WETLANDS AND DRAINAGE CORRIDORS EVALUATION AND DELINEATION REPORT and MITIGATION PLAN for Reasonable Use Permit

Parcel number **1238500350**

91xxx – 128th Ave NE
Kirkland, WA

Prepared for:

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EXECUTIVE SUMMARY

The Gong Project Site, 91xxx – 128th Ave NE, City of Kirkland, WA, Parcel number 1238500350 is approximately 36,658 sq. ft., located generally in the city of Kirkland, Washington. An assessment of this project area following the procedures outlined in the *Washington State Wetlands Identification and Delineation Manual* (Wash. Manual), the *Corps of Engineers Wetland Delineation Manual* (1987 Manual), *Revised Washington State Wetland Rating System(WSWRS),* and City of Kirkland Zoning Code Title 23-90 resulted in the identification of one wetland area and one stream.

The project site is vacant. The site is forested, with a drainage transecting the site east to west and a wetland associated with the drainage.

Onsite assessment included an evaluation of the function and value rating for the wetland, a classification of each wetland and stream following the U.S. Fish and Wildlife Service methods, a categorization of each wetland and drainage following City of Kirkland Zoning Code Ch. 90 – *Drainage Basins*, and an identification of the City of Kirkland buffer width.

WETLAND	SIZE (square feet)	City of Kirkland CATEGORY	WA WETLAND RATING SCORE	GENERAL BUFFER WIDTH	Adjustment by Function And Land Use	Buffer Total
A	*32,215	II	55	75 ft.	+0 ft.	75 ft.

*denotes wetland continues offsite

The wetland was delineated and categorized as a PFOC system, the stream was located, and the extents of the Critical Areas was measured and quantified.

The Seattle District U.S. Army Corps of Engineers, the Washington Department of Ecology, and City of Kirkland (as well as a number of other resource agencies) regulate activities in and around identified wetland and stream areas. Such regulations focus on the avoidance of adverse impacts to wetlands and the mitigation of such impacts that cannot be avoided. In addition, City of Kirkland has established criteria to categorize wetlands for purposes of regulation and requires a buffer along wetland and drainage corridor areas.

To develop the site as a single-family home, construction must encroach into the standard buffers for the wetland and stream. To mitigate for the encroachment into the standard buffer, the impacted area and retained wetland will be revegetated with native trees and shrubs in wetlands and buffers for Critical Area mitigation.

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STANDARD OF CARE

Prior to extensive site planning, this document should be reviewed and the wetland boundaries verified by the appropriate resource and permitting agencies. Wetland boundaries, wetland classifications, wetland ratings, and proposed buffers must be reviewed and approved by City of Kirkland Planning and Land Services and potentially other regulatory agencies. H & S has provided professional services that are in accordance with the degree of care and skill generally accepted in the nature of the work accomplished. No other warranties are expressed or implied. H & S is not responsible for design costs incurred before this document is approved by the appropriate resource and permitting agencies.

Mark Heckert

Mark Heckert
Principal
H & S Consulting

INTRODUCTION

This report details the culmination of activities and onsite evaluations undertaken to complete a wetland and drainage corridor evaluation as an element of the planning and site development of the **Gong Project Site**. The Gong Project Site is located generally in the northeast corner of the City of Kirkland, Washington (Figure 1). The project site is vacant.

The evaluation and delineation of onsite and adjacent wetlands and drainage corridors is a vital element in the planning and selection of a site development action. The goal of this approach is to assure that planned site development does not result in adverse environmental impacts to regulated wetlands, streams, and their associated protective buffer areas.

Wetlands are generally defined as **"those areas that are inundated or saturated by surface water or ground water 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."**
(City of Kirkland Title 90.30)

STUDY PURPOSE

The purpose of this document is to present the results of an onsite assessment and evaluation of wetland areas and grading and fill impacts within the Gong Project Site following the methods and procedures outlined in the *Washington State Wetlands Identification and Delineation Manual* (Wash. Manual), *Revised Washington State Wetland Rating System(WSWRS),* the *Corps of Engineers Wetland Delineation Manual-2008 supplement* (2008 Supplement) and the Washington Department of Natural Resources (WDNR) Forest Practice Rules. Onsite assessment noted that there were no differences in the identified wetland boundaries as a result to using either the Wash. Manual or the 1987 Manual. Drainage corridors were also assessed in accordance with the criteria established by City of Kirkland and the State of Washington Department of Natural Resources (WDNR) Forest Practice Rules (WAC 222-16-030). This study was designed to accommodate site planning and potential regulatory actions and is suitable for submittal to federal, state, and local authorities for wetland and stream boundary verification and permitting actions.

SITE DESCRIPTION

The project area was generally rectangular, approximately 36,127 sq. ft., located in Kirkland, Washington. The project area was bounded on the east by 128th Ave NE, and on the west by a large-lot single-family home. The project area was bounded on the north by multi-family and south by a vacant parcel.

BACKGROUND INFORMATION

NATIONAL WETLAND INVENTORY

The National Wetland Inventory (NWI) mapping completed by the U.S. Fish and Wildlife Service was reviewed as a part of this assessment (Figure 2). This mapping resource identified a Palustrine, Forested, Seasonally-flooded (PFOC) fresh water wetland throughout the site.

CITY OF KIRKLAND SENSITIVE AREAS MAP

The City of Kirkland Sensitive Areas Mapping was reviewed as a part of this assessment. This mapping resource identified a large wetland complex encompassing the project site. A tributary of Forbes Creek flows through the site, flowing west, confluencing with Forbes Creek, then flowing into Juanita Bay 2.5 miles west.

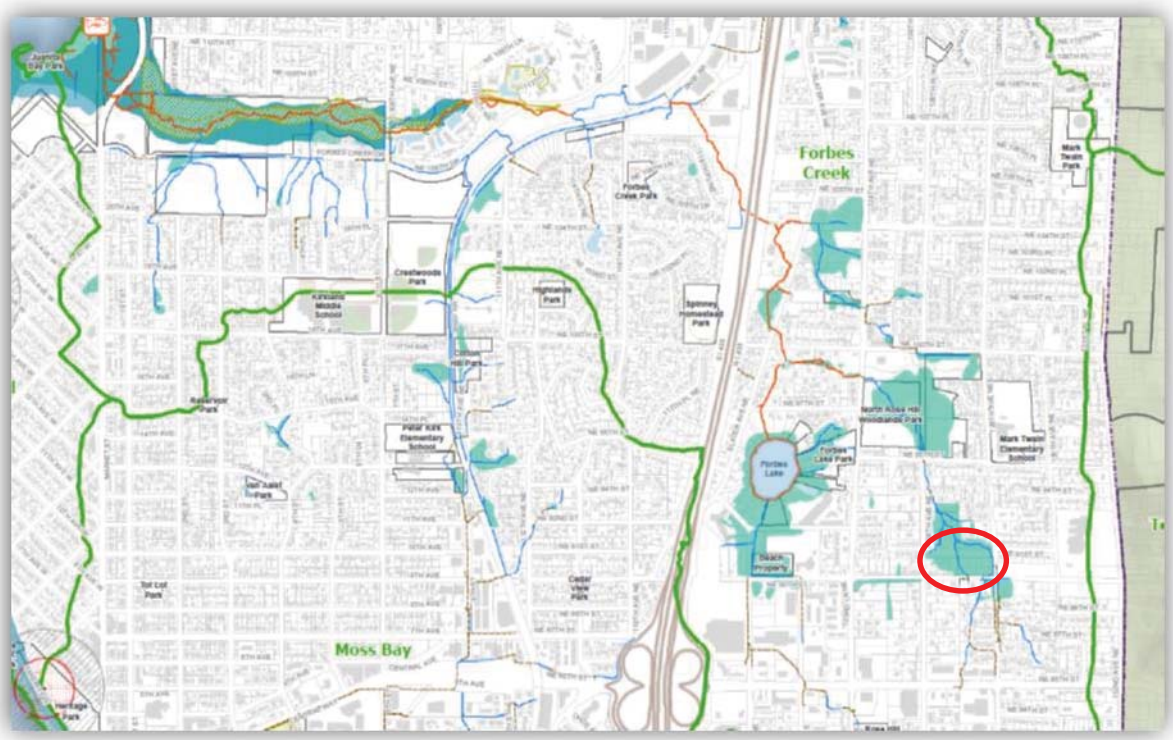

Fig. 3 City of Kirkland Sens. Areas Map

KING COUNTY WETLAND INVENTORY and DNR WATER TYPE

The King County Wetland Inventory Mapping and WA DNR Water Type mapping was reviewed as part of this assessment (Figure 4). This mapping resource did not identify any wetlands on, or adjacent to, the project site. A typed water was identified as flowing through the site and west.

