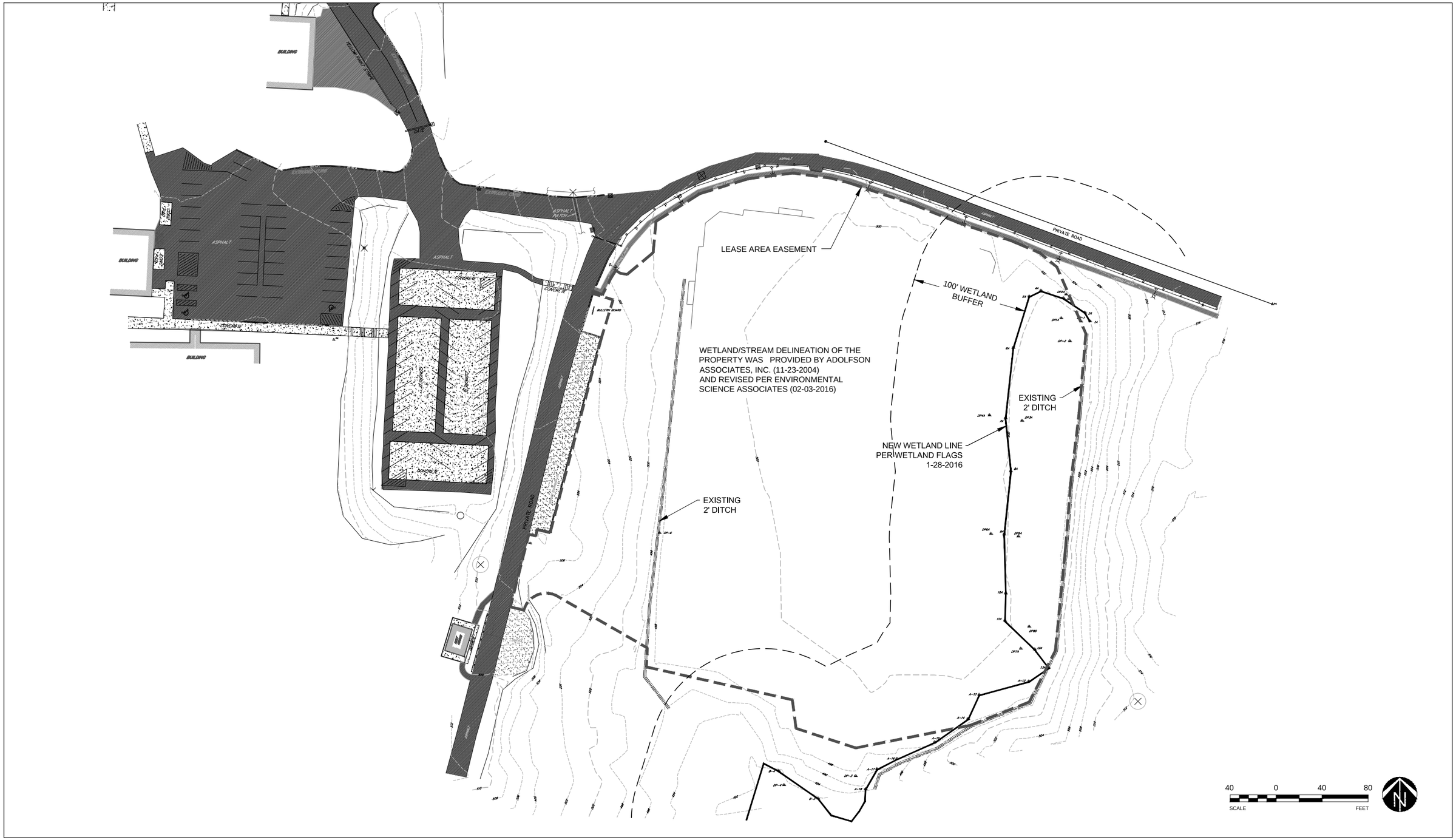
G:\NATURAL SCIENCES\2007\207014 KenmoreOnCall\TA182D E StEdwardsBallfields\GIS\St. Edwards Soils.mxd