PREVIOUS ASSESSMENTS

A city-wide wetland assessment by the Watershed Co.(*Kirkland Streams, Wetlands, and Wildlife Study, 1998*) documented the stream as a tributary to Forbes Cr. and the wetland on the site. The wetland was designated "Forbes 19".

> "Upstream of Interstate 405, Forbes Creek branches out into various smaller tributaries, one of which is considered to be the main stem of Forbes Creek and flows out of Forbes Lake. The other most prominent tributary flows through the extensive wetlands upstream of 124th Avenue NE, and another wetland area south of NE 95th Street and between 126th Avenue NE and 128th Avenue NE. Cutthroat trout were found in this latter tributary up to, but not upstream of, 124th Avenue NE. They probably also inhabit the main stem of Forbes Creek up to Forbes Lake."
>
> "The upper Forbes area includes four other relatively large wetlands east of the freeway. These are Forbes 9, 14, 17, and 19 as shown on the maps and are all connected hydrologically by Forbes Creek and tributaries. They are diverse systems which include forested, shrub, and emergent plant communities, as well as open water at Forbes Lake. Structural and plant species diversity contribute to their value, and special habitat features such as snags and cavities also are present in these areas. Each of these four wetlands was rated high quality for the functions evaluated."

ONSITE ANALYSIS

CRITERIA FOR WETLAND AND STREAM IDENTIFICATION

Wetlands are transitional areas between aquatic and upland habitats. In general terms, wetlands are lands where the extent and duration of saturation with water is the primary factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface (Cowardin et al., 1979). Wetlands are generally defined within land use regulations as "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" (1987 Corps Manual).

Wetlands exhibit three (3) essential characteristics, all of which must be present for an area to meet the established criteria within the Wash. Manual and the 1987 Manual. These essential characteristics are:

1. **Hydrophytic Vegetation:** A predominance of plants that are typically adapted for life in saturated soils.

2. **Hydric Soil:** A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper horizons.

3. **Wetland Hydrology:** Permanent or periodic inundation, or soil saturation to the surface, at least seasonally.

A stream is generally defined as a location where surface waters produce a defined channel or bed. A defined channel or bed is typically an area which demonstrates clear evidence of the passage of water and includes, but not limited to, bedrock channels, gravel beds, sand and silt beds, and defined channel swales. A stream need not contain water year-round. A stream typically does not include irrigation ditches, canals, storm or surface water run-off devices, or other artificial watercourses unless the constructed watercourse conveys a stream which naturally occurred prior to the construction of such watercourse.

STUDY METHODS

H & S completed a specific onsite evaluation of the project site on January 28, 2013. The objective of this evaluation was to define and delineate potential wetland and drainage corridor areas which may be present within and adjacent to the project area as defined by the three-parameter criteria test noted within the Wash. Manual and 2008 Supplement, and the water-typing criteria noted within the WDNR Forest Practice Rules (WAC 222-16-030).

Boundaries between wetland and non-wetland areas were established by examining the transitional gradient between wetland and non-wetland characteristics criteria along transects through the site. Delineation was performed using the *routine methodology for areas smaller than five acres* as detailed in the CoE 2008 Supplement. City of Kirkland Wetland category was derived utilizing the *City of Kirkland Wetland Rating Form*(Attached).

FIELD OBSERVATION

As defined by existing site conditions and aerial photos, the project site area has been unmanaged for many years with clearing and forestry activities the only actions within the parcel.

- **Soils**

The eastern edge of the project was generally comprised of loam, and gravelly sandy loam soils that appeared to drain moderately well. These areas did <u>not</u> exhibit redoximorphic features such as gleying, oxidized root channels, or mottles. This area did not meet the hydric soil criteria.

A drainage transected the site from southeast to northwest. This corridor was marked by a distinct topographic depression. West of this drainage surface soil layer within this depression was generally loam underlain with clay loam or gravelly clay loam. The sub-soil within this area was generally noted gravelly loam to gravelly clay loam, gray (10YR

4/2) in color, and exhibited prominent redoximorphic features (i.e. soil mottles, oxidized root channels). These soils met the hydric soil criteria.

- **Hydrology**

Hydrology within the overall project area appeared to be the result of seasonal inundation by the ditch, seasonal stormwater runoff from onsite and adjacent properties; short-term seasonal ponding within depressional areas and soil characteristics. Stormwater surface runoff through the overall project area was directed by topography generally into the drainage corridor, which flowed south through the project site.

- **Vegetation**

An unmanaged wet forest community dominated the west of the project site. Along the drainage corridor and continuing east, the site was dominated by a mixed wet forest plant community. This plant community was identified as hydrophytic in character (i.e. typical of wetlands).

WETLAND AND STREAM DETERMINATION

Wetland determination was based on sample plots which contained hydrophytic vegetation, hydric soils, and wetland hydrology in accordance with the 1987 Manual and the Wash. Manual. Based on these methods one wetland and one stream was identified within the project site.

WETLAND	SIZE (square feet)	City of Kirkland CATEGORY	WA WETLAND RATING SCORE	GENERAL BUFFER WIDTH	Adjustment by Function And Land Use	Buffer Total
A	*32,215	II	55	75 ft.	+0 ft.	75 ft.

*denotes wetland continues offsite

Wetland A: This wetland was located within a well–defined depression through the project site. This wetland included a forested overstory and three vegetative canopy classes. A stream transected the wetland and provides hydrological support for the wetland. This wetland appeared to remain ponded into the growing season and saturated for much of the year. Hydrology for this wetland was provided by the stream, seeps or springs and stormwater runoff from onsite and adjacent parcels.

Wetland A meets the U.S. Fish and Wildlife Service (USFWS) criteria for classification as a palustrine, forested, seasonally flooded (PFOC).
Since this wetland scored 55 Points by WSWRS, this wetland appeared to meet the criteria for designation as a City of Kirkland Category II Wetland. General buffer for a City of Kirkland Category II Wetland is 75 ft.. Based upon the criteria and the absence of extraordinary features, the buffer appears to be qualified for the 75 ft. buffer.

Buffer Width assigned by Rating is 75 feet, as measured perpendicular to the wetland edge.

Stream: This assessment identified one drainage feature within the project site that met the established criteria for designation as a "stream." This area is best defined as a swale which has been ditched to facilitate water flow. "Type IV streams" are those natural streams and drainage swales with channel width less than two feet taken at the ordinary high water mark, that do not contain fish habitat. This stream is best classified as a Type IV Stream by Washington State Hydraulic Code. The stream is a Class B stream by City of Kirkland regulation. Class B Streams mandate a 60 ft. buffer, as measured perpendicular to the OHWM. In this project site, the stream buffer is subsumed by the wetland buffer throughout the site.

WETLAND FUNCTION AND VALUE ASSESSMENT

Wetlands are known to perform significant roles in the ecosystem, some of which are of immediate value to society. These roles vary greatly with the size, type, hydrology, vegetation, and location of wetland areas. Although the ecological functions performed by these wetlands are complex, interrelated, and difficult to assess and quantify, methods have been developed for the U.S. Army Corps of Engineers (Adamus et al. 1987: Reppert et al. 1979). The functions provided by wetlands include hydrologic support, shoreline protection, stormwater and floodwater storage, water quality, groundwater recharge, and provision of wildlife habitat.

CATEGORIZATION BASED ON FUNCTIONS

The functions that a wetland performs are characterized by answering a series of questions that note the presence, or absence, of certain indicators. Indicators are easily observed characteristics that are correlated with quantitative or qualitative observations of a function (Hruby et al. 2000).

<u>Depressional or Flats Wetlands</u>
Potential to Improve Water Quality
Potential to Reduce Flooding and Stream Erosion

<u>Riverine and Freshwater, Tidal Fringe Wetlands</u>
Potential to Improve Water Quality
Potential to Reduce Flooding and Stream Erosion
Opportunity to Reduce Flooding and Stream Erosion

<u>Lake-fringe Wetlands</u>
Potential to Improve Water Quality
Opportunity to Improve Water Quality
Potential to Reduce Shoreline Erosion
Opportunity to Protect Resources from Shoreline Erosion

Slope Wetlands
Potential to Improve Water Quality
Opportunity to Improve Water Quality
Potential to Reduce Flooding and Stream Erosion
Opportunity to Reduce Flooding and Erosion

Functions Related to Habitat for All Classes of Wetlands
Potential to Provide Habitat
Opportunity to Provide Habitat

Score and Category Based on Functions
Wetlands that are Category I based on functions need to score 70 points or more. Total scores between 51-69 are Category II; 30-50 are Category III, and less than 30 are Category IV.

ONSITE WETLAND VALUATION

The wetland areas identified within the overall project area were evaluated following the functional value assessment process noted above.

As identified in this assessment **Wetland A** would be considered to have the overall functional rating of Category II.

- **Water Quality Functions** – 16 points
- **Hydrologic Functions** – 16 points
- **Habitat Functions** – 23 points
- TOTAL score for functions – 55 points

REGULATORY CONSIDERATION

The proposed alteration of lands defined by various federal, state, and local authority rules and regulations as "wetlands" raises environmental concerns that are generally addressed in the development review process. These concerns center on the development's potential adverse impacts to the structure, function, value, and size of these "wetland" areas. Such adverse impacts may include a reduction in wildlife habitats, reduced surface water quality, reduced water retention, a reduced ground water recharge rate, reduced plant species diversity, and the reduction in the function and value of other associated wetland and non-wetland characteristics.

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

Proposed action undertaken through either of the Corps of Engineers processes (Nationwide or Individual) are also subject to the provisions of the Washington State Department of Ecology Section 401 *Water Quality Certification Process*. Projects that may be exempt from Corps of Engineers Section 404 jurisdiction may still require review by the Washington State Department of Ecology to ensure consistency with State water quality protection provisions.

City of Kirkland-

- **90.30 Definitions**

1. Basin – A specific area of land drained by a particular watercourse and its tributaries.

2. Buffer – The area immediately adjacent to wetlands and streams that protects these sensitive areas and provides essential habitat elements for fish and/or wildlife.

3. Buffer Setback – A setback distance of 10 feet from a designated or modified wetland or stream buffer within which no buildings or other above-ground structures may be constructed, except as provided in KZC 90.45(2) and 90.90(2). The buffer setback serves to protect the wetland or stream buffer during development activities, use, and routine maintenance occurring adjacent to these resources.

4. Class A Streams – Streams that are used by salmonids. Class A streams generally correlate with Type 3 streams as defined in the Washington State Hydraulic Code.

- **90.90 Stream Buffers and Setbacks**

1. Stream Buffers – No land surface modification or tree removal shall occur and no improvement may be located in a stream or its buffer, except as provided in this section through KZC 90.120. See also KZC 95.23(5)(d)(2), Trees in Critical Areas or Critical Area Buffers; and KZC 95.50(11), Installation Standards for Required Plantings – Mitigation and Restoration Plantings in Critical Areas and Critical Area Buffers. Required, or standard, buffers for streams are as follows:

Stream Class	Primary Basins	Secondary Basins
A	75 feet	N/A
B	60 feet	50 feet
C	35 feet	25 feet

SELECTED DEVELOPMENT ACTION

The proposed onsite action selected focuses on the development of the site as a single-family house, in the extreme eastern portion of the lot. The site is entirely encumbered by wetland, stream and their respective buffers. To accommodate site development a Reasonable Use Permit must be granted (See attached map).

The Owner proposes installing a single-family house on the site, requiring a 54 ft. x 23 ft. (1,230 sq. ft.) development footprint for the house and 180 sq. ft. footprint for the access driveway. This will result in the encroachment into the buffer of the wetland and stream buffer of 1,800 sq. ft.. No wetland or stream will be filled or culverted for this development. This development scheme results in the least impact to the regulated features while allowing site development, and therefore is the minimum necessary to accommodate development and obtain reasonable use of the site.

To mitigate for the unavoidable impact to the critical areas buffers on the site, the remainder of the site will be enhanced through the planting of native trees to restore the native forest character to the wetland.

Development will terminate 10 ft. east of the OHWM of the stream, and at the wetland edge. This boundary will be fenced and signed to inhibit further encroachment. No other development activity will be proposed in the wetland or buffer area.
West of this boundary, 2,000 sq. ft. of the wetland will be cleared of invasive blackberry (*Rubus spp.*) and 180 tree starts will be planted (averaging 18 ft. on center, ½ density of complete restoration planting).
Exposed soil areas will be seeded in ground cover.

RESTORATION PLANTING GUIDELINES

Plant trees at on average 18 ft. on center spaced by opportunity through the wetland.

SELECTED PLANT COMMUNITIES

The plant communities and plants selected for the wetland area will be obtained as nursery stock. These selected species are native and commonly occur in the local area. The plant species prescribed are selected to increase plant diversity, match pre-development communities, increase wildlife habitats, protect local water quality, and enhance the aquatic environment.

PLANTING AREA: WETLAND A

	COMMON NAME SCIENTIFIC NAME	LOCATION	PROPOSED SPACING (oc)	PROPOSED SIZE	INDICATOR STATUS
45	Western red cedar (THP) *Thuja plicata*	Wetland	18 ft	5 ft height minimum	FAC
45	Sitka spruce (PIS) *Picea sitchensis*	Wetland	18 ft	5 ft height minimum	FAC
45	Oregon ash (FRL) *Fraxinus latifolia*	Wetland	18 ft	4 ft height minimum	FACW
45	Western crabapple (PYF) *Pyrus fusca*	Wetland	18 ft	4 ft height minimum	FACW

STANDARDS OF SUCCESS

Vegetation Sampling Methodology and Monitoring Schedule

Permanent vegetation sampling plots will be located within each planting community in areas representative of the communities being sampled. These sampling plots will be located along specific transects and at stationary identified points. Observations and measurements will be recorded for all plant species in order of dominance based on the relative percent cover for each species within the various vegetation strata. Sampling for tree and shrub species will be completed in 30-foot radius sampling plots. Stratified methods will be used to increase the precision of sampling data while also maintaining elements necessary for statistical inferences.
Performance Standards to be determined. Generally, 80% survival at termination of monitoring.

VEGETATION MAINTENANCE PLAN

Maintenance of the created wetland and buffer plant communities may be required to assure the long-term health and welfare of the wetland's and buffer's environmental functions. Such maintenance would be identified during the monitoring period and undertaken only following discussion and coordination with City of Kirkland wetland staff. The overall objective is to establish undisturbed plant communities that do not require maintenance.

Activities may include, but are not limited to, the removal of invasive non-native vegetation and the irrigation of selected areas. Established maintenance activities include the removal of any trash within the buffer.

SEEDING FOR EXPOSED BUFFER AREA

Seeding for all exposed surfaces within the buffer will be completed within two weeks following the completion of onsite grading.

CONTINGENCY PLAN

As a contingency, should the proposed compensatory plan fail to meet the performance criteria, the project proponent will undertake required remedial actions. Where plant survival is the failing component, the project proponent will replant and assure the success of this second planting which would be held to the same standard of success as measured by threshold criteria and monitoring processes. Should additional remedial actions be required, the project proponent will meet with City of Kirkland wetland staff to establish and define actions to be taken to meet the desired goal of this program.

PLANTING NOTES

All plant materials shall be native to the southern Puget Sound Region. The onsite biologist shall inspect plant materials to assure the appropriate plant schedule and plant characteristics are met.