SOURCE: USDA, 2006; King County, 2006; NRCS, 2006

St. Edwards Ballfields.150866

Figure 2

Soils Mapping



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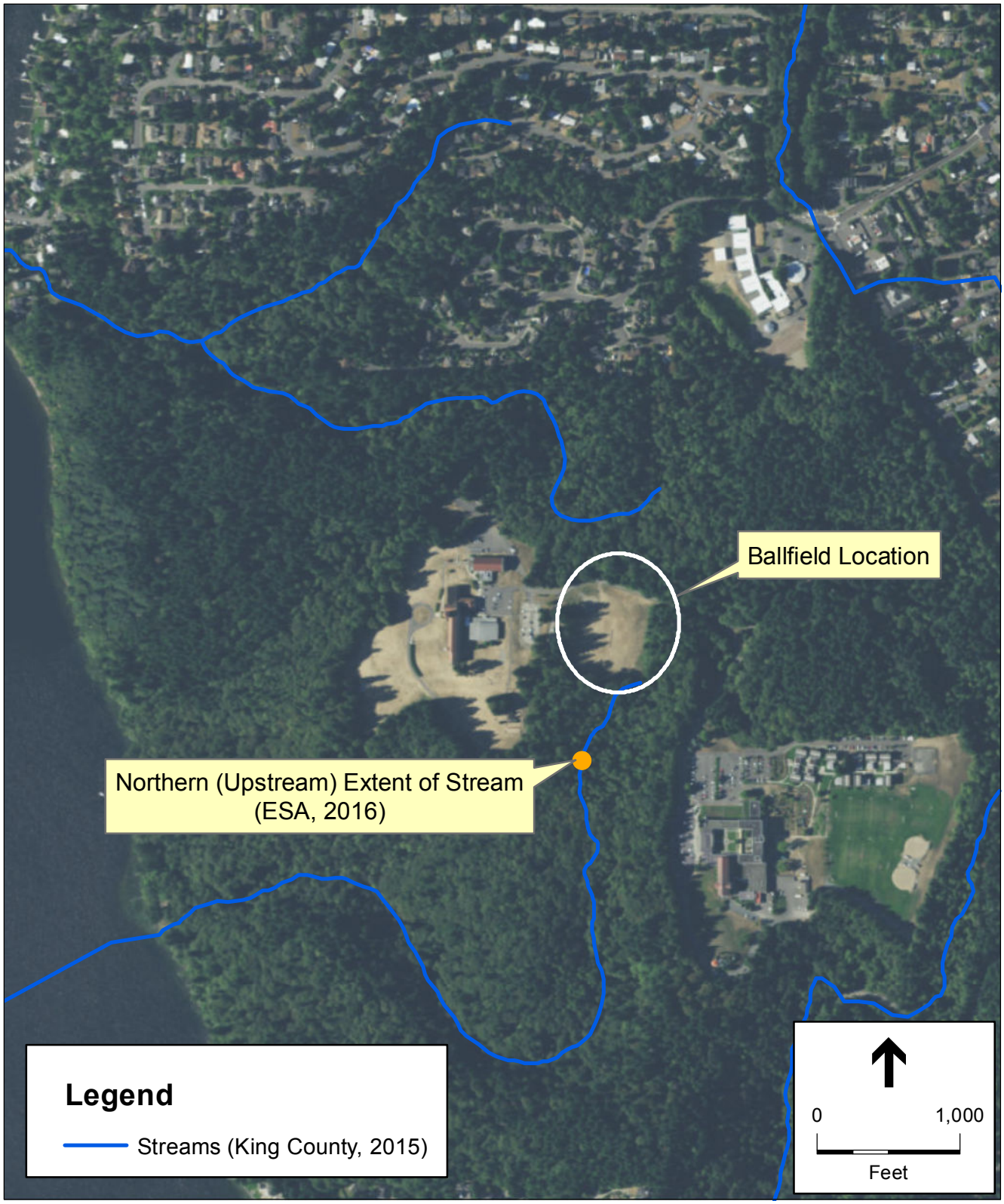
DATE: May 18, 2016 11:13am XREFS:TB_Figure_11x17 04-4046 KLLCS20 X-wetlandA