The project proponent shall warrant that all plants will remain alive and healthy for a period of five years following completion of planting activities. The project proponent shall replace all dead and unhealthy plants with plants of the same specifications.

Monitoring programs

Monitor for a minimum of five years to include preparation of an as-built plan; biannual monitoring and preparation of annual monitoring reports following implementation; and a maintenance plan. Monitoring reports shall be submitted to the director by December 1st of the year in which monitoring is conducted. The reports are to be prepared by a qualified consultant and must contain all qualitative and quantitative monitoring data, photographs, and an evaluation of each of the applicable performance standards. If performance standards are not being met, appropriate corrective or contingency measures must be identified and communicated to the director and upon concurrence, implemented to ensure that performance standards will be met;

FINANCIAL GUARANTEE

Financial guarantee will be provided for this project and will be defined in two parts. Part One (Construction Guarantee) will be associated with the initial onsite compensation elements of the proposed plan. Part Two (Performance Guarantee) will be associated with the monitoring and reporting elements of the proposed compensation plan. These bonds will be held by City of Kirkland and be equal to 125% of the actual estimated costs for identified activities. This increased percentage will allow for adequate funds to be available as a contingency should actions be required to meet the goals of these plans.

The Construction Guarantee will be deemed to be released by City of Kirkland upon the successful completion of the initial onsite compensation elements and the acceptance by City of Kirkland. The Performance Guarantee will be deemed to be released upon meeting the established threshold criteria and acceptance by City of Kirkland of the required reporting documents.

FIGURES

REFERENCE LIST

Adamus, P.R., E.J. Clairain Jr., R.D. Smith, and R.E. Young. 1987. Wetland Evaluation Technique (WET); Volume II: Methodology, Operational Draft Technical Report Y-87, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

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Hitchcock, C.L., A. Cronquist. 1977. Flora of the Pacific Northwest. University of Washington Press. Seattle, Washington.

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U.S. Department of Agriculture, Soils Conservation Service. Soils Survey of King County Area Washington, February 1979.

Washington State Department of Ecology. 1997. Washington State Wetlands Identification and Delineation Manual. Publication Number 96-94.

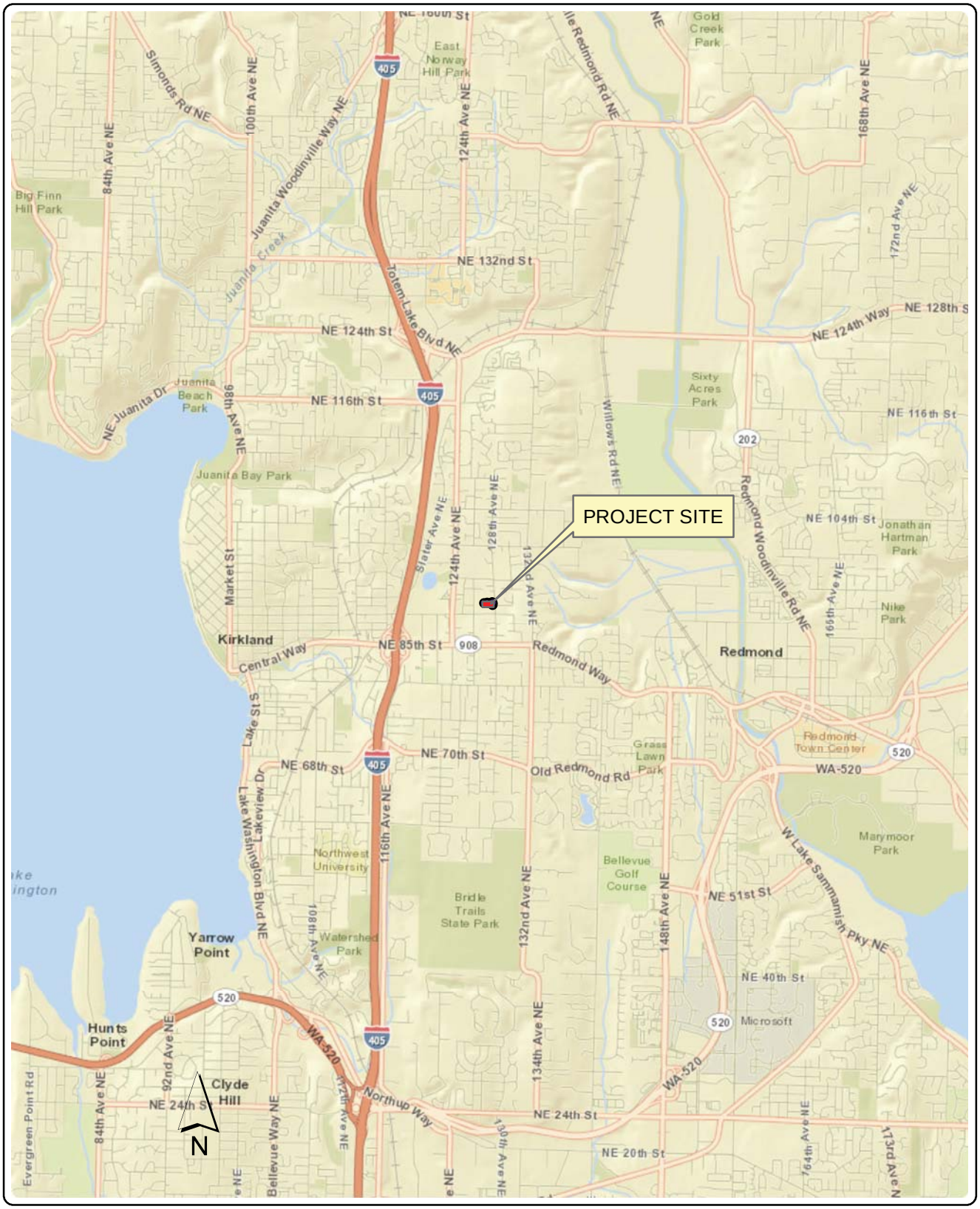
Washington State Department of Fisheries, Catalog of Washington Streams and Salmon Utilization, Volume 1., 1975

APPENDIX A - Field Data Forms

APPENDIX B – WSWRS Form

Revised Washington State Wetland Rating System
Rating Form

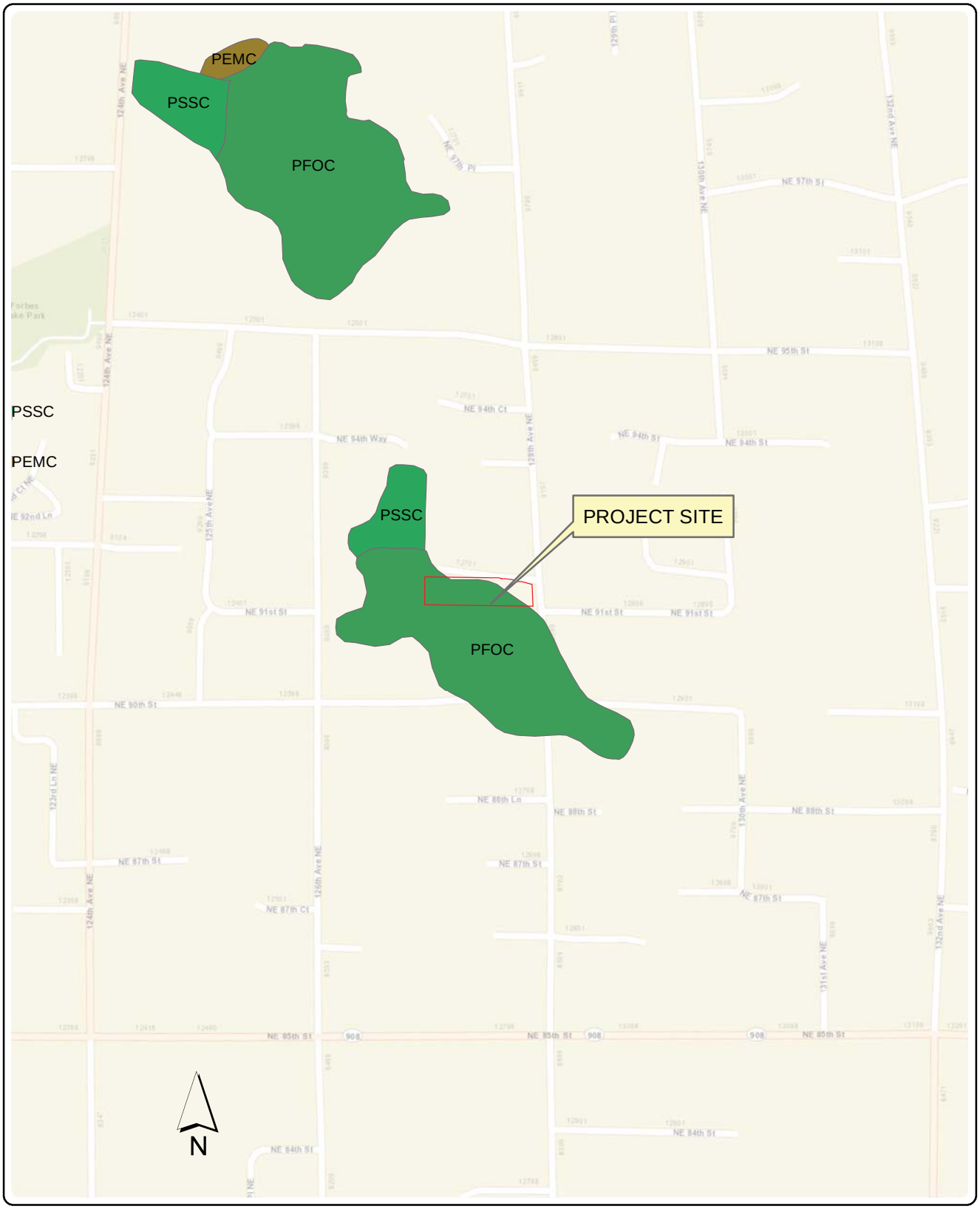
ATTACHMENT 1 – Wetland Delineation and Impact Area Map



1 in = 1 miles

0 0.5 1 2 Miles

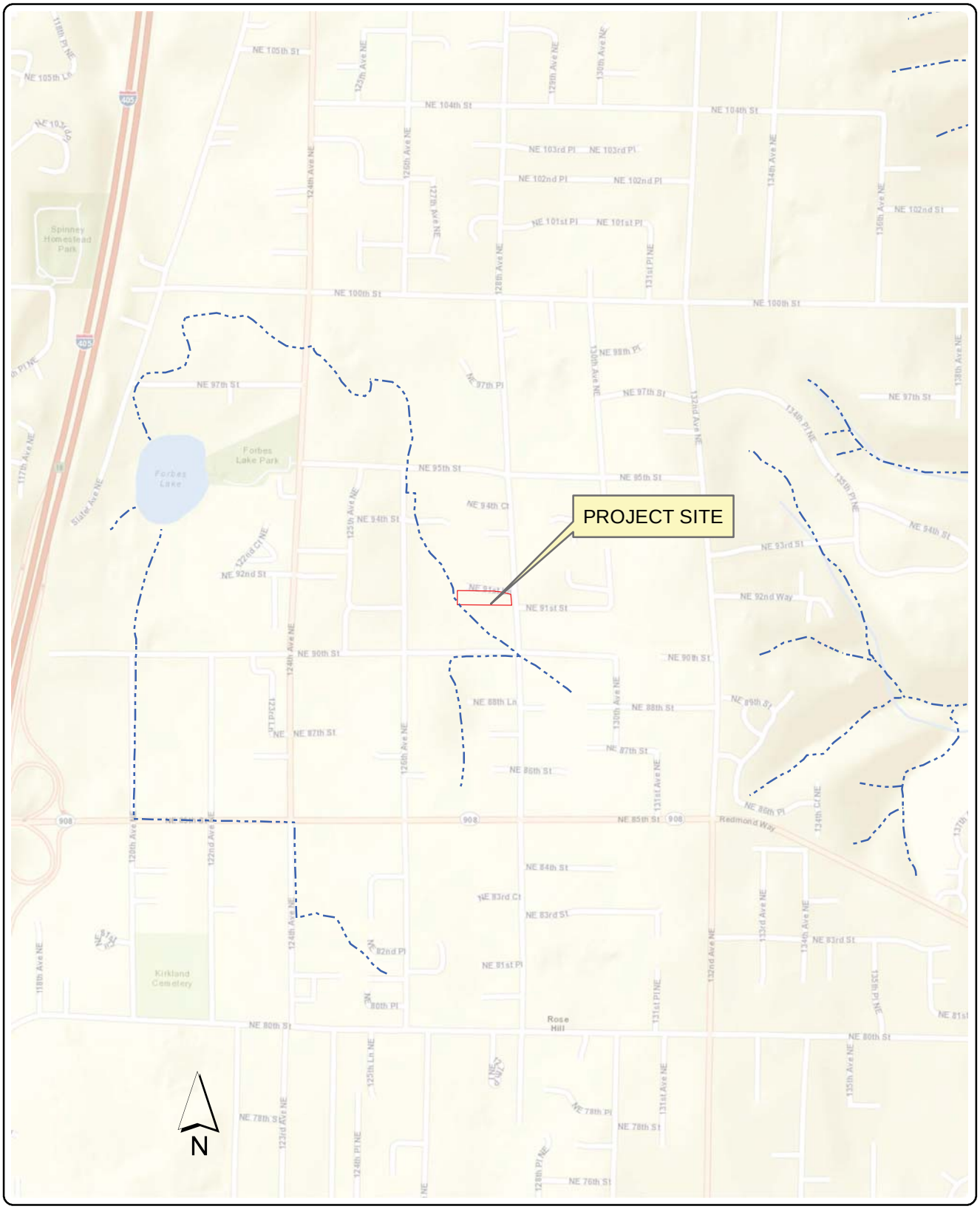
Fig. 1
Parcel # 1238500350
Vicinity map



1 in = 500 ft

0 250 500 1,000 Feet

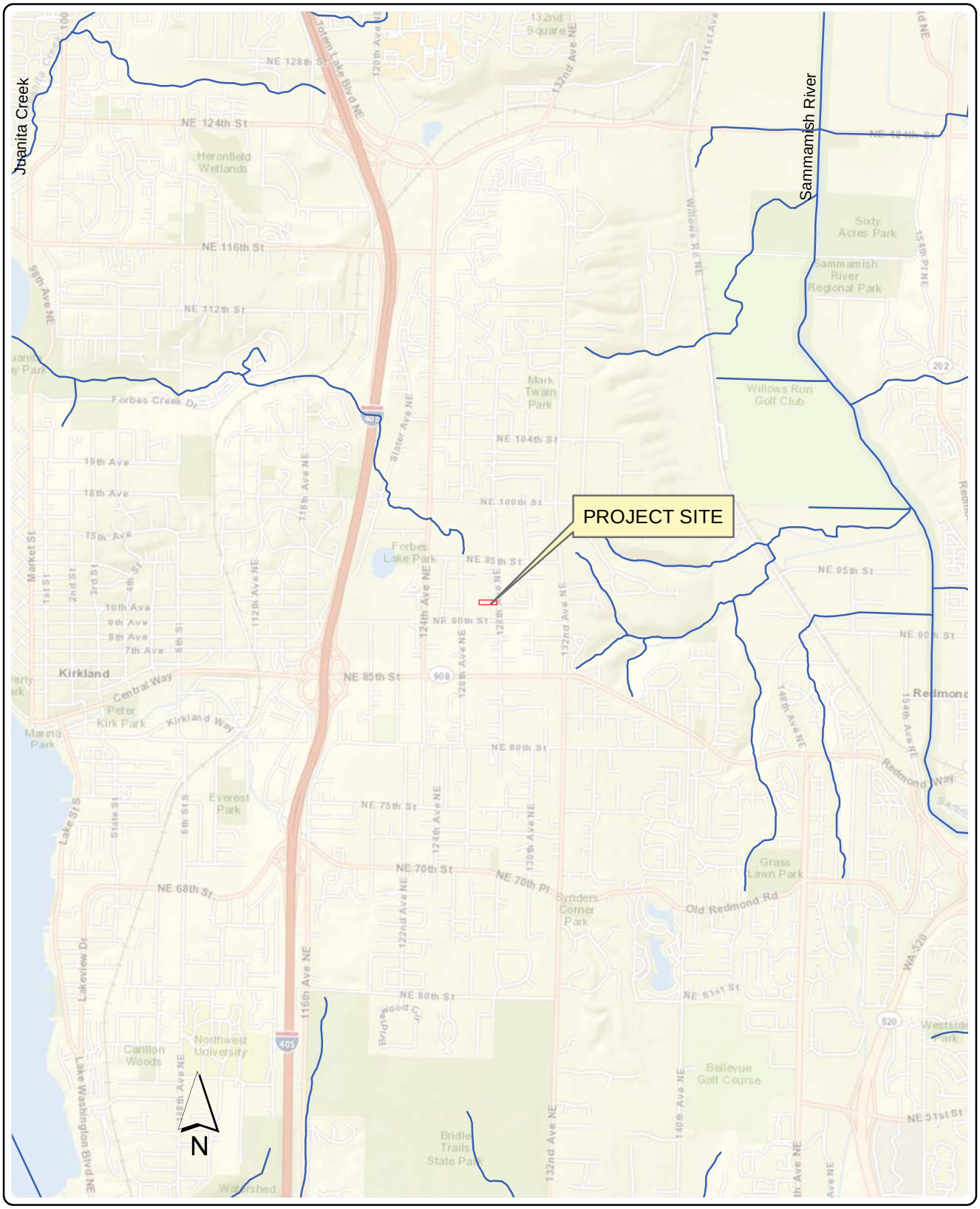
Fig. 2
Parcel # 1238500350
NWI Map



1 in = 1,000 ft

0 500 1,000 2,000 Feet

Fig. 4
Parcel # 1238500350
King County &
WDNR Hydro Map



1 in = 3,000 ft

0 1,500 3,000 6,000 Feet

Fig. 5
Parcel # 1238500350
WDFW Streams Map

GONG Wetland A

WETLAND FIELD DATA FORM

(Note: Applicable to Chapter 90 KZC, but not Chapter 83 KZC)

WETLAND FIELD DATA FORM

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

a. The wetland is contiguous to Lake Washington;

Xb. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils;

c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water;

d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or

e. The wetland contains state or federally listed threatened or endangered plant species.

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

1. Total wetland area

Estimate wetland area and score from choices	Acres		Point Value	Points
	>20.00	=	6	
	10-19.99	=	5	
	5-9.99	=	4	
	1-4.99	=	3	
	0.1-0.99	=	2	
	<0.1	=	1	

2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.

	# of Classes		**Points**
Open Water: if the area of open water is >1/3 acre or >10% of the total wetland area	1	=	1
Aquatic Beds: if the area of aquatic beds is >10% of the open water area or >1/2 acre	2	=	3
Emergent: if the area of emergent class is >1/2 acre or >10% of the total wetland area	3	=	5
Scrub-Shrub: if the area of scrub-shrub class is >1/2 acre or >10% of the total wetland area	4	=	7
Forested: if the area of forested class is >1/2 acre or >10% of the total wetland area	5	=	10

3. Plant species diversity.

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species		Point Value	Class	# of Species		Point Value
Aquatic Bed	1-2	=	1	Scrub-Shrub	1-2	=	1
	3	=	2		3-4	=	2

	>3	=	3		>4	=	3
Emergent	1-2	=	1	Forested	1-2	=	1
	3-4	=	2		3-4	=	2
	>4	=	3		>4	=	3

4. Structural diversity.

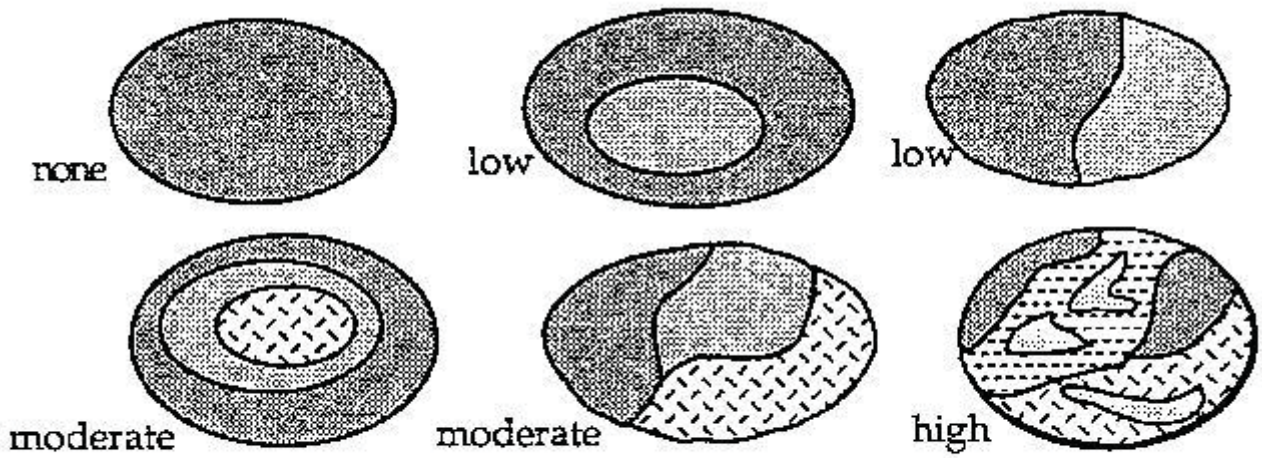
If the wetland has a forested class, add 1 point for each of the following attributes present:

Trees >50′ tall	=	1
Trees 20′ to 49′ tall	=	1
shrubs	=	1
Herbaceous ground cover	=	1

5. Interspection between wetland classes.

Decide from the diagrams below whether interspection between wetland classes is high, moderate, low or none