St. Edward Ballfield 150866

Figure 3

Wetland Survey Map



SOURCE: King County, 2015; ESA, 2016

St. Edwards Ballfields . 150866

Figure 4

Stream Mapping

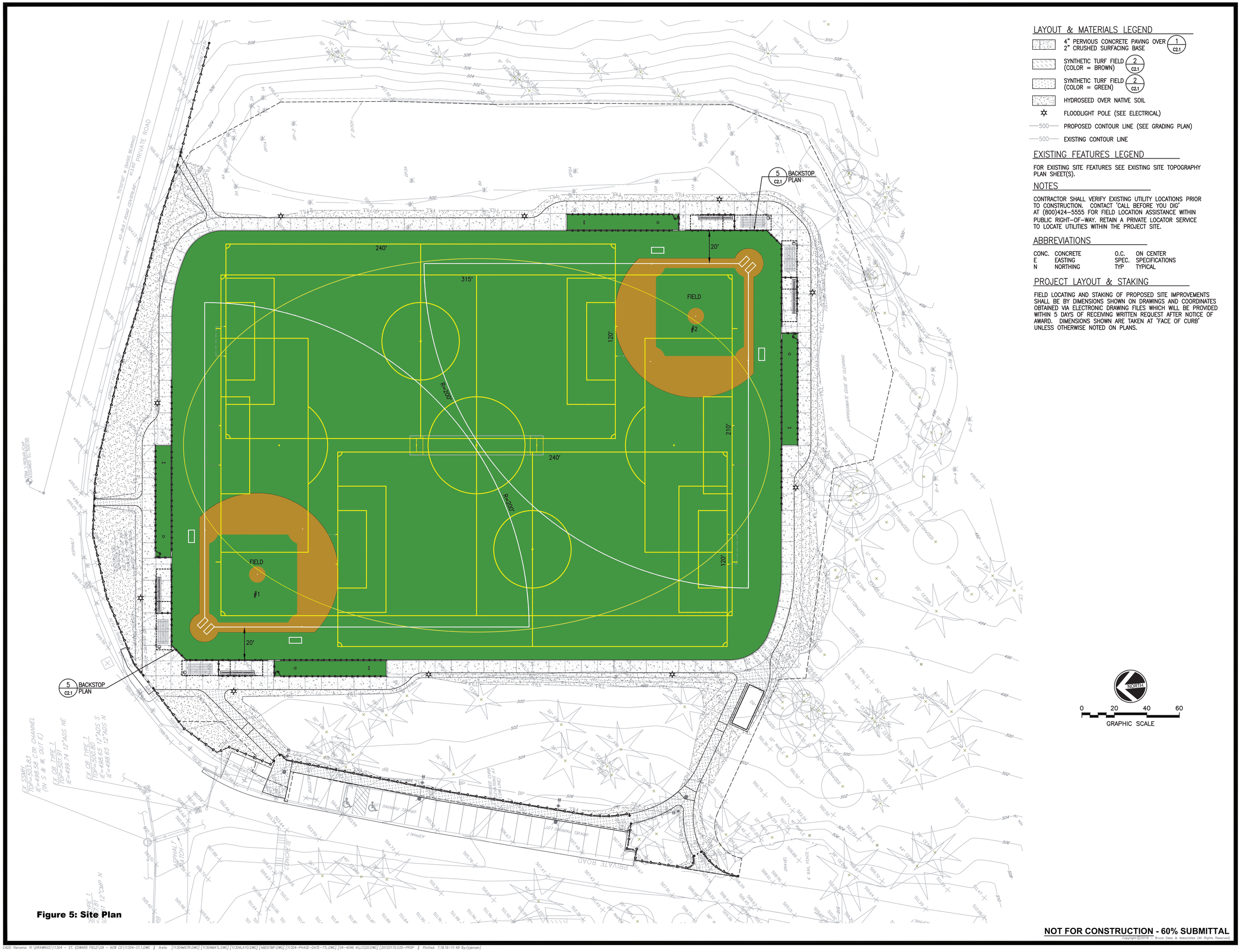


Figure 5: Site Plan

LAYOUT & MATERIALS LEGEND

- 4" PERVIOUS CONCRETE PAVING OVER 2" CRUSHED SURFACING BASE (1 / C2.1)
- SYNTHETIC TURF FIELD (COLOR = BROWN) (2 / C2.1)
- SYNTHETIC TURF FIELD (COLOR = GREEN) (2 / C2.1)
- HYDROSEED OVER NATIVE SOIL
- FLOODLIGHT POLE (SEE ELECTRICAL)
- 500 PROPOSED CONTOUR LINE (SEE GRADING PLAN)
- 500 EXISTING CONTOUR LINE

EXISTING FEATURES LEGEND

FOR EXISTING SITE FEATURES SEE EXISTING SITE TOPOGRAPHY PLAN SHEET(S).

NOTES

CONTRACTOR SHALL VERIFY EXISTING UTILITY LOCATIONS PRIOR TO CONSTRUCTION. CONTACT 'CALL BEFORE YOU DIG' AT (800)424-5555 FOR FIELD LOCATION ASSISTANCE WITHIN PUBLIC RIGHT-OF-WAY. RETAIN A PRIVATE LOCATOR SERVICE TO LOCATE UTILITIES WITHIN THE PROJECT SITE.