3	=	High
2	=	Moderate
1	=	Low
0	=	None



6. Habitat features

Add points associated with each habitat feature listed:	=	3
Is there evidence of current use by beavers?	=	2
Is a heron rookery located within 300′?	=	1
Are raptor nest(s) located within 300′?	=	1
Are there at least 2 standing dead trees (snags) per acre?2	=	1
Are there any other perches (wires, poles, or posts)?	=	1
Are there at least 3 downed logs per acre?	=	1

7. Connection to streams

Is the wetland connected at any time of the year via surface water? (score one answer only)

Is the wetland connected at any time of the year via surface water?

To a perennial stream or a seasonal stream with fish	=	5
To a seasonal stream without fish	=	3
Is not connected to any stream	=	0

8. Buffers

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	70% X 0 =	0	0 =	0
Lawn, grazed pasture, vineyards or annual crops	20% X 1 =	20	1 =	20
Ungrazed grassland or orchards	% X 2 =		=	
Open water or native grasslands	% X 3 =		=	
Forest or shrub	10% X 4 =	40	2 =	80
			Add buffer total	100

Step 2: Multiply result(s) of step 1:

By 1 if buffer width is 25-50′

By 2 if buffer width is 50-100′

By 3 if buffer width is >100′

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

900-1200 = 4

600-899 = 3

300-599 = 2

100-299 = 1

9. Connection to other habitat areas:

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100′ wide with good forest or shrub cover to any other habitat area?	=	5
Is there a narrow corridor <100′ wide with good cover or a wide corridor >100′ wide with low cover to any other habitat area?	=	3
Is there a narrow corridor <100′ wide with low cover or a significant habitat area within 0.25 mile but no corridor?	=	1
Is the wetland and buffer completely isolated by development and/or cultivated agricultural land?	=	0

10. Scoring

Add the scores to get a total: __2____

Question: Is the total greater than or equal to 22 points?

Answer:YES

Yes = Type 2

No = Type 3

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 – Updated Oct. 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): WL A Date of site visit: 1/28/13

Rated by: M. Heckert Trained by Ecology? Yes Date of training: 5/05

SEC:_____ TWNSHP:_____ RNGE:_____ Is S/T/R in Appendix D? Yes_____ No: X

Map of wetland unit: Figure_____ Estimated size: 9 ac.