ABBREVIATIONS

CONC.	CONCRETE	O.C.	ON CENTER
E	EASTING	SPEC.	SPECIFICATIONS
N	NORTHING	TYP	TYPICAL

PROJECT LAYOUT & STAKING

FIELD LOCATING AND STAKING OF PROPOSED SITE IMPROVEMENTS SHALL BE BY DIMENSIONS SHOWN ON DRAWINGS AND COORDINATES OBTAINED VIA ELECTRONIC DRAWING FILES WHICH WILL BE PROVIDED WITHIN 5 DAYS OF RECEIVING WRITTEN REQUEST AFTER NOTICE OF AWARD. DIMENSIONS SHOWN ARE TAKEN AT 'FACE OF CURB' UNLESS OTHERWISE NOTED ON PLANS.

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BRUCE DEES & ASSOCIATES
Civil Engineering • Environmental • Water Resources
Land Planning • Transportation • Surveying
2366 Eastlake Ave. E., Seattle, WA 98102

DATE:	07.08.16
DWN:	SAJ
CHK:	ABD
APP:	ABD
DATE:	07.08.16

REVISIONS	DATE	BY

St. Edward Park Sports Fields
City of Kenmore, King County, Washington
SITE LAYOUT AND MATERIALS PLAN

JOB: 11304

SCALE: NOTED

C1.1

Sheet of .

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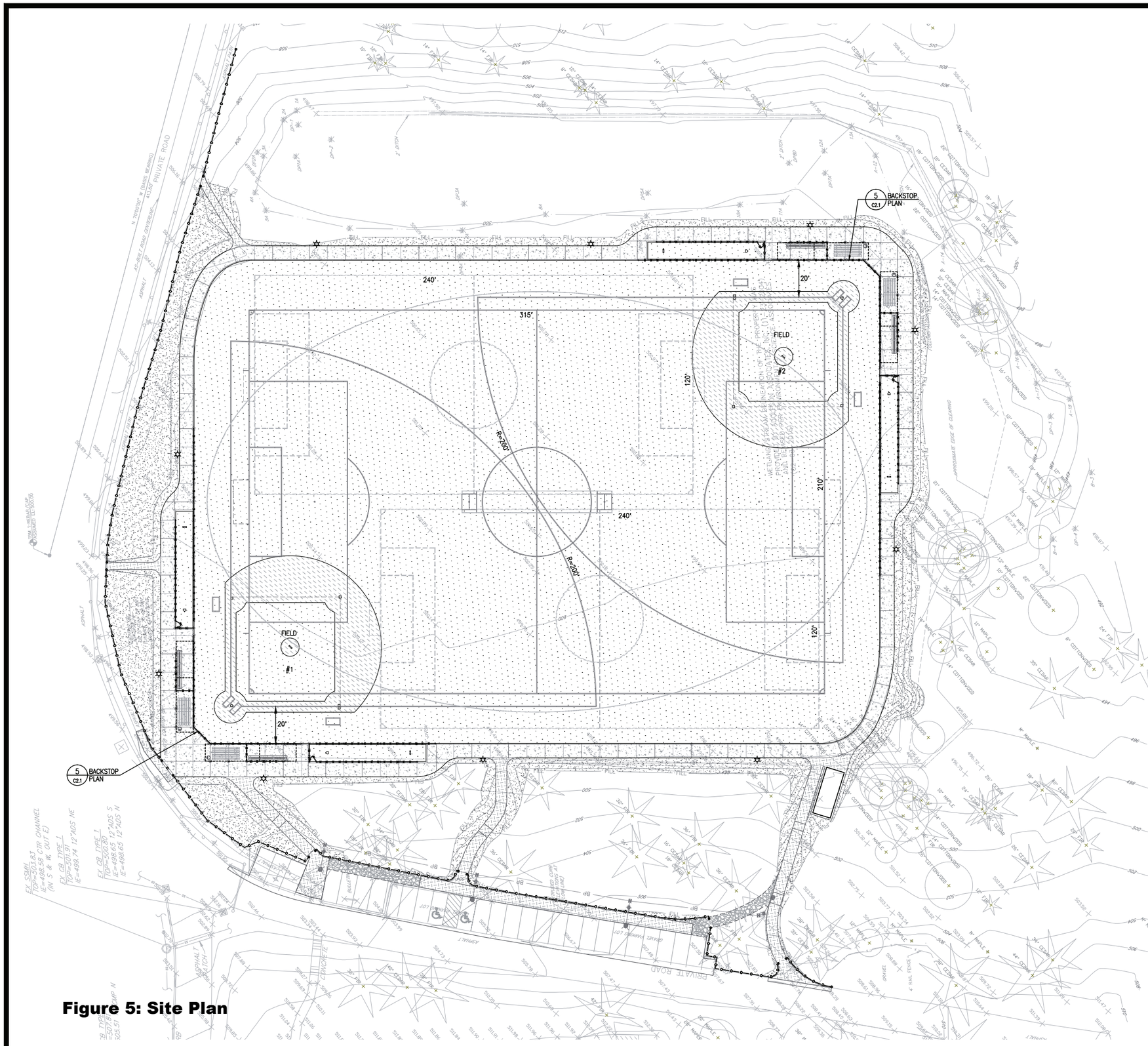

LAYOUT & MATERIALS LEGEND

- PATHWAY SURFACING MATERIALS (SEE CIVIL)
- 4" PERVIOUS CONCRETE PAVING OVER 2" CRUSHED SURFACING BASE (1 / C2.1)
- SYNTHETIC TURF FIELD (COLOR = BROWN) (2 / C2.1)
- SYNTHETIC TURF FIELD (COLOR = GREEN) (2 / C2.1)
- HYDROSEED OVER NATIVE SOIL
- FLOODLIGHT POLE (SEE ELECTRICAL)
- 500 PROPOSED CONTOUR LINE (SEE GRADING PLAN)
- 500 EXISTING CONTOUR LINE

EXISTING FEATURES LEGEND

FOR EXISTING SITE FEATURES SEE EXISTING SITE TOPOGRAPHY PLAN SHEET(S).

NOTES

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ABBREVIATIONS

CONC.	CONCRETE	O.C.	ON CENTER
E	EASTING	SPEC.	SPECIFICATIONS
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NORTH

0 20 40 60
GRAPHIC SCALE

Figure 5: Site Plan

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911 Western Ave., Suite 575, Seattle, WA 98104 206.622.0327