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland: I_____ II_____ III_____ IV_____

Category I =	Score > 70	Score for Water Quality Functions	16
Category II =	Score 51 - 69	Score for Hydrologic Functions	16
Category III =	Score 30 – 50	Score for Habitat Functions	23
Category IV =	Score < 30	TOTAL Score for Functions	55

Category based on SPECIAL CHARACTERISTCS of Wetland I_____ II Does not apply X

Final Category (choose the "highest" category from above) II(2)

Summary of basic information about the wetland unit.

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above		Check if unit has multiple HGM classes present	

Does the wetland being rated meet any of the criteria below? If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands that Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		X
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category 1 Natural Heritage Wetlands (see p. 19 of data form).		X
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		X
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands in to those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Vegetated Wetlands for Western Washington

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 (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**
If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?
YES – Freshwater Tidal Fringe **NO – Saltwater Tidal Fringe (Estuarine)**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is a Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were call estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. _____).

2. The entire wetland unit is flat and precipitation is 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 meet both of the following criteria?
_____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) where at least 20 acres (8ha) in size;
_____ At least 30% of the open water area is deeper than 6.6 (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland 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**?
NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
NO – go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland 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 two years.
NOTE: *The riverine unit can contain depressions that are filled with water when the river is not flooding..*
NO – go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time of 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 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 your wetland. 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 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	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

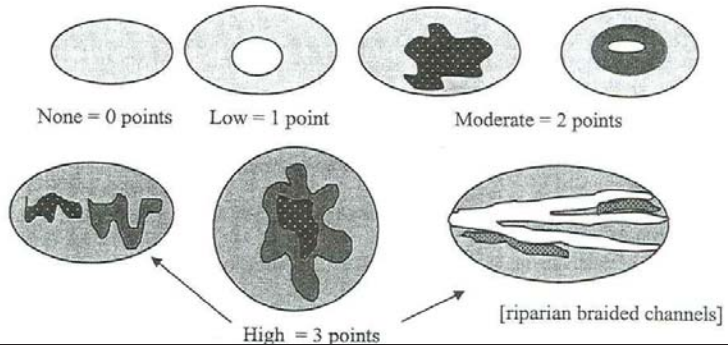
If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D	**Depressional and Flat Wetlands**	**Points**
	WATER QUALITY FUNCTIONS – Indicators that wetland functions to improve water quality.	(only 1 score per box)

D 1	**Does the wetland have the <u>potential</u> to improve water quality?**	*(see p.38)*
	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) ..... points = 3 Unit has an intermittently flowing, OR highly constricted, permanently flowing outlet..... points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*)..... points = 1 Unit is a "flat" depression (Q.7 on key), or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch ..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* **Provide photo or drawing**	**Figure ___** **1**
	D 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (*use NRCS definitions*) **YES** points = 4 **NO** points = 0	**0**
	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class): Wetland has persistent, ungrazed vegetation > = 95% of area ..... points = 5 Wetland has persistent, ungrazed vegetation > = 1/2 of area ..... points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area ..... points = 1 Wetland has persistent, ungrazed vegetation < 1/10 of area ..... points = 0 **Map of Cowardin vegetation classes**	**Figure __** **5**
	D 1.4 Characteristics of seasonal ponding or inundation: *This is the area of the wetland that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 years.* Area seasonally ponded is > 1/2 total area of wetland ..... points = 4 Area seasonally ponded is > 1/4 total area of wetland ..... points = 2 Area seasonally ponded is < 1/4 total area of wetland ..... points = 0 **Map of Hydroperiods**	**Figure ___** **2**
	Total for D 1 *Add the points in the boxes above*	**8**
D 2	**Does the wetland have the <u>opportunity</u> to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* _____ Grazing in the wetland or within 150 ft _____ Untreated stormwater discharges to wetland _____ Tilled fields or orchards within 150 ft. of wetland X_____ A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging X_____ Residential, urban areas, golf courses are within 150 ft. of wetland _____ Wetland is fed by groundwater high in phosphorus or nitrogen _____ Other _____ **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 44)* Multiplier **2**
◆	**<u>TOTAL</u> – Water Quality Functions** Multiply the score from D1 by D2; then ***add score to table on p. 1***	**16**
	HYDROLOGIC FUNCTIONS – Indicators that wetland unit functions to reduce flooding and stream degradation.	
D 3	**Does the wetland have the <u>potential</u> to reduce flooding and erosion?**	*(see p.46)*
	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) ..... points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet..... points = 2 Unit is a "flat" depression (Q.7 on key) or in the Flats class, with permanent surface outflow **and no obvious natural outlet** and/or outlet is a man-made ditch ..... points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet *(permanently flowing)*..... points = 0	**0**
	D 3.2 Depth of storage during wet periods. *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft. or more above the surface or bottom of the outlet..... points = 7 The wetland is a "headwater" wetland ..... points = 5 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 Wetland is flat (yes to Q.2 or Q.7 on key)but has small depressions on the surface that trap water ..... points = 1 Marks of ponding less than 0.5 ft ..... points = 0	**3**
	D 3.3 Contribution of wetland unit 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 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 unit is in the FLATS class..... points = 5	**5**
	Total for D 3 *Add the points in the boxes above*	**8**

D 4	**Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* _____ Wetland is in a headwater of a river or stream that has flooding problems. _____ Wetland drains to a river or stream that has flooding problems __X__ Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems _____ Other CLOVER CREEK WATERSHED **YES** multiplier is 2 **NO** multiplier is 1	*(see p. 49)* Multiplier **2**
◆	**<u>TOTAL</u> – Hydrologic Functions** Multiply the score from D3 by D4; then ***add score to table on p. 1***	16

Comments:

These questions apply to wetlands of all HGM classes.		**Points** (only 1 score per box)
	HABITAT FUNCTIONS – Indicators that wetland functions to provide important habitat.	
H 1	**Does the wetland have the potential to provide habitat for many species?**	
	H 1.1 Vegetation structure *(see P. 72)*: *Check the types of vegetation classes present (as defined by Cowardin) – Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres.* ____ Aquatic Bed X___ Emergent plants X___ Scrub/shrub (areas where shrubs have > 30% cover) X___ Forested (areas where trees have > 30% cover) *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. *Add the number of vegetation types that qualify. If you have:* **Map of Cowardin vegetation classes** 4 structures or more.....points = 4 3 structures..... points = 2 2 structures.....points = 1 1 structure ..... points = 0	**Figure ___** **4**
	H 1.2 Hydroperiods *(see p.73)*: *Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre 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 or more types present..... points = 2 X___ Occasionally flooded or inundated 2 types present ..... points = 1 X___ Saturated only 1 type present ..... points = 0 X___ Permanently flowing stream or river in, or adjacent to, the wetland ____ Seasonally flowing stream in, or adjacent to, the wetland ____ **Lake-fringe wetland .....= 2 points** ____ **Freshwater tidal wetland.....= 2 points** **Map of hydroperiods**	**Figure ___** **3**
	H 1.3 Richness of Plant Species *(see p. 75)*: 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)* *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 List species below if you want to: < 5 species .....points = 0 _____ _____ _____ _____	**1**
	H 1.4 Interspersion of Habitats *(see p. 76)*: Decided from the diagrams below whether interspersion between Cowardin vegetation (described in H1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.  Note: If you have 4 or more classes or 3 vegetation classes and open water, the rating is always "high". **Use map of Cowardin classes.**	**Figure ___** **3**
	H 1.5 Special Habitat Features *(see p. 77)*: *Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.* X Large, downed, woody debris within the wetland (> 4 in. diameter and 6 ft. long) X___ Standing snags (diameter at the bottom > 4 inches) in the wetland ____ Undercut banks are present for at least 6.6 ft. (2m) and/or overhanging vegetation extends at least 3.3 ft. (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft. (10m) ____ 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 turned grey/brown)* X___ At least 1/4 acre of thin-stemmed persistent vegetation 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 each stratum of plants *NOTE: The 20% stated in early printings of the manual on page 78 is an error.*	**4**
	H 1 TOTAL Score – potential for providing habitat *Add the points in the column above*	**15**