DATE: 07.29.16
DWN: SAJ
CHK: ABD
APP: ABD
DATE: 07.29.16

REVISIONS	DATE	BY

St. Edward Park Sports Fields
City of Kenmore, King County, Washington

SITE LAYOUT AND MATERIALS PLAN

JOB: 11304

SCALE: NOTED

C1.1

Sheet 13 of 17

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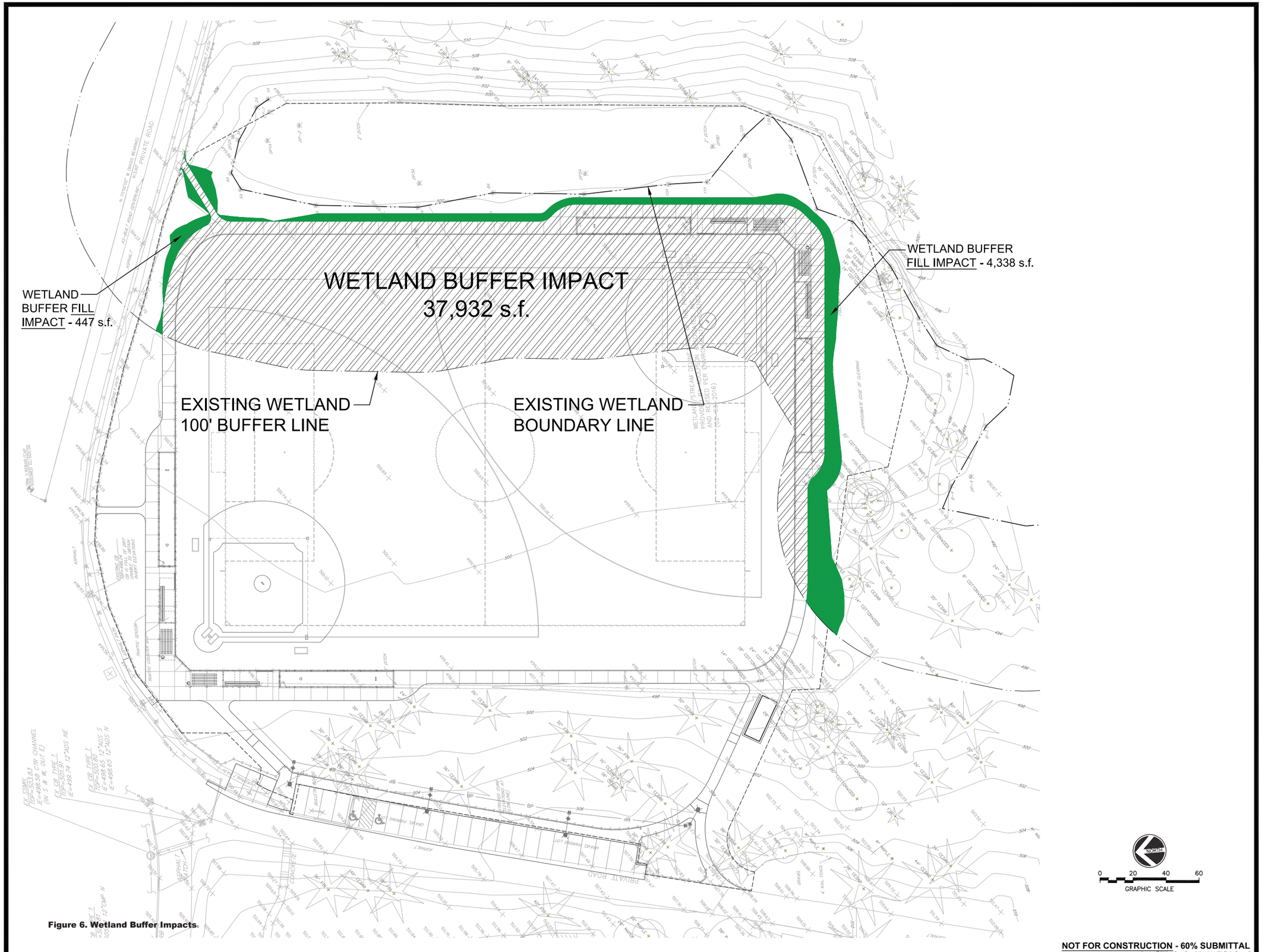

Figure 6. Wetland Buffer Impacts.

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DWN:	SAJ
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APP:	ABD
DATE:	07.08.16

REVISIONS	DATE	BY

St. Edward Park Sports Fields
City of Kenmore, King County, Washington

WETLAND & BUFFER IMPACTS

JOB: 11304

SCALE: NOTED

W1.1

Sheet of .

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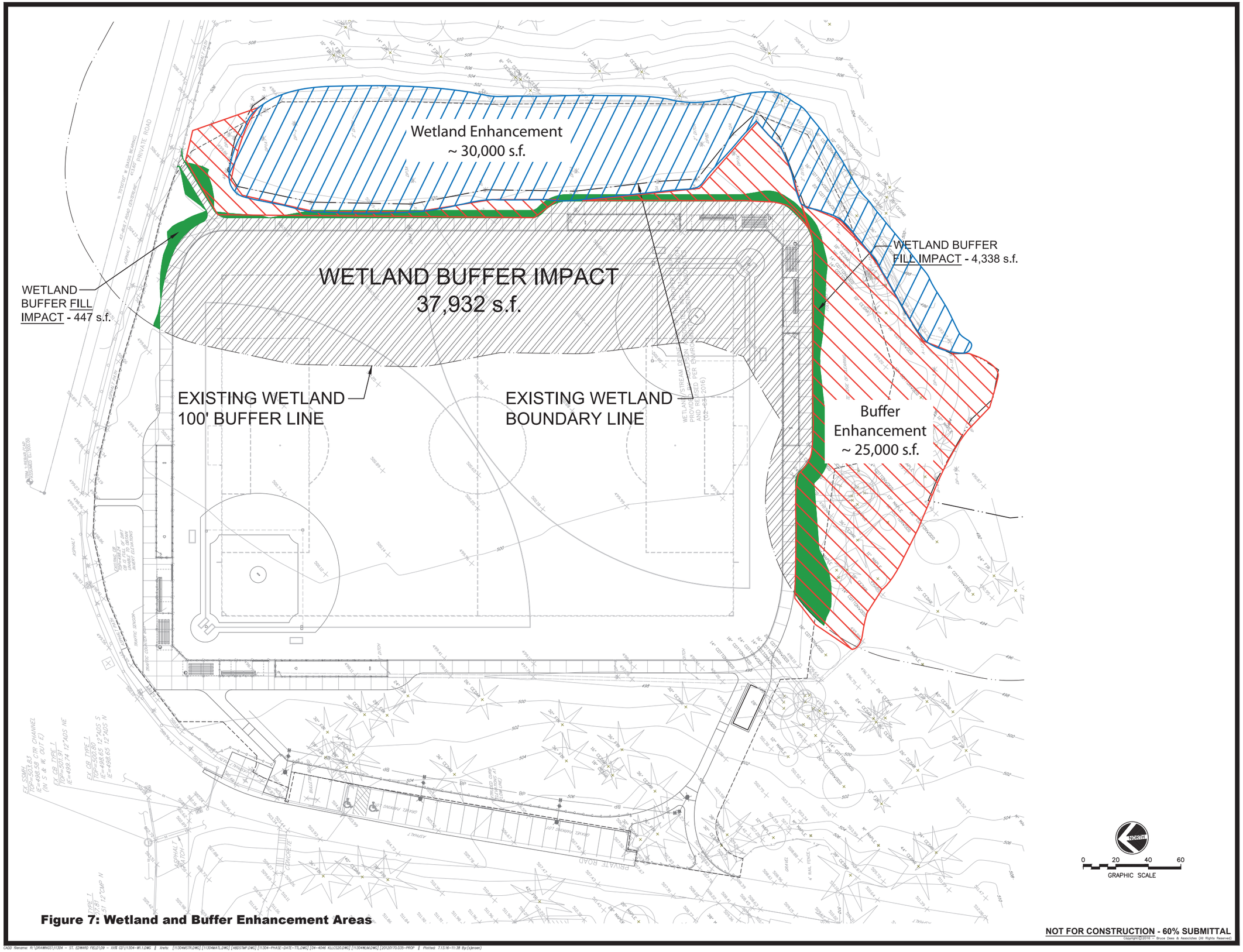

Figure 7: Wetland and Buffer Enhancement Areas

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