H 2	**Does the wetland have the <u>opportunity</u> to provide habitat for many species?**	(only 1 score per box)
	H 2.1 <u>Buffers</u> *(see P. 80)*: *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed".* ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% of circumference. No structures are within the undisturbed part of buffer (relatively undisturbed also means no grazing, no landscaping, no daily human use).....**points = 5** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference.....**points = 4** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 95% circumference.....**points = 4** ____ 100m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference.....**points = 3** ____ 50m (170 ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference .....**points = 3** **If buffer does not meet any of the criteria above:** ____ No paved areas (except paved trails) or buildings within 25m (80 ft) of wetland > 95% circumference. Light to moderate grazing or lawns are OK .....**points = 2** ____ No paved areas of buildings within 50m of wetland for > 50% circumference. Light to moderate grazing or lawns are OK .....**points = 2** ____ Heavy grazing in buffer .....**points = 1** ____ Vegetated buffers are < 2m wide (6.6 ft) for more than 95% circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland).....**points = 0** X___ Buffer does not meet any of the criteria above .....**points = 1** **Arial photo showing buffers**	**Figure ___** **1**
	H 2.2 <u>Corridors and Connections</u> *(see p. 81)* H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft. wide, has at least a 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(Dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* **YES** = **4 points** (go to H 2.3) **NO** = go to H 2.2.2 H. 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50 ft. wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? **YES** = **2 points** (go to H 2.3) **NO** = go to H 2.2.3 H. 2.2.3 Is the wetland: • Within 5 mi (8km) of a brackish or salt water estuary OR • Within 3 miles of a large field or pasture (> 40 acres) OR **YES** = 1 point • Within 1 mile of a lake greater than 20 acres? **NO** = 0 points	**1**

Comments:

	H 2.3 Near or adjacent to other priority habitats listed by WDFW (see p. 82): *(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)* Which of the following priority habitats are within 330 ft. (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ____ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ____ **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 p. 152*). ____ **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 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. **(**Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 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:** Woodlands 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*). _X___ **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*). ____ **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: pp. 167-169 and glossary in Appendix A).* ____ **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 7.6 m (25 ft) high and occurring below 5000 ft. ____ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. __X__ **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 > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats **= 4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat **= 1 point** No habitats = 0 points Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)	**3**
	H 2.4 Wetland Landscape: *Choose the **one** description of the landscape around the wetland that best fits (see p. 84)* • There are at least 3 other wetlands within 1/2 mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development..... points = 5 • The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 5 • There are at least 3 other wetlands within 1/2 mile, BUT the connections between them are disturbed. ..... points = 3 • The wetland fringe on a lake **with** disturbance and there are 3 other lake-fringe wetlands within 1/2 mile ..... points = 3 • There is at least 1 wetland within 1/2 mile ..... points = 2 • There are no wetlands within 1/2 mile ..... points = 0	**3**
	H 2 TOTAL Score – opportunity for providing habitat *Add the scores from H2.1, H2.2, H2.3, H2.4*	**8**
	TOTAL for H 1 from page 8	**15**
◆	**Total Score for Habitat Functions** Add the points for H 1 and H 2; then ***record the result on p. 1***	**23**

Comments:

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

	Wetland Type – *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	
SC1	**Estuarine wetlands?** *(see p.86)* Does the wetland unit 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** _____	
	SC 1.1 Is the wetland unit 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. 1** **N/A**
	SC 1.2 Is the wetland at least 1 acre in size and meets at least two of the following conditions? **YES** = Category I **NO** = Category II ____ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp,. are only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category 1. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. ____ At least 3/4 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 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual Rating** **I/II** **N/A**
SC2	**Natural Heritage Wetlands** *(see p. 87)* Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species. SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a natural heritage wetland? *(This question is used to screen out most sites before you need to contact WNHP/DNR.)* S/T/R information from Appendix D _____ or accessed from WNHP/DNR web site _____ **YES** _____ Contact WNHP/DNR (see p. 79) and go to SC 2.2 **NO** _____ SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as a site with state threatened or endangered plant species? **YES** = Category 1 **NO** _____ not a Heritage Wetland	**N/A** **Cat I** **N/A**
SC3	**Bogs** *(see p. 87)* Does the wetland **(or any part of the unit)** meet both the criteria for soils and vegetation in bogs? Use the key below to identify if the wetland is a bog. ***If you answer yes you will still need to rate the wetland based on its function.*** 1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of soil profile? (See Appendix B for a field key to identify organic soils)? **YES** = go to question 3 **NO** = go to question 2 2. Does the wetland have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? **YES** = go to question 3 **NO** = is not a bog for purpose of rating 3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? **YES** = Is a bog for purpose of rating **NO** = go to question 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" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog. 4. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine. WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover*)? **YES** = Category I **NO** = Is not a bog for purpose of rating	**Cat. I** **N/A**

SC4	**Forested Wetlands** *(see p. 90)* Does the wetland have at least 1 acre of forest that meet one of these criteria for the 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 function.* ____ **Old-growth forests**: (west of Cascade Crest) Stands of at least two three species forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm or more). NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter. ____ **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have an average diameters (dbh) exceeding 21 inches (53 cm); 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. **YES** = Category I **NO** = _____ not a forested wetland with special characteristics	**Cat. I** **N/A**
SC5	**Wetlands in Coastal Lagoons** *(see p. 91)* 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 surface 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 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 invasive plant species (see list of invasive species on p. 74). ____ At least 3/4 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 acre (4350 square ft.) **YES** = Category I **NO** = Category II	**Cat. I** **Cat. II** **N/A**
SC6	**Interdunal Wetlands** *(see p. 93)* Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? **YES** = Go to SC 6.1 **NO** _____ not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its 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 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is one acre or larger? **YES** = Category II **NO** = go to SC 6.2 SC 6.2 Is the wetland between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? **YES** = Category III	**Cat. II** **Cat. III** **N/A**
◆	**Category of wetland based on Special Characteristics** *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered **NO** for all types enter "Not Applicable" on p. 1	**N/A**

Comments:

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

Project/Site: GONG Parcel # 1238500350 City/County: KIRKLAND Sampling Date: 1/22/13

Applicant/Owner: RUI GONG State: WA Sampling Point: SP 2

Investigator(s): M. HECKERT Section, Township, Range: _____

Landform (hillslope, terrace, etc.): OLD FIELD Local relief (concave, convex, none): level Slope (%): 2%

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Norma Sandy loam NWI classification: PFOC

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: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	40	y	facw
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. Oemleria cerasiformis	20		FACU
2. Rubus procera	90		FACU
3.			
4.			
5.			
	100 = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	= Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 1	x 2 = 2
FAC species _____	x 3 = _____
FACU species 2	x 4 = 8
UPL species _____	x 5 = _____
Column Totals: 3 (A)	10 (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 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:

SOIL

Sampling Point: _____

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
0-8	10/YR 3/3	100					loam	
8-18	10yr 4/3	100					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 Soil 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 Stressed 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): 2

Water Table Present? Yes ☐ No ☒ Depth (inches): 0

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:

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

Project/Site: GONG Parcel # 1238500350 City/County: KIRKLAND Sampling Date: 1/22/13

Applicant/Owner: RUI GONG State: WA Sampling Point: SP 1

Investigator(s): M. HECKERT Section, Township, Range: _____

Landform (hillslope, terrace, etc.): OLD FIELD Local relief (concave, convex, none): level Slope (%): 2%

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Norma Sandy loam NWI classification: PFOC

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: 10M)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	40	y	facw
2.	70		
3.			
4.			
		= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. Rubus spectabilis			FAC+
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____

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		x 1 =
FACW species	1	x 2 = 2
FAC species	1	x 3 = 3
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	2 (A)	5 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

- ☒ Rapid Test for Hydrophytic Vegetation
- ☒ Dominance Test is >50%
- ☒ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 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:

SOIL

Sampling Point: _____

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
0-12	10/YR2/1	100					loam	
12-18	10yr 4/1						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 Soil 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 Stressed 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): 2

Water Table Present? Yes ☒ No ☐ Depth (inches): 0

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: