City of Sweet Home
Local Wetlands Inventory

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TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLES

1.0 INTRODUCTION

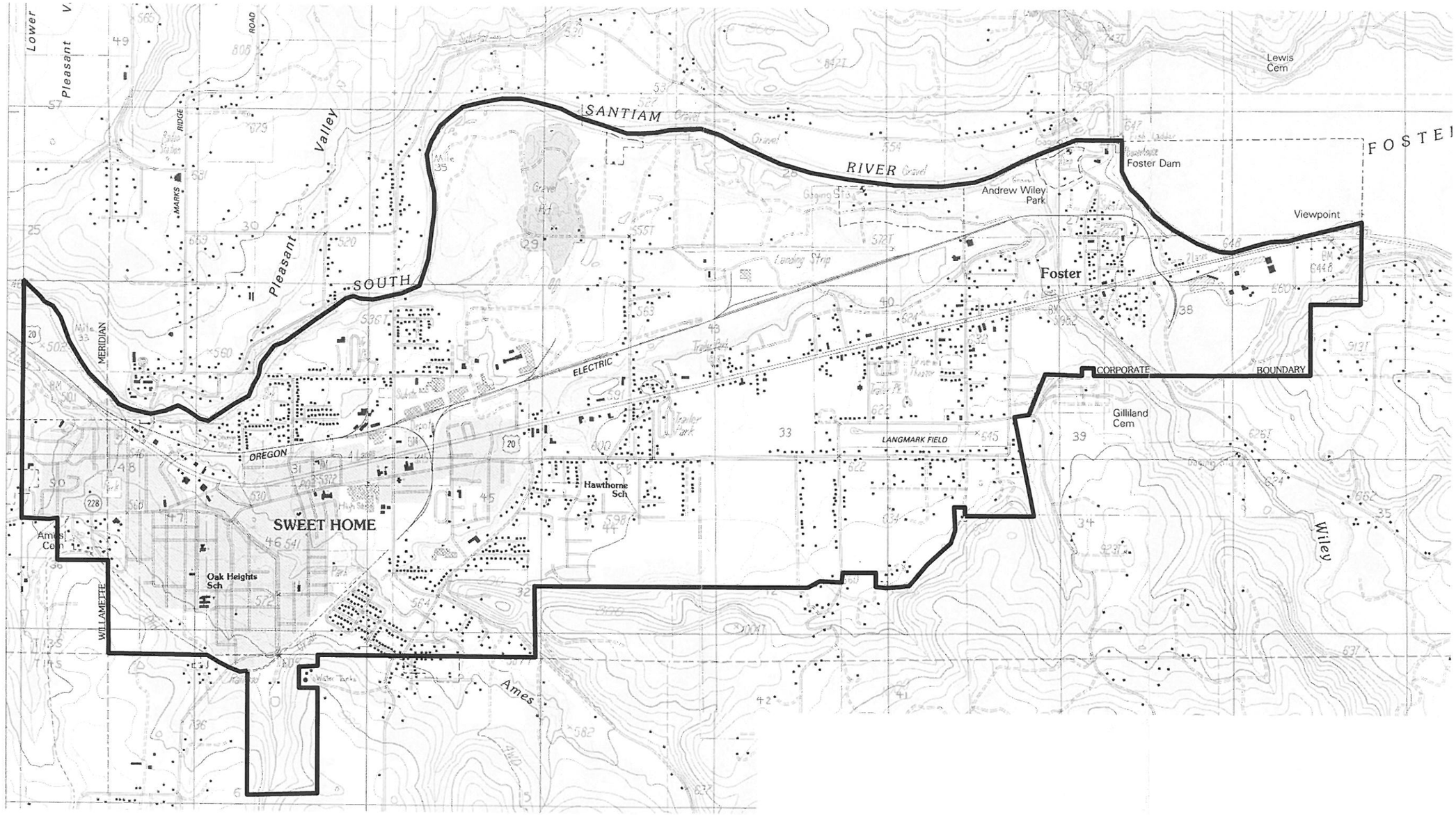
The City of Sweet Home (City), through a Wetland Planning Grant from the Oregon Division of State Lands (DSL), hired Pacific Habitat Services, Inc. (PHS) to conduct a Local Wetlands Inventory (LWI) and Riparian Inventory for a 3,520-acre study area located within the City's Urban Growth Boundary. The study area includes portions of the South Santiam River, as well as portions of Ames, Taylor, Cotton, Stonebrook, and Wiley Creek drainages. The goal of the study is to address the requirements of Statewide Planning Goal 5 (Natural Resources, Scenic and Historic Areas, and Open Spaces), and Oregon Administrative Rule (OAR) Section 660, Division 23. The objective of Goal 5 is to "protect natural resources and conserve scenic, historic and open space resources for present and future generations." Specifically, the City hired PHS to determine the location and extent of wetlands; assess the quality of the wetlands; and determine which of these wetlands are significant according to the requirements of Goal 5. A Riparian Inventory and assessment was also funded under the same planning grant and is submitted as a separate report.

The study area is in Linn County and is generally located along the southern edge of the South Santiam River, and extends east to Foster Lake, west to Pleasant Valley Road, and south to the foothills at the southern edge of the City (Township 13 South, Range 1 East, Sections 26 to 34; and Township 14 South, Range 1 East, Section 6). Figure 1 illustrates the location of the study area.

This report begins by discussing the definitions used in the report and inventory (Section 2), followed by the methodology used to conduct the field work for the LWI, the wetland assessment methodology, and the methodology used to produce the maps for the inventory (Section 3). Section 4 discusses the study area characteristics, such as the climate, topography, soils and Vegetation. Section 5 discusses the Local Wetlands Inventory results, including wetland distribution, acreage, and Cowardin classification, as well as the results of the Oregon Freshwater Wetland Assessment Methodology. Section 6 discusses the determination of significant wetlands according to Goal 5. Section 7 provides a project summary, and Section 8 includes references.

There are five appendices to the report. Appendix A contains the wetland characterization sheets for each wetland, organized by wetland code. The characterization sheets note wetland location, tax lots, acreage, Cowardin classification, soil series, wetland vegetation, adjacent upland vegetation, and other notes related to adjacent wetlands or hydrology. This form was completed for each wetland unit, regardless of whether it was an on-site or off-site determination.

Appendix B contains the wetland determination data forms. These forms document the sample points taken for the on-site wetlands. Hydrology, soils, and dominant vegetation are recorded for each sample point in order to determine whether it is wetland or upland.



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Location and general topography for the Sweet Home Local Wetlands Inventory in Sweet Home, Oregon (USGS, Sweet Home, Oreg. quadrangle, 7.5 minute series, provisional edition 1984).

FIGURE 1

Pacific Habitat Services, Inc.

Appendix C is the Oregon Freshwater Wetland Assessment Methodology data and summary for each wetland unit. Each wetland's functions and conditions are assessed according to an established state methodology. The results and rationale are also summarized for each wetland unit. In addition, a determination of significance for each wetland unit is included in Appendix D. Appendix E contains a non-comprehensive listing of plant species encountered within the project area.

2.0 DEFINITIONS

These terms helped define the methodology used for the City of Sweet Home Local Wetlands Inventory and may be referred to in this report.

1987 Manual

The Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1. (Environmental Laboratory 1987)

This manual is used by the Corps and DSL to document the location of wetlands within the State of Oregon. The 1987 manual provides technical criteria, field indicators, and recommended procedures to be used in determining whether an area is a jurisdictional wetland. Undisturbed areas require three criteria for them to be classified as wetland. These criteria are hydric soils, a dominance of hydrophytic vegetation, and wetland hydrology.

Goal 5

Goal 5 (OAR 660, Division 23) is intended "to protect natural resources, and conserve scenic and historic areas and open spaces." (DLCD, 1995)

Growing Season

"The portion of the year when soil temperatures at 19.7 inches below the soil surface are higher than biological zero (41° Fahrenheit, 5° Celsius)." (COE, 1987)

The growing season for any given site or location is determined from Natural Resource Conservation Service (NRCS, formerly the U.S. Soil Conservation Service SCS) data and information. The length of the season can be approximated from frost free days, based on air temperature.

Hydric Soils

"Soils which are ponded, flooded, or saturated for long enough during the growing season to develop anaerobic conditions." (USDA, SCS, 1985)

Periodic saturation of soils causes alternation of reduced and oxidized conditions, which leads to the formation of redoximorphic features (gleying and mottling).

Mineral hydric soils will be either gleyed or will have bright mottles and/or low matrix chroma. The redoximorphic feature known as gley is a result of greatly reduced soil conditions, which result in a characteristic grayish, bluish or greenish soil color. The term mottling is used to describe areas of contrasting color within a soil matrix. The soil matrix is the portion of the soil layer that has the predominant color. Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table.

Hydric soil indicators include: organic content of greater than 50% by volume, sulfidic material or "rotten egg" smell, and/or presence of redoximorphic features and dark soil matrix, as determined by the use of a Munsell Soil Color Chart. This chart establishes the chroma, value and hue of soils based on comparison with color chips. Mineral hydric soils usually have a matrix chroma of 2 or less in mottled soils, or a matrix chroma of 1 or less in unmottled soils.

Hydrophytic Vegetation

"Plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content." (National Resource Council, 1995)

The U.S. Fish and Wildlife Service, in the *National List of Plant Species that Occur in Wetlands*, has established five basic groups of vegetation based on their frequency of occurrence in wetlands. These categories, referred to as the "wetland indicator status," are as follows: obligate wetland plants (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL).

Local Wetlands Inventory (LWI)

An inventory of all wetlands greater than 0.5 acres in size within a local jurisdiction using the standards and procedures of OAR 141-86-110 through 141-86-240.

In 1989, the Oregon State legislature authorized DSL to develop a statewide wetlands inventory for planning and regulatory purposes. Accordingly, DSL established Local Wetlands Inventory (LWI) standards and guidelines under ORS 196.674. An approved LWI replaces the National Wetlands Inventory maps and is incorporated into the statewide wetlands inventory.

An LWI is conducted using color or color infrared aerial photographs taken within 5 years of the inventory initiation and at a minimum scale of 1 inch = 400 feet (1" = 400'). Wetlands are located using the on-site option where access to property is allowed, or off-site where access is denied. Wetlands can be mapped off-site by using information such as topographic and National Wetlands Inventory maps, aerial photographs, and soils surveys.

The approximate location of wetlands is placed on a parcel-based map. The parcel-based map allows the property owner, the local jurisdiction, and DSL, to know which tax lots may contain wetlands.

The maps and documents produced for the LWI are intended for planning purposes only. Mapped wetland boundaries are accurate to within 25 feet; however, there may be unmapped wetlands that are subject to regulation. In all cases, actual field conditions determine wetland boundaries.

Palustrine System (P--)

"All nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens and all such wetlands that occur in tidal areas where salinity is less than 0.5%. This includes areas traditionally called swamps, marshes, fens, as well as shallow, permanent or intermittent water bodies called ponds." (Cowardin et. al. 1979)

- **Unconsolidated bottom (PUB)**

A wetland and deepwater habitats with at least 25% cover of particles smaller than stones and a vegetative cover less than 30%.

- **Emergent Wetland (PEM)**

These wetlands have rooted herbaceous vegetation, which stand erect above the water or ground surface.

- **Scrub-shrub Wetland (PSS)**

Wetlands dominated by shrubs and tree saplings that are less than 20 feet high.

- **Forested Wetland (PFO)**

Wetlands dominated by trees that are greater than 20 feet high.

Waters of the State

Natural waterways including all tidal and nontidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in this state, navigable and nonnavigable. Natural waterways are defined as: waterways created naturally by geological and hydrological processes, and waterways that would be natural but for human-caused disturbances (e.g. channelized or culverted streams, impounded waters, partially drained wetlands or ponds created in wetlands). (ORS 196.800-196.990, 1995)

Wetland

"Those areas that are inundated or saturated by surface 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. Wetlands generally include swamps, marshes, bogs, and similar areas." (Federal Register 1982).

Wetland Assessment

Determining the relative quality of a wetland by assessing its functions and conditions. The methodology generally used to determine the relative quality of wetlands for purposes of an LWI is the Oregon Freshwater Wetland Assessment Methodology. (Roth, et. al. 1996)

Wetland Classification

The classification of wetlands as defined by plants, soils and the frequency of flooding is described in "Classification of wetlands and deepwater habitats of the United States." (Cowardin, et. al. 1979) See Palustrine System and Estuarine System.

Wetland Condition

"The integrity of a wetland's physical and biological structure. This determines the ability of the wetland to perform specific functions, as well as its resilience and enhancement opportunities." (Roth et al., 1996)

Wetland Function

"A characteristic action or behavior associated with a wetland that contributes to a larger ecological condition such as wildlife habitat, water quality and/or flood control." (Roth, et. al. 1996)

Wetland Hydrology

"Permanent or periodic inundation or prolonged soil saturation sufficient to create anaerobic conditions in the upper soil profile." (COE, 1987)

3.0 PROJECT METHODOLOGY

3.1 Public Involvement

Prior to beginning the inventory, the City of Sweet Home mailed letters to selected landowners who may have wetlands on their property. Landowners who had areas of mapped hydric soils, soils with hydric inclusions, National Wetlands Inventory mapped wetlands, or suspected wetland areas received a notice of permission for site access.

Landowners were requested to mark a box on the access notice, either granting site access, denying site access, or granting access by appointment. If there was no response, individual landowners were contacted directly by either the City or PHS. A parcel-based map of the Urban Growth Boundary of Sweet Home was prepared by the City showing those parcels where access was approved, denied or an appointment was requested. Two public meetings were held during the course of the inventory. The first meeting was held on April 19, 1999, to introduce the project to the residents of Sweet Home. This meeting was held prior to the date required for return of the access request letters to answer any questions affected landowners may have for representatives of the City of Sweet Home, PHS, or DSL.

The second public meeting was held on January 17, 2000, to present the draft results of the wetland inventory to the residents of Sweet Home. Changes made to the draft maps at the public meeting or observed during the project review and verified in the field, appear on the revised version of the maps included with this report.

3.2 Local Wetlands Inventory Methodology

3.2.1 Routine Off-site Determination

Prior to beginning field work, off-site mapping was conducted to determine the approximate location of wetland boundaries based on available information. This information included the USGS topographic quadrangles, the Soil Survey of Linn County Area, Oregon (SCS, 1987), the National Wetlands Inventory maps, City topographic maps, City Storm Drainage Masterplan, 1966 and 1970 aerial photographs from the City (1"=500'), and 1998 true color aerial photographs at a scale of 1" = 400'. In addition, PHS received copies of wetland delineations or determinations on record with the City or DSL.

If access to land was allowed, the wetland boundaries were determined in the field (see Section 3.2.2). If access was not granted, the boundaries were based on the mapping conducted in the office, and on observation of wetland boundaries from adjacent roads or properties.

3.2.2 Routine On-site Determination

Where property access permission had been granted, on-site observation and inspection of soils, vegetation, and hydrology were made using the Routine On-site method of the 1987 manual. Soil pits were excavated up to a depth of 18-inches in selected locations. The soil profiles were examined for hydric soils and wetland hydrology field indicators. A visual percent-cover estimate of the dominant species of the plant community for a maximum 30-foot radius was conducted at each sampling location. Sampling locations were chosen to document a change in the wetland boundary and a particular plant community visible on an aerial photograph. Data was recorded in the field and transferred to computer-generated wetland delineation data sheets in the office.

Field work for the inventory was conducted between April 1999 and January 2000. No wetland boundaries were staked or flagged in the field.

3.3 Wetland Quality Assessment

3.3.1 The Oregon Freshwater Wetland Assessment Methodology

The quality of wetlands in the study area were assessed using the *Oregon Freshwater Wetland, Assessment Methodology* (OFWAM) (Roth et al. 1996). OFWAM was developed by an interagency committee to assess the relative quality of wetlands primarily for planning and educational purposes. Copies of the methodology are available from DSL for a fee. OFWAM does not assign a numeric ranking to the wetlands, but does determine the relative quality of six functions and three conditions for each of the wetlands. A description of each of the functions and conditions is included below.

Wetland Functions

Wildlife habitat: Evaluates the habitat diversity for species usually associated with wetlands, without emphasizing one particular species. Wetlands assessed by OFWAM can provide diverse habitat for wildlife, habitat for some wildlife species, or does not provide habitat.

Fish habitat: Evaluates how a wetland contributes to fish habitat in streams, ponds or lakes associated with a wetland. The questions are suitable for both warmwater and coldwater fish and no particular species is emphasized. Wetlands assessed by OFWAM can have fish habitat function intact, impacted or degraded, or lost or not present.

Water Quality: Evaluates the potential of a wetland to reduce the impacts of excess nutrients in storm water runoff on downstream waters. A wetland's water quality function can be assessed by OFWAM as intact, impacted or degraded, or lost or not present.

Hydrologic control: Evaluates the effectiveness of a wetland to reduce downstream flood peaks and store floodwaters. A wetland's hydrologic control functions can be assessed by OFWAM as intact, impacted or degraded, or lost or not present.

Education: Evaluates the suitability of a wetland to provide educational opportunity and act as an "outdoor classroom." A wetland assessed by OFWAM can have educational uses, have the potential to provide, or not be appropriate for educational uses.

Recreation: Evaluates the suitability of a wetland and associated watercourses for non-powered boating, fishing, and similar recreational activities. Wetlands assessed by OFWAM can provide, have the potential to provide, or not provide recreational opportunities.

Wetland Conditions

Sensitivity to Future Impacts: Evaluates the wetlands ability to sustain itself and its ability to recover from future impacts. It is an indication of risk to the wetland because of future changes in the watershed and surrounding land. A wetland can be assessed by OFWAM as sensitive to future impacts, potentially sensitive to future impacts, or not sensitive to future impacts. An undisturbed forested wetland is more sensitive to future impact than a wetland that has already been disturbed, such as agricultural wetland.

Enhancement Potential: Evaluates the suitability of a degraded wetland for enhancement. A wetland providing this condition does not provide one or more of the functions assessed by OFWAM. A wetland fulfilling this condition, therefore, would be of lower overall quality than a wetland providing wildlife habitat, fish habitat, etc. Wetlands that provide diverse wildlife habitat were not assessed in this section, as per the revised OFWAM. Wetlands are assessed as either high enhancement potential, moderate enhancement potential, or little enhancement potential.

Aesthetic quality: Evaluates the visual and aesthetic quality of the wetland. Wetlands can be considered pleasing, moderately pleasing, or not pleasing.

3.3.2 Wetlands of Special Interest for Protection

The first filter in OFWAM is to determine whether the wetland is in a management plan, is protected by regulatory rules or statutes, or is uncommon in Oregon. Ten questions are answered for each wetland and a "yes" answer to any of the questions puts the wetland into the "special interest for protection" category. If the wetland falls into this category, it is noted on the wetland characterization sheet.

3.3.3 Field Methodology

During the process of determining the boundaries for the LWI, data were also collected for the process of determining its relative quality. Data collected for this purpose are explained in the Wetland Characterization section of OFWAM. Data collected in the field included the Cowardin classes, the types of disturbance (if any) in the wetland area, the hydrology of the wetland area (e.g. the location of constrictions), the presence of fish, large woody debris, the degree of vegetative cover, and other information necessary to complete the assessment of the wetland in the office.

If the wetland determination was off-site, the OFWAM section and wetland characterization was based on review of the aerial photographs and knowledge of other similar or adjacent wetlands.

3.3.4 Office Assessment

Subsequent to the field work, the data collected for each wetland were used to answer questions for each function and condition. Additional information on the wetlands, the landscape and the general area were gathered in the office. The answers within each function and condition section of the methodology were entered into a computer spreadsheet, which automatically displays the results of the assessment methodology.

Certain criteria were established for the OFWAM assessment prior to beginning. The following is a list of certain standards or assumptions that were used in answering the assessment questions:

Water Quality: The Oregon Department of Environmental Quality has not listed this portion of the South Santiam River nor any of the other creeks in the study area as water quality limited (ODEQ, 1996). This information was used in the following questions in OFWAM: Wildlife, question 7; Fish Habitat, question 4; Water Quality, question 6; and Sensitivity to Future Impacts, question 3.

Fish Habitat: According to ODFW the South Santiam River may contain fall and spring chinook, cutthroat and rainbow trout. Wiley Creek may have winter steelhead and cutthroat. Both the South Santiam River and Wiley Creek are considered Essential Salmonid Habitat by DSL and ODFW. Therefore Question 6 in Fish Habitat was answered "A" for wetlands with surface water connection to these water bodies. Based on conversations with Wayne Hunt, ODFW, spring chinook, winter steelhead, cutthroat and rainbow trout are present in Wiley Creek and the South Santiam River. Ames Creek and its tributaries have cutthroat, lamprey, and sculpin in the lower reach below the dam in Sankey Park. There may also be winter steelhead in Ames. The small dam located at Sankey Park currently blocks fish passage, however plans are to remove the dam which will allow fish passage in the near future.

Just above its confluence with Wiley Creek the South Santiam River is blocked by Foster Dam. The dam was constructed by the U.S. Army Corps of Engineers in 1961-68 and has a fish ladder for fish passage. Foster Lake is stocked annually with rainbow trout.

Floodplains: The City provided Federal Emergency Management Agency (FEMA) 100-year floodplain maps. Areas of floodplains are mapped within the South Santiam River, Ames Creek, and lower Wiley Creek drainages. Question 1 in Hydrologic Control was answered based on these maps.

Land Use: The City provided a map of the local Comprehensive Plan showing zoning for the study area. The majority of the study area is zoned for low density residential, with industrial lands located north of the railroad tracks and south of the South Santiam River. Several mills and aggregate industries are located in this area. Questions 6 and 7 in Hydrologic Control and Question 5 in Sensitivity to Future Impacts were answered based on these maps.

Enhancement Potential: The enhancement potential section was not required if the wetland was assessed with "diverse wildlife habitat", as per OFWAM directive. In addition, Question 3 was specifically directed towards wetlands whose primary source of hydrology was surface water. If this was not the case, Question 3 was not answered.

3.4 Cartography

True color aerial photographs were obtained from WAC Corporation at a scale of 1-inch equals 400-feet (1"=400'). The photographs were taken August 11, 1998. In addition, copies of 1966 and 1970 photographs were used for comparison of certain vegetation and drainage pattern signatures over time.

Preliminary wetland boundaries and data point locations were drawn directly on the 1998 photos in the field. Properties were marked if access was denied, a previous delineation had been done, or if the property owner desired to be notified prior to entry. Properties whose owners had denied access were assessed off-site using observation and available references. Following completion of field work the wetland boundaries and sample points were digitized by PHS onto the Linn County GIS parcel-based map. Additional layers added onto the GIS base map included watershed boundaries, streams, additional geographic names, delineation reference numbers and wetland codes.

Four watersheds were designated for the study area: Ames Creek; Cotton Creek; South Santiam River; and Wiley Creek. Each wetland was assigned a code beginning with the three letter watershed designation and a wetland number (e.g. SSR-1 for South Santiam River, WC-1 for Wiley Creek, etc.). Wetlands that were hydrologically connected but separated by roads or culverts were labeled with a code modifier (e.g. SSR-2A, 2B). In addition, wetlands were assigned a code modifier if they differed in character. For instance, if one section of the wetland was a field and another section was forested, each section was assigned a code modifier. This was done in order to provide a more accurate acreage of wetland types within the study area, and to allow a separate OFWAM assessment for each different type of wetland. Tax lots with access denied were outlined differently on the maps.

In addition to the base map, PHS generated a series of maps including the project boundary (Figure 1), soils (Figure 2), and the National Wetlands Inventory map (Figure 3).

4.0 STUDY AREA CHARACTERISTICS

4.1 Setting

4.1.1 Culture and Industry

The study area includes the downtown area of Sweet Home, and all lands extending to the City of Sweet Home's Urban Growth Boundary (UGB). The City of Sweet Home is located at the eastern edge of the mid-Willamette Valley, approximately half way between the Cascade Range and Interstate 5. The area is a combination of residential, public facilities (e.g. parks, sewage treatment plant), commercial, industrial, and agricultural.

Sweet Home's economy was once heavily reliant on timber and still has several operational mills in the UGB, including Willamette Industries, as well as some defunct mill sites. Other industries in the City include aggregate mining. There is an active aggregate mining site along the northern UGB adjacent to the South Santiam River (Morse Brothers).

State Highway 20 follows the river and provides a major east-west transportation route between the valley and central Oregon. The Oregon Electric Railroad Company tracks parallel the highway through Sweet Home and provide a link between mills and markets. An abandoned Burlington Northern rail line runs north to south through the City but has since become open space.

4.2 Topography and Landscape Setting

Sweet Home is situated at the eastern edge of the Willamette Valley in the foothills of the Cascades. The area was settled by sodbusters in the 1850's and the town was formerly called Buckhead. Sometime around 1880 the town name was changed to Sweet Home (Friedman, 1990). The town sits on a prehistoric forest as evidenced by fossilized wood found in the area.

Elevations range from approximately 800 feet NGVD in the southern hills to developed areas of Sweet Home to approximately 680 feet NGVD on the edge of the South Santiam River.

4.3 Hydrology

4.3.1 Hydrologic Features of the Sweet Home Area

Sweet Home is located in the Willamette drainage basin. The main hydrologic features are the South Santiam River and Foster Lake. The South Santiam River originates in the Willamette National Forest near Mount Washington in the Cascade Range. At the confluence of the Middle Fork and South Santiam Rivers is Foster Dam, built in the 1960's by the Corps of Engineers. The dam and Foster Lake provide flood control, irrigation, and power production. This lake and dam also serve to "smooth out" flows from Green Peter Reservoir to the east. It is a popular recreation area, providing boating, fishing, and water sports. The water level in the lake is lowered each fall beginning at the end of September for flood control purposes, reaching its lowest levels in November. The reservoir is refilled each February and reaches full pool in mid-May. The surface level fluctuates daily by 2 feet or less, as power demand requires. Foster Lake is 1220 acres and has a maximum depth of 110 feet and an average depth of 50-feet (Johnson, 1985).

In addition to the South Santiam River and Foster Lake, four perennial streams are within the UGB; Stonebrook Creek, Ames Creek, Cotton Creek, and Wiley Creek. With the exception of Wiley Creek, all the streams have been extensively modified by piping, ditching, and adjacent urban development.

In addition to surface water, the area's hydrology is affected by groundwater and precipitation. Due to its location near the river and surrounding hillsides, groundwater tends to move north towards the river. Due to this groundwater gradient and soil types, the southern portion of the study area is subject to seasonal seeps and springs. Groundwater and surface waters moving towards the river are blocked and diverted by Highway 20 and the railroad line, with an extensive ditch system directing flows to culverts under the road and tracks. Several mill ponds, both active and inactive, are located in the area immediately adjacent to the tracks. The alluvial area north of the tracks also has several active and inactive aggregate pits.

Heavy clay soils with low permeability and approximately 55 inches of rainfall a year, also contribute to a perched water table in the wetter times of the year. These silty clay loams and clay loams soils tend to be located in the gently sloping southeastern area. Seasonal saturation and inundation is common in winter and spring in this area.

4.3.2 Watershed Designation

The study area was divided into five watersheds: South Santiam River (SSR), Stonebrook Creek (SBC), Ames Creek (AC), Cotton Creek (CC) and Wiley Creek (WC). The watershed boundaries were based on topography and observations of drainage patterns in the field. Cotton Creek converges with Ames Creek, which in turn flows to the South Santiam River. All the other creeks drain directly to the river. Ames Creek also has a secondary tributary, Taylor Creek that is extensively piped through residential areas. The watersheds and their sizes are listed in Table 1 below:

Table 1: Watersheds and Acreages for the Sweet Home LWI

Watershed	Area (acres)
Wiley Creek	370.67
South Santiam River	2,251.60
Cotton Creek	385.52
Ames Creek (incl. Taylor Creek)	376.88
Stonebrook Creek	135.30
Total Project Acreage	**3,519.97**

4.3.3 Hydrologic Indicators

Direct indicators of hydrology observed during the inventory included soils saturated at or near the surface, inundation, and/or a shallow water table. Indirect indicators included oxidized rhizospheres with living roots, algal mats, drift lines, and wetland drainage patterns.

4.4 Soils

Table 2 (next page) lists the soils that have been mapped by the Natural Resources Conservation Service (formerly the Soil Conservation Service) within the study area. Figure 2 is a soils map for the project area.

Table 2. Soil Units and their Hydric Soils Status for the Sweet Home LWI

Soil Symbol	Soil Name	Hydric Status
8	Bashaw silty clay	Hydric
9F	Bellpine silty clay loam, 30 to 50 percent south slopes	Non-Hydric
16B	Briedwell silt loam, 0 to 7 percent slopes	Non-Hydric
19	Chapman loam	Non-Hydric
21	Chehalis silty clay loam	Non-Hydric
23	Clackamas gravelly silt loam	Non-Hydric
25	Cloquato silt loam	Non-Hydric
26	Coburg silty clay loam	Non-Hydric
28	Conser silty clay loam	Hydric
29	Courtney gravelly silty clay loam	Hydric

Soils for the Sweet Home Local Wetlands Inventory

PHS

Figure:2

PHS LEGEND

WETLANDS

DRAINAGES

URBAN GROWTH BOUNDARY

SOILS

SOILS

- BASHAW SILTY CLAY
- BELLPINE SILTY CLAY LOAM, 12 TO 20 PERCENT SLOPES
- BELLPINE SILTY CLAY LOAM, 20 TO 30 PERCENT SLOPES
- BELLPINE SILTY CLAY LOAM, 3 TO 12 PERCENT SLOPES
- BELLPINE SILTY CLAY LOAM, 30 TO 50 PERCENT SLOPES
- BRIEDWELL SILT LOAM, 0 TO 7 PERCENT SLOPES
- CAMAS GRAVELLY SANDY LOAM
- CHAPMAN LOAM
- CHEHALIS SILTY CLAY LOAM
- CLACKAMAS GRAVELLY SILT LOAM
- CLOQUATO SILT LOAM
- COBURG SILTY CLAY LOAM
- CONCRETE DAM
- CONSER SILTY CLAY LOAM
- COURTNEY GRAVELLY SILTY CLAY LOAM
- DUPEE SILT LOAM, 3 TO 20 PERCENT SLOPES
- FLUVENTS-FLUVAQUENTS COMPLEX, NEARLY LEVEL
- JORY SILTY CLAY LOAM, 12 TO 20 PERCENT SLOPES
- JORY SILTY CLAY LOAM, 2 TO 12 PERCENT SLOPES
- MALABON SILTY CLAY LOAM
- MCALPIN SILTY CLAY LOAM, 3 TO 6 PERCENT SLOPES
- MCBEE SILTY CLAY LOAM
- NEKIA SILTY CLAY LOAM, 12 TO 20 PERCENT SLOPES
- NEKIA SILTY CLAY LOAM, 2 TO 12 PERCENT SLOPES
- NEKIA SILTY CLAY LOAM, 20 TO 30 PERCENT SLOPES
- NEKIA SILTY CLAY LOAM, 30 TO 50 PERCENT SLOPES
- NEWBERG FINE SANDY LOAM
- OCHREPTS, VERY STEEP
- PANTHER SILTY CLAY LOAM, 2 TO 12 PERCENT SLOPES
- PENGRA SILT LOAM, 1 TO 4 PERCENT SLOPES
- PITS
- RITNER COBBLY SILTY CLAY LOAM, 2 TO 30 PERCENT SLOPES
- RITNER COBBLY SILTY CLAY LOAM, 30 TO 60 PERCENT SLOPES
- RIVERWASH
- SALEM GRAVELLY SILT LOAM
- SALKUM SILTY CLAY LOAM, 2 TO 8 PERCENT SLOPES
- SALKUM SILTY CLAY LOAM, 8 TO 15 PERCENT SLOPES
- SIFTON VARIANT GRAVELLY LOAM
- WALDO SILTY CLAY LOAM
- WATER
- WITZEL VERY COBBLY LOAM, 3 TO 30 PERCENT SLOPES
- WITZEL VERY COBBLY LOAM, 30 TO 70 PERCENT SLOPES

Table 2 continued

Soil Symbol	Soil Name	Hydric Status
36D	Dupee silt loam, 3 to 20 percent slopes	Non-Hydric
39	Fluvents-Fluvaquents complex	Non-Hydric
51C	Jory silty clay loam, 2 to 12 percent slopes	Non-Hydric
63	Malabon silty clay loam	Non-Hydric
66B	McAlpin silty clay loam, 3 to 6 percent slopes	Non-Hydric
67	McBee silty clay loam	Non-Hydric
73	Newberg fine sandy loam	Non-Hydric
74H	Ochrepts, very steep	Non-Hydric
75C	Panther silty clay loam, 2 to 12 percent slopes	Hydric
77A	Pengra silt loam, 1 to 4 percent slopes	Hydric
80	Pits	Non-Hydric
84E	Ritner cobbly silty clay loam, 25 to 20 percent slopes	Non-Hydric
85	Riverwash	Non-Hydric
87	Salem gravely silt loam	Non-Hydric
88B	Salkum silty clay loam, 2 to 8 percent slopes	Non-Hydric
88C	Salkum silty clay loam, 8 to 15 percent slopes	Non-Hydric
92	Sifton Variant gravelly loam	Non-Hydric
98	Waldo silty clay loam	Hydric

Bashaw silty clay is a deep, poorly drained soil and is found in slightly concave areas on floodplains, alluvial terraces, and alluvial fans. It formed in clayey alluvium derived from mixed sources. The slope is 0 to 1 percent. The surface layer is typically black silty clay about 4 inches thick. The next layer is black, mottled clay about 32 inches thick. The upper 24 inches of the substratum is very dark gray, mottled clay, and the lower part to a depth of 70 inches is dark gray, mottled silty clay. In some areas of similar included soils, the surface layer is silty clay loam or clay. It is classified as a *very-fine, montmorillonitic, mesic Typic Pelloxererts*.

Bellpine silty clay loam, 30 to 50 percent slopes is a moderately deep, well drained soil found on smooth convex foot slopes and foothills adjacent to terraces of the Willamette Valley. It formed in colluvium derived dominantly from sedimentary rock. The surface layer is typically a dark reddish brown silty clay loam about 7 inches thick. The upper 7 inches of the subsoil is dark reddish brown silty clay and the lower 18 inches is reddish brown and yellowish red clay. Partially weathered tuffaceous siltstone is at a depth of 32 inches. This soil is classified as a *clayey, mixed, mesic Xeric Haplohumults*.

Briedwell silt loam, 0 to 7 percent slopes is a deep, well drained soil found on old alluvial terraces. It formed in silty and gravelly alluvium derived from mixed sources. Typically, the surface layer is very dark brown silt loam about 12 inches thick. The next layer is dark yellowish brown silt loam about 9 inches thick. The subsoil is brown and dark yellowish brown very gravelly clay loam about 15 inches thick. The substratum to a depth of 60 inches or more is dark yellowish brown very gravelly clay loam. This soil is classified as a *loamy-skeletal, mixed Dystric Cryochrepts*.

Chapman loam is a deep, well drained soil found on low alluvial river terraces and floodplains. It formed in mixed silty, clayey, and sandy alluvium derived from mixed sources. Slope is 0 to 3 percent. The surface layer is typically a very dark grayish brown loam about 12 inches thick. The upper 28 inches of the subsoil is very dark grayish brown and dark yellowish brown clay loam, and the lower 11 inches is a dark yellowish brown loam. The substratum to a depth of 60 inches or more is dark yellowish brown gravelly loam. In some areas of similar included soils, the substratum is very gravelly sandy loam or sandy loam, or both. This soil is classified as a *fine-loamy, mixed, mesic, Cumulic Ultic Haploxerolls*.

Chehalis silty clay loam is a deep, well drained soil found on floodplains. It is formed on 0 to 3 percent slopes from moderately fine textured recent alluvium of mixed origin. Typically, the surface layer is very dark grayish brown and very dark brown silty clay loam about 16 inches thick. The subsoil is dark brown silty clay loam about 44 inches thick. Depth to bedrock is more than 60 inches. The soil is classified as *fine-silty, mixed, mesic Cumulic Ultic Haploxeroll.*

Clackamas gravelly silt loam is a deep, somewhat poorly drained soil found in slightly concave areas on low alluvial stream terraces. It formed in gravelly alluvium derived from mixed sources. The slope is 0 to 3 percent. The surface layer is typically a very dark grayish brown and dark brown gravelly silt loam about 12 inches thick. The subsoil is very dark grayish brown, mottled gravelly silty clay loam about 9 inches thick. The substratum to a depth of 60 inches or more is dark gray extremely gravelly clay loam. *It is classified as a fine-loamy, mixed mesic Typic Argiaquolls*.

Cloquato silt loam is a deep well drained soil found on floodplains. It is formed from recent alluvium of mixed sources on 0 -3 percent slopes. Typically, the surface layer is very dark grayish brown silt loam about 20 inches thick. The subsoil is dark brown silt loam about 20 inches thick. The substratum to a depth of 60 inches is dark brown silt loam. Stratified silt and sand may be found below a depth of 40 inches in many of the floodplains. The soil is classified as *coarse-silty, mixed, mesic, Cumulic Ultic Haploxeroll.*

Coburg silty clay loam is a deep, moderately well drained soil found in nearly level to slightly convex areas on low alluvial stream terraces. It formed in silty and clayey alluvium derived from mixed sources. The slope is 0 to 3 percent. The surface layer is typically a very dark grayish brown silty clay loam about 17 inches thick. The upper 7 inches of the subsoil is a very dark brown silty clay, the next layer is brown, mottled silty clay about 8 inches thick, and the lower 30 inches is brown, mottled silty clay loam. In some areas of similar included soils, the soil is very gravelly below a depth of 40 inches. It is classified as a *fine, mixed, mesic Pachic Ultic Agrixerolls*.

Conser silty clay loam is a deep, poorly drained soil found in nearly level to slightly concave areas on low alluvial stream terraces. It formed in silty and clayey alluvium derived from mixed sources. The slope is 0 to 2 percent. The surface layer is typically very dark brown, mottled silty clay loam about 17 inches thick. The upper 33 inches of the subsoil is very dark grayish brown and dark grayish brown, mottled silty clay, and the lower 14 inches is dark grayish brown, mottled silty clay loam. It is classified as a *fine, mixed, mesic Typic Argiaquolls*.

Courtney gravelly silty clay loam is a deep, poorly drained soil found in slightly concave areas on low alluvial stream terraces. It formed in gravelly and clayey alluvium derived from mixed sources. The slope is 0 to 3 percent. The surface layer is typically a very dark brown, mottled gravelly silty clay loam about 17 inches thick. The subsoil is very dark grayish brown, mottled gravelly clay about 16 inches thick. The upper 15 inches of the substratum is dark brown very gravelly clay loam, and the lower part to a depth of 60 inches is dark brown extremely gravelly sand. In some areas of similar included soils, the substratum is extremely gravelly clay. It is classified as a *fine, montmorillonitic, mesic Abruptic Argiaquolls*.

Dupee silt loam, 3 to 20 percent slopes is a deep, somewhat poorly drained soil found in depressional areas and drainageways of foothills and on alluvial fans. It formed in mixed colluvium derived dominantly from sedimentary rock. Typically, the surface layer is very dark brown silt loam about 4 inches thick. The next layer is a very dark brown silty clay loam about 7 inches thick. The upper 14 inches of the subsoil is brown silty clay loam, and the lower 11 inches is brown silty clay. The substratum to a depth of 65 inches is light olive gray and light gray clay. In some areas of similar included soils, weathered sedimentary rock is at a depth of 40 to 60 inches. This soil is classified as a *fine, mixed, mesic Aquultic Haploxeralfs*.

Fluvents-Fluvaquents complex are recently developed soils formed on nearly level stream channel deposits. The spatial scale of variability of stream bar deposits with cut-and-fill is too small to map individual deposits. Fluvent alluvia are moderately well drained to well drained sandy loam to gravelly sandy loam. Fluvaquent alluvia are poorly drained fine textured silty clay loam to loam. Drainage of the complex is highly variable on both vertical and horizontal scales.

Jory silty clay loam, 2 to 12 percent is a deep, well drained soil found on low, rolling foothills. It formed in colluvium derived dominantly from basic igneous or tuffaceous rock. The surface layer is typically a dark reddish brown silty clay loam about 6 inches thick. The upper 40 inches of the subsoil is dark reddish brown and reddish brown clay, and the lower 14 inches is yellowish red silty clay. This soil is classified as a *clayey, mixed, mesic Xeric Haplohumults*.

McAlpin silty clay loam, 3 to 6 percent slopes is a deep, moderately well drained soil found on low alluvial stream terraces in valleys of streams tributary to the Willamette River. It formed in fine textured alluvium derived from mixed sources. The surface layer is typically a dark brown silty clay loam about 14 inches thick. The upper 11 inches of the subsoil is dark reddish brown silty clay loam, and the lower 35 inches is reddish brown, mottled silty clay. In some small areas of similar included soils, the subsoil is gravelly below a depth of 40 inches. This soil is classified as a *fine, mixed, mesic Cumulic Ultic Haploxerolls*.

McBee silty clay loam is a deep, moderately well drained soil found on floodplains. The soils have formed from fine textured alluvium of various origins on 0 to 3 percent slopes. Typically, the surface layer is dark brown silty clay loam about 19 inches thick. The upper 9 inches of the subsoil is dark brown, mottled silty clay loam and the lower 16 inches is dark grayish brown mottled silty clay loam. The substratum to a depth of 60 inches is dark grayish brown mottled silty clay loam. In portions of the floodplain, the substratum may be gravelly. The soil is classified as *fine-silty, mixed, mesic Cumulic Ultic Haploxeroll.*

Newberg fine sandy loam is a very deep, somewhat excessively drained soil found on floodplains. It is formed on alluvium from basic igneous and sedimentary rocks recently deposited on 0 to 3 percent slopes. Typically, the surface layer is a dark brown sandy loam about 19 inches thick The upper 9 inches of the substratum is brown coarse sandy loam and the lower portion of the substratum to a depth of 64 inches is dark grayish brown loamy fine sand and loamy sand. The substratum may vary in texture from coarse sand to coarse silt beneath the mollic surface horizon. The soil is classified as *coarse-loamy, mixed, mesic, Fluventic Haploxeroll.*

Ochrepts, very steep are well drained and moderately well drained soils found on long narrow escarpments along the small streams that have cut deeply into the valley terraces and where the terraces meet the bottomlands and floodplains along major streams and rivers. These soils formed in stratified silty loam, or gravelly alluvium and in the accumulation of material that has moved downslope. Soil depth ranges from 20 to 60 inches or more. Slopes are 20 to 60 percent. These soils are highly variable, however they are generally silty, loamy, or gravelly and are stratified. In some areas the surface layer is dark colored. This soil is classified as a *Ochrepts.*

Panther silty clay loam, 2 to 12 percent slopes is a deep, poorly drained soil found in drainageways and on concave slopes of low foothills. It formed in colluvium derived dominantly from sedimentary rock. The surface layer is typically a black silty clay loam about 7 inches thick. The next layer is very dark brown, mottled clay about 12 inches thick. The subsoil is dark grayish brown, mottled clay 28 inches thick. Sedimentary bedrock is at a depth of 48 inches. In some areas of similar included soils, bedrock is at a depth of more than 60 inches. This soil is classified as a *very-fine, montmorillonitic, mesic Typic Haplaquolls.*

Pengra silt loam, 1 to 4 percent slopes is a deep, somewhat poorly drained soil found on toe slopes and alluvial fans of foothills. It formed in clayey alluvium derived from mixed sources. The surface layer is typically a very dark grayish brown silt loam about 10 inches thick. The subsoil is dark grayish brown silty clay loam about 19 inches thick. The upper 21 inches of the substratum is grayish brown clay and the lower part to a depth of 60 inches or more is olive gravelly clay. In some area of similar included soils, gravelly clay is below a depth of 40 inches. This soil is classified as a *fine-silty over clayey, mixed, mesic Typic Haplaquolls.*

Pits consist of sand and gravel pits, borrow pits, and basalt quarries. It is found on floodplains, broad terraces, foothills, and uplands.

Ritner cobbly silty clay loam, 2 to 30 percent is a moderately deep, well drained soil found on low foothills adjacent to the terraces of the Willamette Valley. It formed in cobbly colluvium derived dominantly from basic igneous rock. The surface layer is dark reddish brown cobbly silty clay loam about 6 inches thick. The upper 9 inches of the subsoil is dark reddish brown cobbly silty clay loam, and the lower 19 inches is dark reddish brown very cobbly silty clay. Fractured basalt is at a depth of 34 inches. It is classified as a *clayey-skeletal, mixed, mesic Dystric Xerochrpets.*

Riverwash is a deep, excessively drained to poorly drained miscellaneous area that occurs as islands or gravel and sand bars in and along major streams and rivers. It formed in recently deposited sand and gravel. It does not have plant cover. It consists of highly stratified sand and gravel and is highly variable.

Salem gravelly silt loam is a deep, well drained soil found in slightly convex areas on low alluvial stream terraces. It formed in gravelly alluvium derived from mixed sources. The slope is 0 to 3 percent. Typically the surface layer is dark brown gravelly silt loam about 9 inches thick. The next layer is dark brown gravelly clay loam about 7 inches thick. The subsoil is dark brown gravelly clay loam about 19 inches thick. The upper 12 inches of the substratum is very gravelly loamy sand, and the lower part to a depth of 60 inches or more is very gravelly sand. This soil is classified as a *fine-loamy over sandy or sandy-skeletal, mixed, mesic Pachic Ultic Argixerolls*.

Salkum silty clay loam, 2 to 8 percent slopes and 8 to 15 percent slopes are deep, well drained soils found on old terraces. They formed in old, weathered gravelly alluvium derived from mixed sources. The surface layer is typically a dark brown silty clay loam about 11 inches thick. The upper 8 inches of the subsoil is dark brown silty clay loam, and the lower 8 inches is dark brown clay. Below this is variegated yellow, brownish yellow, light gray, grayish brown, very pale brown, and pink silty clay loam about 33 inches thick. This soil is classified as a *clayey, kaolinitic, mesic Xeric Haplohumults.*

Sifton Variant gravelly loam is a deep, somewhat excessively drained soil found on stream terraces. It formed in gravelly alluvium that is high in content of ash and is derived from mixed sources. Slopes are 0 to 3 percent. The surface layer is typically a black gravelly loam about 9 inches thick. The subsoil is very dark grayish brown very gravelly loam about 6 inches thick. The upper 9 inches of the substratum is dark brown extremely gravelly loamy sand, and the lower part to a depth of 60 inches or more is dark brown and dark yellowish-brown extremely gravelly coarse sand. In the some areas, depth to the substratum is more than 18 inches. This soil is classified as a *sandy-skeletal, mixed mesic Andic Xerumbrepts*.

Waldo silty clay loam is a deep, poorly drained soil found in depressional areas of the high floodplains and low alluvial stream terraces. It formed in silty and clayey alluvium derived from mixed sources. The slope is 0 to 3 percent. The surface layer is typically a very gray silty loam about 6 inches thick. The next layer is very dark gray, mottled silty clay loam about 14 inches thick. The upper 18 inches of the subsoil is dark gray, mottled silty clay and the lower 9 inches is dark grayish brown, mottled silty clay. The substratum to a depth of 72 inches is grayish brown, mottled silty clay. In some areas of similar included soils, the surface layer is silt loam. It is classified as a *fine, mixed, mesic Fluvaquentic Haplaquolls*.

A variety of soil types were sampled during field visits to the study area; surface features are described on data sheets in Appendix B. Hydric soil indicators observed during the survey included low chroma soils (both with and without mottling), a hydrogen sulfide odor, and an aquic moisture regime in some locations.

4.5 Vegetation

4.5.1 Overview

Vegetation communities in the mid-Willamette Valley have been shaped by human activities for centuries. Native Americans were known to use fire to aid their hunting and gathering activities by favoring the growth of certain groups of plants. Euro-American settlement in the mid-19th century rapidly changed the composition of plant communities throughout the area, with urban areas, farmland, and other developments coming to dominate the landscape. Areas that now appear to retain natural vegetation have nevertheless been subject to fire suppression, clearing, logging, and grazing activities over the years.

The foothills of the Cascades now consist of a mosaic of deciduous woodlands, coniferous forests, pasture lands, shrub communities, and riparian forests broken up by development. Climax communities are generally considered to be forest types dominated by Douglas fir and Oregon white oak, or by Oregon ash in wetter sites. Patches or remnant wet prairie exist in more undisturbed lands in the south eastern portion of the project area. Further discussion of plant communities within the interior valleys of western Oregon can be found in *Natural Vegetation of Oregon and Washington* (Franklin and Dyrness 1973).

4.5.2 Vegetation Communities

Plant communities encountered within the study area include upland mixed conifer/deciduous forest, riparian forest, agricultural/pastureland, disturbed/urban, wet prairie/abandoned pasture, and wetland. Wetland communities can be further distinguished as palustrine/unconsolidated bottom, palustrine/emergent, palustrine/scrub-shrub, and palustrine/forested, following the Cowardin classification system developed for the US Fish and Wildlife Service (Cowardin, et al. 1979). Each of the above communities is described in the sections below.

Upland Mixed Conifer/Deciduous Forest

This community is present as scattered patches within the study area, due to fragmentation by urbanization, farming, and historic logging and clearing activities. The dominant species in the overstory are Douglas fir (*Pseudotsuga menziesii*), Oregon white oak (*Quercus garryana*), and bigleaf maple (*Acer macrophyllum*). Western red cedar (*Thuja plicata*), incense cedar (*Calocedrus decurrens*), and madrone (*Arbutus menziesii*) is also occasionally present.

Understory shrub and groundcover species vary greatly with the density of the tree canopy. Typical understory shrubs include vine maple (*Acer circinatum*), Indian Plum (*Oemleria cerasiformis*), Oregon grape (*Berberis* spp.), poison oak (*Rhus diversiloba*), salal (*Gaultheria shallon*), snowberry (*Symphoricarpos albus*), and beaked hazelnut (*Corylus cornuta*). Typical herbaceous species include sword fern (*Polystichum munitum*), fringecup (*Tellima grandiflora*), western trillium (*Trillium ovatum*), and shortscale sedge (*Carex deweyana*).

Riparian Forest

Riparian forests are often similar to upland mixed evergreen-deciduous forests. This community borders the rivers and streams or edges of the broad floodplains. Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus trichocarpa*), and bigleaf maple may co-dominate with Oregon white oak and Douglas fir.

Agricultural/Pastureland

Extensive portions of the study area remain as rural residential and are primarily used for pasture and hay production, with low density residential. This area is mostly located south of Long Street and east of Mountain View Road. These areas are usually dominated by grasses and a variety of forbs and weeds.

Developed-Urban

Plant communities throughout the study area have been influenced by human activities since before the turn of the century. Development in Sweet Home is concentrated in the central downtown core at the western edge of the study area. Businesses, residences, parking lots, roads, parks, and sidewalks all represent unvegetated or landscaped areas. Vegetation is often of horticultural origin or weedy in these areas. Unpaved areas subject to frequent disturbance generally remain as open spaces dominated by weedy grasses and forbs.

Wetland

Wetland areas are generally transitional between upland and truly aquatic areas that have permanent open water. The wetland may occupy a position where the groundwater table remains at or near the surface for an extended period during the growing season, however, surface inundation may or may not be present. Many of the wetlands in the study area are seasonally saturated or inundated. Vegetation varies depending on the extent of inundation or saturation, soils and degree of disturbance.

Agricultural wetlands obviously have been influenced by farming or grazing activities, and likely are dominated by grasses and forbs. Wetlands that have not been farmed or logged are usually dominated by Oregon ash and other hydrophytic trees and shrubs.

Palustrine forested wetlands in the area are dominated by Oregon ash, although red alder (*Alnus rubra*), black cottonwood, and western red cedar may also be present. Palustrine scrub/shrub wetlands often include saplings of the above species, along with such shrubs as Douglas' hawthorn (*Crataegus douglasii*), clustered rose (*Rosa pisocarpa*), redosier dogwood (*Cornus stolonifera*), Douglas' spiraea (*Spiraea douglasii*), and willows (*Salix* spp.).

Palustrine emergent wetlands in the Sweet Home area are commonly dominated by species such as sedges (*Carex* spp), rushes (*Juncus* spp.), common camas (*Camassia quamash*), buttercups (*Ranunculus* spp.), and wetland grasses, such as meadow foxtail (*Alopecurus pratensis*), and colonial bentgrass (*Agrostis tenuis*).

4.5.3 Wetland and Upland Indicator Species

Species lists of commonly encountered plants, along with their status as indicators of wetland conditions, have been prepared for all regions of the country by the USFWS (1988). The status of a particular plant, as discussed in Section 2.0, is the probability of that plant occurring in a wetland. Many plants, however, are found in transitional areas between wetlands and uplands. These areas are usually characterized by flat to gradually sloping terrain where the species composition may not reflect true wetland boundaries. In such areas, a species with a status of FACU may extend into the wetland areas, just as FACW species may also be present in upland areas. Table 3 summarizes the wetland indicator codes.

Table 3. Wetland Indicator Codes and Status

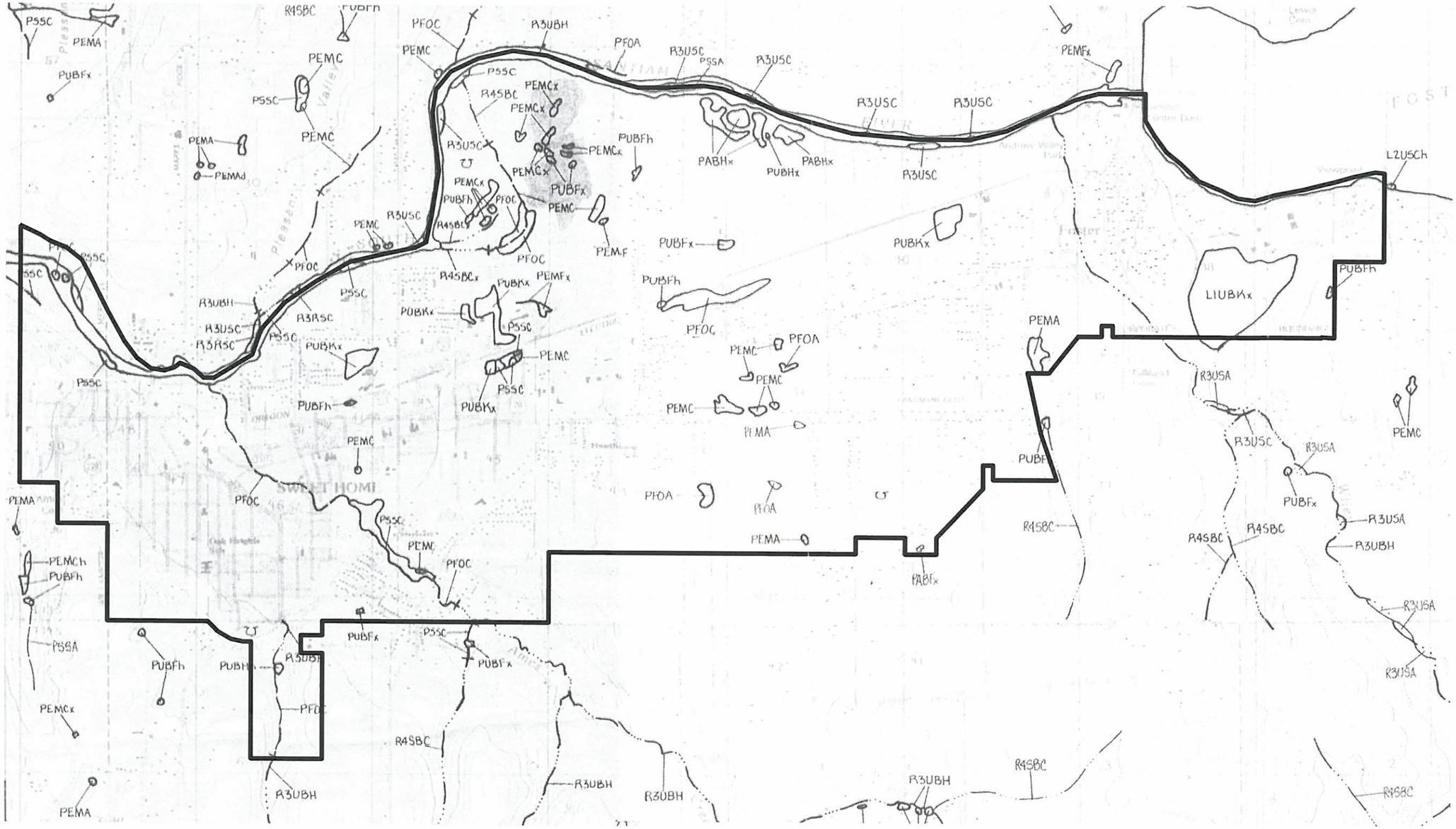
Indicator Code	Status
OBL	Obligate wetland. Estimated to occur almost exclusively in wetlands (>99%)
FACW	Facultative wetland. Estimated to occur 67-99% of the time in wetlands.
FAC	Facultative. Occur equally in wetlands and non-wetlands (34-66%).
FACU	Facultative upland. Usually occur in non-wetlands (67-99%).
UPL	Obligate upland. Estimated to occur almost exclusively in non-wetlands (>99%). If a species is not assigned to one of the four groups described above it is assumed to be obligate upland.
NI	Has not yet received a wetland indicator status, but is probably not obligate upland.

A non-comprehensive listing of plant species encountered within the project area, and their wetland indicator status is included in Appendix E.

5.0 LWI DISCUSSION AND CONCLUSIONS

5.1 U.S. Fish & Wildlife Service National Wetland Inventory

The U.S. Fish and Wildlife Service, as part of the National Wetlands Inventory (NWI) program, has mapped wetland in the study area (Figure 3). The NWI maps are generated primarily on the basis of interpretation of relatively small-scale color infrared aerial photographs (e.g., scale of 1:58,000) with limited "ground truthing" conducted to confirm the interpretations.



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National Wetlands Inventory information for the Sweet Home Local Wetlands Inventory in Sweet Home, Oregon (USFWS, Sweet Home, Oreg. quadrangle, 1995).

FIGURE 3

5.2 Local Wetlands Inventory Results

5.2.1 Wetland Acreage and Distribution

A total of 165 wetland units were identified during the LWI with a total acreage of 329.41 acres. The five watersheds ranged in size from the smaller Stonebrook Creek watershed (135.30 acres), to the larger South Santiam River watershed (2,251.60 acres). Wiley Creek has the highest percentage of wetlands within the watershed (17%) and Stonebrook and Ames Creek watershed had the smallest percentage (1% and 3% respectively). Table 4 summarizes the wetland acreage and distribution in the study area. Figures 4A through 4D show the wetlands and watershed boundaries for the LWI.

Table 4. Wetland Areas Within Each of the Watersheds for the Sweet Home LWI

Drainage Basin	Area (acres)	Wetland (acres)	Percent of Basin that is wetland
Wiley Creek	370.67	**64.77**	17%
South Santiam River	2,251.60	**223.09**	10%
Cotton Creek	385.52	**17.66**	5%
Ames Creek (incl. Taylor Creek)	376.88	**12.79**	3%
Stonebrook Creek	135.30	**1.10**	1%
Total Project Acreage	**3,519.97**	**329.41**	

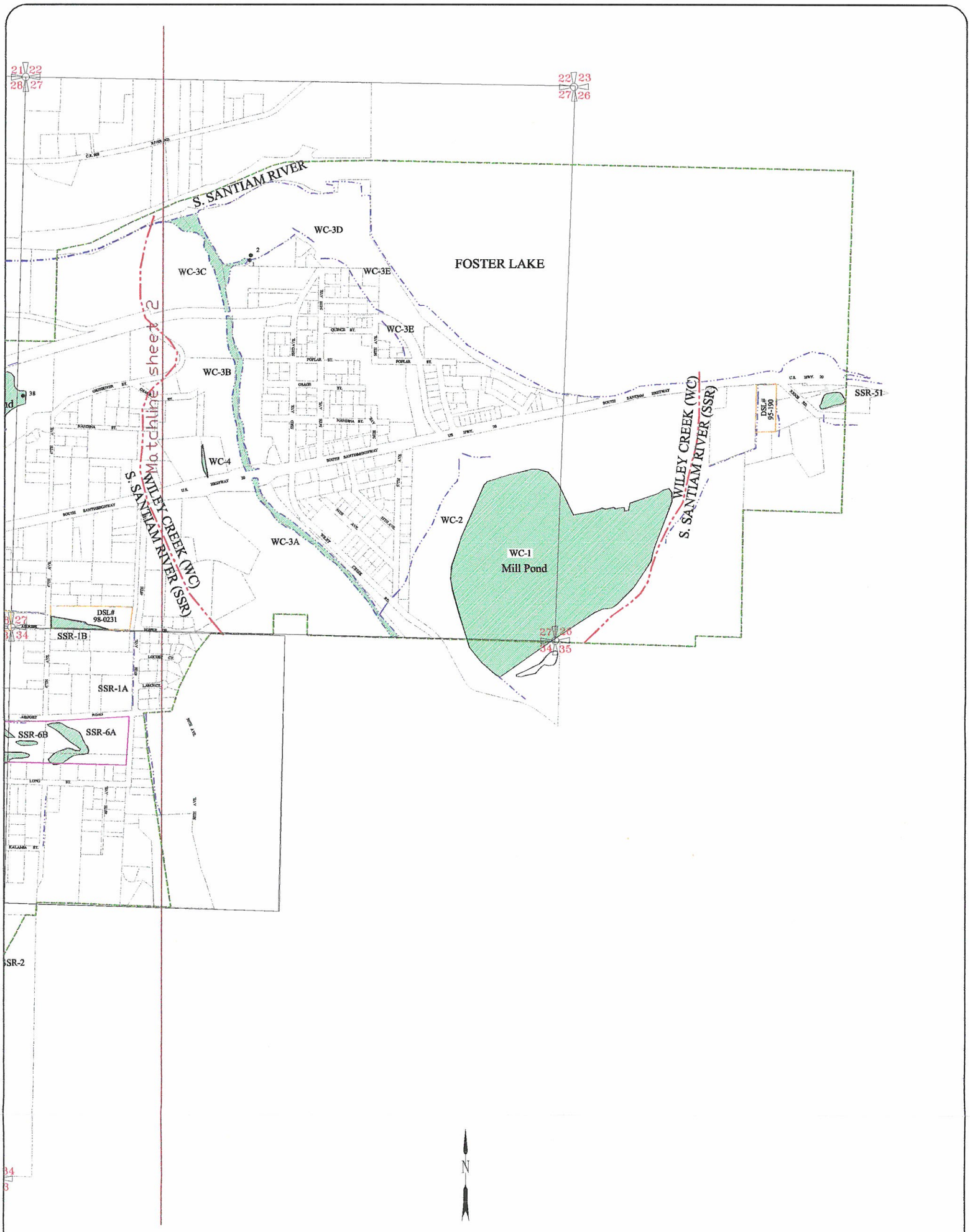
5.2.2 Wetland Classification

Each wetland was classified according to the Cowardin system. Most of the wetlands can be classified as palustrine emergent (30%), followed by palustrine unconsolidated bottom (21%) and palustrine emergent, farmed (20%), forested (13%), palustrine scrub-shrub (8%), and palustrine aquatic bed (4%). Some creek areas would be classified as riverine systems (3%).

Table 5 is a summary of wetland classifications for the Sweet Home LWI study area, while Table 6 shows the percentage of each wetland classification within the five watersheds. Table 7 (pages 22-26) is a classification table listing each wetland. Appendix A includes a wetland characterization sheet for each inventoried wetland. This summarizes the plant communities, hydrology, location, and any general notes about adjacent upland areas.

Table 5. Wetland Classifications found within the Sweet Home LWI

Wetland Classification	Area (acres)	Percent
Palustrine forested (PFO)	43.42	13%
Palustrine scrub-shrub (PSS)	25.35	8%
Palustrine emergent (PEM)	100.12	30%
Palustrine open water (POW)	66.70	20%
Palustrine aquatic bed (PAB)	13.01	4%
Palustrine unconsolidated bottom (PUB)	70.46	21%
Riverine (R)	10.35	3%
Total	**329.41**	**100%**



Watershed Boundary — Access Denied

Drainage — Wetland

Urban Growth Boundary — Wetland Code SSR-1

Sample Point 58

Funding for this project was provided by a grant from the Oregon Division of State Lands, Wetlands Planning Assistance grant program. This grant program is supported by a grant from the U.S. Environmental Protection Agency under authority of the Clean Water Act.

THIS MAP IS FOR PLANNING PURPOSES ONLY
WETLAND BOUNDARIES ARE APPROXIMATE
AND SUBJECT TO CHANGE

This map has NOT been approved by the wetland regulatory agencies for permitting purposes. You are advised to contact the Oregon Division of State Lands and the U.S. Army Corps of Engineers with any regulatory questions. There may be additional wetlands within the study area that have not been identified. All wetlands, whether mapped or not, are subject to Federal and State permit requirements. There may also be areas of non-wetland within areas identified as wetlands on this map. In all cases, Federal and State agencies will use actual field conditions, rather than this map, to determine wetland boundaries.

DATE: June, 2000

BASE MAP INFO: Supplied by City of Sweet Home, : and Linn County

JOB NO.: 9-1884

Sweet Home
Local Wetlands Inventory

Pacific Habitat Services,Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, Oregon 97070
Phone: (503) 570-0800

Figure: 4A

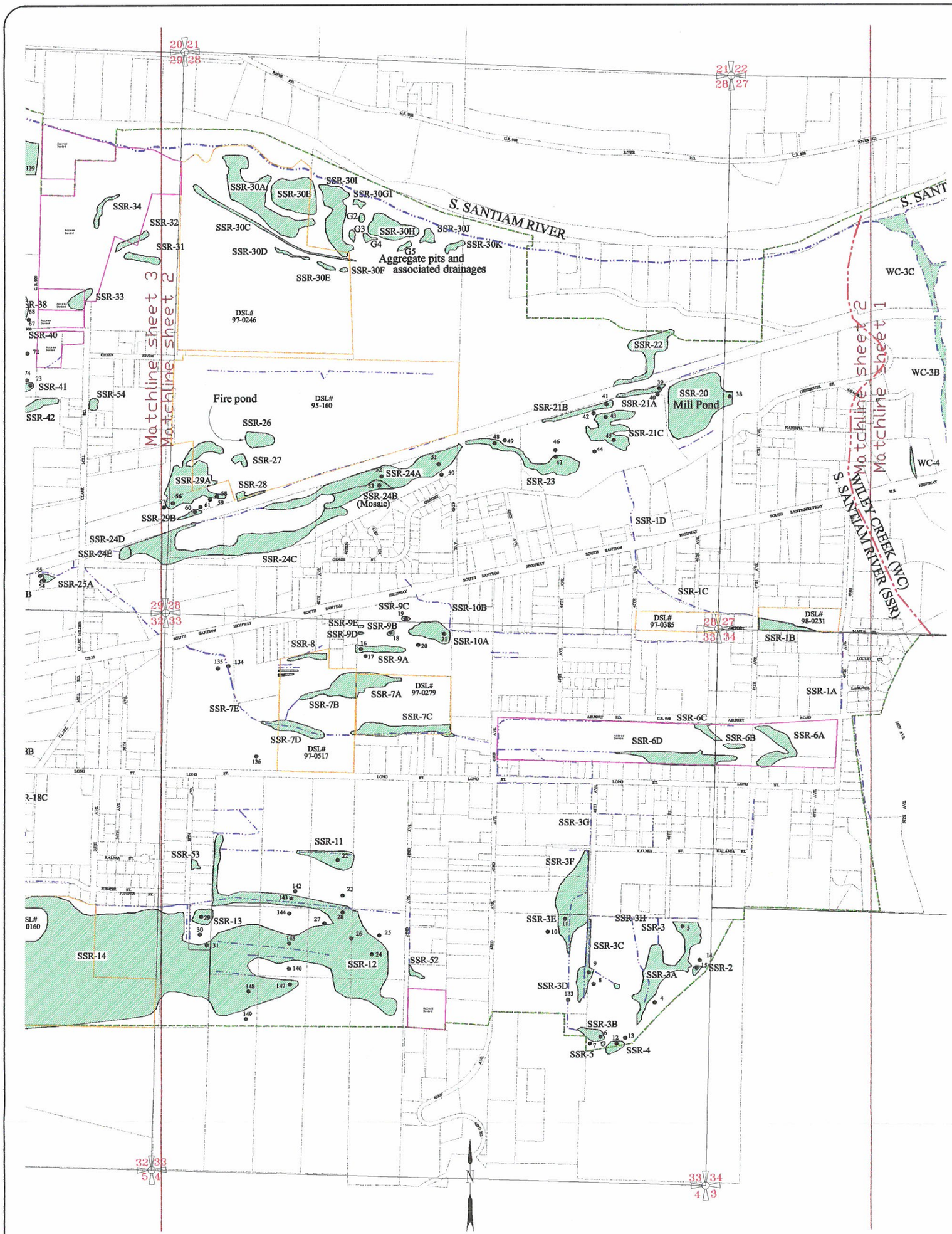


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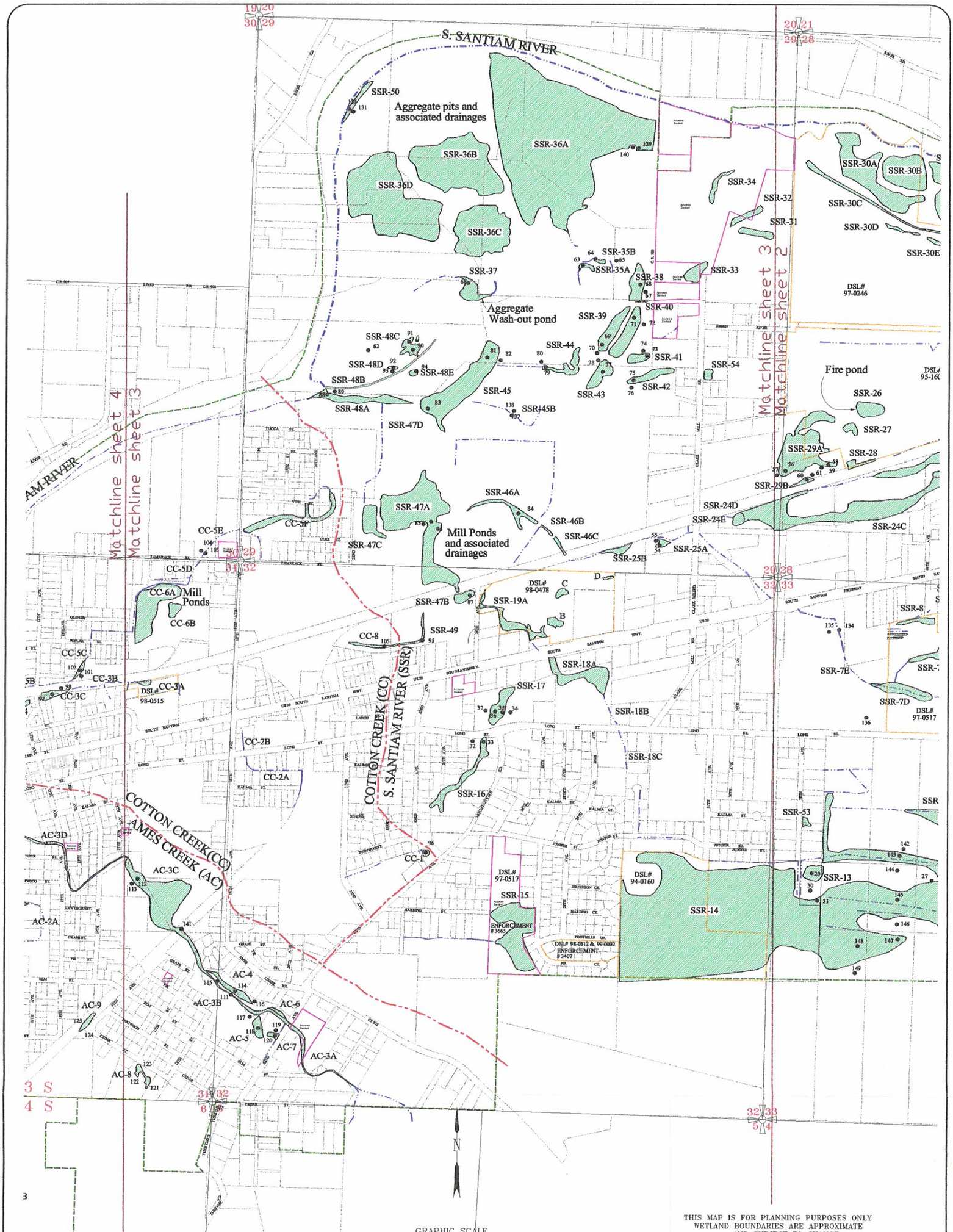
Figure: 4B



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Funding for this project was provided by a grant from the Oregon Division of State Lands, Wetlands Planning Assistance grant program. This grant program is supported by a grant from the U.S. Environmental Protection Agency under authority of the Clean Water Act.

DATE: June, 2000

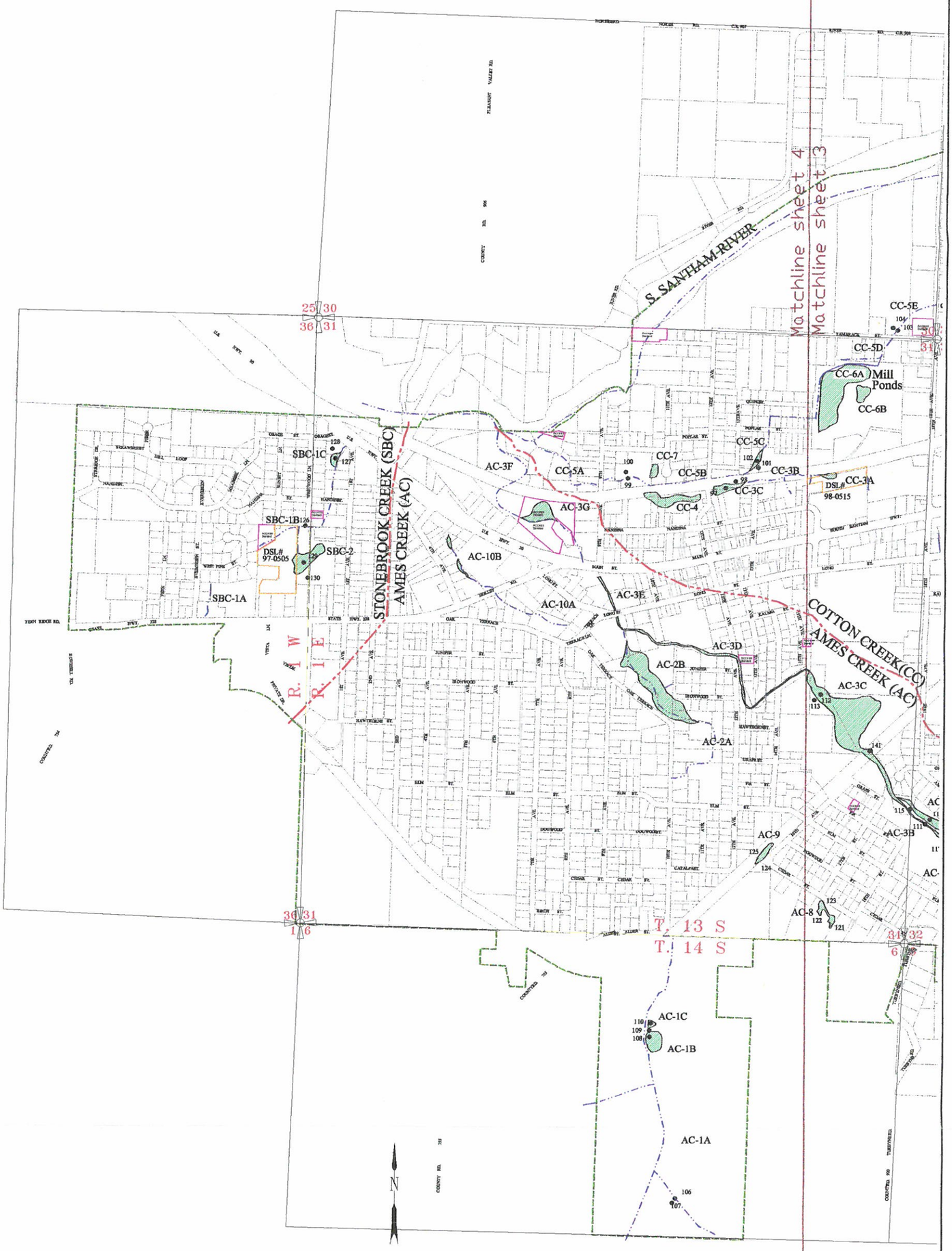
BASE MAP INFO: Supplied by City of Sweet Home, and Linn County

JOB NO.: 9-1884

Sweet Home
Local Wetlands Inventory

Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, Oregon 97070
Phone: (503) 570-0800

Figure: 4C



GRAPHIC SCALE

400 0 200 400 800 1600

Scale in Feet

Watershed Boundary — Access Denied

Drainage — Wetland

Urban Growth Boundary — Wetland Code SSR-1

Sample Point 58

Funding for this project was provided by a grant from the Oregon Division of State Lands, Wetlands Planning Assistance grant program. This grant program is supported by a grant from the U.S. Environmental Protection Agency under authority of the Clean Water Act.

THIS MAP IS FOR PLANNING PURPOSES ONLY
WETLAND BOUNDARIES ARE APPROXIMATE
AND SUBJECT TO CHANGE

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Sweet Home
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9450 SW Commerce Circle, Suite 180
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PHS

Figure: 4D

Table 6. Percent of Wetland Classifications within each Watershed

Wetland Classification	Wiley	South Santiam	Cotton	Ames	Stone-brook
Palustrine forested		84%	9%	6%	
Palustrine scrub-shrub		91%	5%	3%	
Palustrine emergent	1%	84%	9%	5%	1%
Palustrine open water	87%	13%			
Palustrine aquatic bottom		100%			
Palustrine unconsolidated bottom		95%	4%	1%	
Riverine	60%	3%	2%	33%	2%

Table 7. Cowardin classification of wetlands identified in the Sweet Home LWI

Wetland Code	USFWS Wetland Classification							Total Acreage
	PFO	PSS	PEM	POW	PAB	PUB	R3/R4	
AC-1A			0.24				0.24	0.48
AC-1B			0.05			0.43		0.48
AC-1C			0.07					0.07
AC-2A							0.11	0.11
AC-2B	2.52						0.18	2.70
AC-3A			0.06				0.44	0.50
AC-3B			0.05				0.38	0.43
AC-3C		0.42	3.29				0.51	4.22
AC-3D			0.04				0.40	0.44
AC-3E							0.12	0.12
AC-3F							0.87	0.87
AC-3G			0.69					0.69
AC-4		0.42	0.07					0.49
AC-5		0.35						0.35
AC-6		0.11						0.11
AC-7			0.12					0.12
AC-8		0.02	0.21					0.23
AC-9	0.20							0.20
AC-10A							0.10	0.10
AC-10B			0.01				0.07	0.08
CC-1	0.07							0.07
CC-2A			0.07					0.07
CC-2B			0.01					0.01
CC-3A		0.01						0.01
CC-3B			0.03					0.03
CC-3C		0.26	0.08					0.34

Table 7 continued

Wetland Code	USFWS Wetland Classification							Total Acreage
	PFO	PSS	PEM	POW	PAB	PUB	R3/R4	
CC-4		0.48	0.26					0.74
CC-5A			0.01				0.06	0.07
CC-5B			0.01				0.05	0.06
CC-5C	0.07						0.06	0.13
CC-5D			0.11					0.11
CC-5E			0.02					0.02
CC-5F	3.76		8.78					12.54
CC-6A						2.78		2.78
CC-6B						0.29		0.29
CC-7	0.15							0.15
CC-8		0.12	0.12					0.24
SBC-1A			0.03					0.03
SBC-1B			0.01				0.10	0.11
SBC-1C			0.14				0.07	0.21
SBC-2			0.75					0.75
SSR-1A							0.05	0.05
SSR-1B	0.81						0.06	0.87
SSR-1C				0.12				0.12
SSR-1D			0.04					0.04
SSR-2			0.02	0.09				0.11
SSR-3A			3.83					3.83
SSR-3B			0.46					0.46
SSR-3C			1.08					1.08
SSR-3D		0.06	0.03					0.09
SSR-3E			1.02					1.02
SSR-3F		1.75	1.17					2.92
SSR-3G			0.04					0.04
SSR-3H			0.06					0.06
SSR-4			0.02	0.32				0.34
SSR-5			0.03					0.03
SSR-6A			1.52					1.52
SSR-6B			0.17					0.17
SSR-6C			0.35					0.35
SSR-6D			2.19					2.19
SSR-7A	1.10							1.10
SSR-7B			1.42					1.42
SSR-7C			1.86					1.86

Table 7 continued

Wetland Code	USFWS Wetland Classification							Total Acreage
	PFO	PSS	PEM	POW	PAB	PUB	R3/R4	
SSR-7D			1.10					1.10
SSR-7E			0.03				0.12	0.15
SSR-8			0.33					0.33
SSR-9A			0.61					0.61
SSR-9B			0.06					0.06
SSR-9C			0.06					0.06
SSR-9D			0.02					0.02
SSR-9E			0.02					0.02
SSR-10A			1.21					1.21
SSR-10B			0.05				0.05	0.10
SSR-11			1.35					1.35
SSR-12	0.83		25.79					26.62
SSR-13	0.54							0.54
SSR-14	15.11	15.11	11.08					41.30
SSR-15			3.75					3.75
SSR-16	1.13							1.13
SSR-17	0.46	0.23	0.23					0.92
SSR-18A	1.25	0.42						1.67
SSR-18B	0.02							0.02
SSR-18C							0.08	0.08
SSR-19A	0.60		0.40					1.00
SSR-19B		0.25						0.25
SSR-19C		0.16						0.16
SSR-19D		0.05						0.05
SSR-20						5.88		5.88
SSR-21A		0.18	0.27					0.45
SSR-21B		0.30	0.35					0.65
SSR-21C		0.53	1.60					2.13
SSR-22			2.01					2.01
SSR-23	1.96		0.22					2.18
SSR-24A	2.67	1.60	1.07					5.34
SSR-24B			0.78					0.78
SSR-24C	5.41	0.32	0.63					6.36
SSR-24D						0.25		0.25
SSR-24E			0.02					0.02
SSR-25A			0.15					0.15
SSR-25B			0.30					0.30

Table 7 continued

Wetland Code	USFWS Wetland Classification							Total Acreage
	PFO	PSS	PEM	POW	PAB	PUB	R3/R4	
SSR-26						0.76		0.76
SSR-27			0.24					0.24
SSR-28	0.12		0.12					0.24
SSR-29A	3.13		1.04					4.17
SSR-29B			0.18					0.18
SSR-30A					4.60			4.60
SSR-30B					2.78			2.78
SSR-30C			0.87					0.87
SSR-30D			0.16					0.16
SSR-30E			0.13					0.13
SSR-30F			0.05					0.05
SSR-30G1						0.12		0.12
SSR-30G2						0.08		0.08
SSR-30G3						0.11		0.11
SSR-30G4						0.13		0.13
SSR-30G5						0.13		0.13
SSR-30H					1.72			1.72
SSR-30I					2.59			2.59
SSR-30J						0.28		0.28
SSR-30K						0.24		0.24
SSR-31			0.45					0.45
SSR-32			0.40					0.40
SSR-33						0.58		0.58
SSR-34			0.35					0.35
SSR-35A			0.13					0.13
SSR-35B		0.05	0.03					0.08
SSR-36A						34.07		34.07
SSR-36B						8.36		8.36
SSR-36C						5.07		5.07
SSR-36D						10.90		10.90
SSR-37		0.46	0.31					0.77
SSR-38	0.91							0.91
SSR-39	0.30	0.30	0.45					1.05
SSR-40			0.40		0.94			1.34
SSR-41			0.30		0.07			0.37
SSR-42			0.65					0.65
SSR-43			0.78					0.78

Table 7 continued

Wetland Code	USFWS Wetland Classification							Total Acreage
	PFO	PSS	PEM	POW	PAB	PUB	R3/R4	
SSR-44			0.63					0.63
SSR-45A			4.37					4.37
SSR-45B			0.04					0.04
SSR-46A			0.70					0.70
SSR-46B			0.07					0.07
SSR-46C			0.11					0.11
SSR-47A			0.75	6.70				7.45
SSR-47B			0.07	0.30				0.37
SSR-47C				0.92				0.92
SSR-48A		0.74	0.50					1.24
SSR-48B			0.20		0.23			0.43
SSR-48C		0.09	0.38					0.47
SSR-48D			0.01		0.04			0.05
SSR-48E			0.10					0.10
SSR-49		0.10	0.11					0.21
SSR-50		0.38						0.38
SSR-51				0.55	0.04			0.59
SSR-52			0.15					0.15
SSR-53	0.12							0.12
SSR-54	0.18							0.18
WC-1				57.42				57.42
WC-2				0.28				0.28
WC-3A			0.22				1.98	2.20
WC-3B			0.22				1.97	2.19
WC-3C			0.24				2.18	2.42
WC-3D							0.04	0.04
WC-3E							0.06	0.06
WC-4		0.08	0.08					0.16
TOTAL	**43.42**	**25.35**	**100.12**	**66.70**	**13.01**	**70.46**	**10.35**	**329.41**

5.3 Oregon Freshwater Wetland Assessment Methodology Results

5.3.1 Wetlands of Special Interest for Protection

Each of the wetlands were assessed according to the ten questions in this section of OFWAM. These questions are regarding the presence of federal or state listed threatened, endangered or sensitive species, existing management plans, conservation plans, protected mitigation areas, critical habitat, wetland reserve areas and the presence of uncommon wetland plant communities in Oregon.

These questions were answered "no" for the majority of wetlands, however one site is known to have Bradshaw's lomatium (*Lomatium bradshawii*), a federal listed endangered species (SSR-14). Therefore, this wetland qualifies as a "wetland of special interest for protection".

5.3.2 Wetland Quality Assessment

An assessment of the quality for each of the wetlands identified through the inventory was conducted using the *Oregon Freshwater Assessment Methodology* (OFWAM) (Roth et al, April 1996). OFWAM assesses 6 functions and 3 conditions, as described in Section 3.3.1. Appendix C contains all of the results for each of the wetlands assessed by the methodology along with summary sheets of the functions and conditions assessed by the methodology and the rationale for the results.

Although OFWAM provides qualitative information on the relative value of wetlands and does not have a numerical ranking, numbers were assigned to the assessment criteria to easily compare the results. Table 8 (page 28) is a key to the numbers assigned to the assessment criteria for each of the functions and conditions. A number 1 was assigned to wetlands receiving the highest function or condition result (e.g. intact, diverse), a number 3 was assigned to the wetlands receiving the lowest result (lost or not present, not appropriate), and a number 2 was assigned to the results which do not fit the other criteria (potential, impacted or degraded). Table 9 (pages 29-34) shows the results of the quality assessment conducted on all of the wetlands identified through the inventory. Some functions or conditions were not applicable to certain wetlands. For instance the methodology states that if a wetland receives an assessment of "diverse wildlife habitat" then the enhancement potential assessment is not applicable. In addition, if there was no likelihood of fish habitat in the wetlands the fish habitat assessment was not applicable.

Table 8. Key to the Oregon Freshwater Wetland Assessment Methodology Numerical Ranking

Wildlife Habitat	1. *Wetland provides diverse wildlife habitat* 2. *Wetland provides habitat for some wildlife species* 3. *Wetland does not provide wildlife habitat*
Fish Habitat	1. *Wetland's fish habitat function is intact* 2. *Wetland's fish habitat function is impacted or degraded* 3. *Wetland's fish habitat function is lost or not present*
Water Quality	1. *Wetland's water-quality function is intact* 2. *Wetland's water-quality function is impacted or degraded* 3. *Wetland's water-quality function is lost or not present*
Hydrologic Control	1. *Wetland's hydrologic control function is intact* 2. *Wetland's hydrologic control function is impacted or degraded* 3. *Wetland's hydrologic control function is lost or not present*
Sensitivity to Impact	1. *Wetland is sensitive to future impacts* 2. *Wetland is potentially sensitive to future impacts* 3. *Wetland is not sensitive to future impacts*
Enhancement Potential	1. *Wetland has high enhancement potential* 2. *Wetland has moderate potential for enhancement* 3. *Wetland has little enhancement potential*
Education	1. *Wetland has educational uses* 2. *Wetland has potential for educational use* 3. *Wetland is not appropriate for educational use*
Recreation	1. *Wetland provides recreational opportunities* 2. *Wetland has the potential to provide recreational activities* 3. *Wetland is not appropriate for or does not provide recreational opportunities*
Aesthetic Quality	1. *Wetland is considered to be pleasing* 2. *Wetland is considered to be moderately pleasing* 3. *Wetland is not pleasing*

In general, the majority of the wetlands provided wildlife habitat for some species. Diverse wildlife habitat was limited to those wetlands which had a variety of strata (trees, shrubs, herbaceous), and which were adjacent, or connected to, other wetlands or surface water. Only 12 of the 165 (7%) wetlands were assessed with diverse wildlife habitat.

Table 9. Oregon Freshwater Wetland Assessment Methodology Numerical Ranking Results for the Sweet Home Local Wetlands Inventory

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
AC-1A	1	1	1	2	2	n/a	3	3	1	0.48
AC-1B	2	2	2	2	2	1	3	3	1	0.48
AC-1C	2	n/a	2	2	2	1	3	3	1	0.07
AC-2A	2	2	2	2	2	2	3	3	3	0.11
AC-2B	2	1	2	1	2	1	3	3	1	2.70
AC-3A	2	1	2	2	2	1	3	3	2	0.50
AC-3B	2	1	2	1	2	1	3	2	2	0.43
AC-3C	2	2	1	1	2	1	1	1	1	4.22
AC-3D	2	2	2	1	2	1	3	3	2	0.44
AC-3E	2	2	2	1	2	2	3	3	3	0.12
AC-3F	2	2	2	1	2	1	3	3	3	0.87
AC-3G	2	n/a	2	2	2	1	3	3	3	0.69
AC-4	2	n/a	2	1	2	1	3	3	1	0.49
AC-5	2	n/a	2	1	2	1	3	3	1	0.35
AC-6	2	n/a	2	2	2	2	3	3	3	0.11
AC-7	2	n/a	2	2	2	1	3	3	1	0.12
AC-8	2	2	2	2	2	1	3	3	1	0.23
AC-9	2	n/a	2	2	2	1	2	2	1	0.20
AC-10A	2	2	2	2	2	2	3	3	2	0.10
AC-10B	2	2	2	2	2	1	2	2	3	0.08
CC-1	2	n/a	2	2	2	1	3	3	2	0.07
CC-2A	2	n/a	2	2	2	2	3	3	3	0.07
CC-2B	2	n/a	2	2	2	2	3	3	3	0.01
CC-3A	2	n/a	2	1	2	2	2	3	3	0.01
CC-3B	2	n/a	2	2	2	2	3	3	3	0.03
CC-3C	2	n/a	1	1	2	1	3	3	1	0.34
CC-4	2	n/a	1	1	2	1	3	3	1	0.74
CC-5A	2	2	1	1	2	1	3	3	3	0.07
CC-5B	2	2	1	2	2	1	3	3	3	0.06

Table 9. Continued

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
CC-5C	2	2	1	1	2	2	2	2	2	0.13
CC-5D	2	n/a	2	2	2	1	3	3	3	0.11
CC-5E	2	n/a	2	2	2	1	3	3	3	0.02
CC-5F	2	n/a	2	1	2	1	3	3	1	12.54
CC-6A	2	2	2	1	2	1	3	3	3	2.78
CC-6B	2	2	3	1	2	2	3	3	3	0.29
CC-7	2	n/a	2	2	2	1	3	3	1	0.15
CC-8	2	n/a	2	2	2	2	3	3	3	0.24
SBC-1A	2	n/a	2	2	2	2	3	3	3	0.03
SBC-1B	2	2	2	2	2	2	3	2	3	0.11
SBC-1C	2	2	1	2	2	2	2	1	2	0.21
SBC-2	2	n/a	2	2	2	1	1	2	1	0.75
SSR-1A	2	n/a	2	2	2	2	3	3	3	0.05
SSR-1B	2	n/a	1	1	2	1	3	3	2	0.87
SSR-1C	2	n/a	2	2	2	1	3	3	2	0.12
SSR-1D	2	n/a	2	2	2	1	3	3	3	0.04
SSR-2	2	2	2	2	2	2	3	3	1	0.11
SSR-3A	2	n/a	2	2	2	1	3	2	1	3.83
SSR-3B	2	n/a	2	2	2	2	3	3	1	0.46
SSR-3C	2	n/a	2	2	2	1	3	3	1	1.08
SSR-3D	2	n/a	2	2	2	2	3	3	3	0.09
SSR-3E	2	n/a	2	2	2	1	3	2	1	1.02
SSR-3F	2	n/a	1	2	2	1	3	3	1	2.92
SSR-3G	2	n/a	2	2	2	3	2	3	3	0.04
SSR-3H	2	n/a	2	3	2	3	3	3	1	0.06
SSR-4	2	2	2	2	2	2	3	3	1	0.34
SSR-5	2	n/a	3	3	2	2	3	3	1	0.03
SSR-6A	2	n/a	2	2	2	1	3	3	1	1.52
SSR-6B	2	n/a	2	2	2	2	3	3	1	0.17

Table 9. Continued

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
SSR-6C	2	n/a	2	2	2	2	3	3	1	0.35
SSR-6D	2	n/a	2	2	2	1	3	3	1	2.19
SSR-7A	2	n/a	2	2	2	1	3	3	1	1.10
SSR-7B	2	n/a	2	2	2	1	3	3	1	1.42
SSR-7C	2	2	2	2	2	1	3	3	1	1.86
SSR-7D	2	2	2	2	2	1	3	3	1	1.10
SSR-7E	2	2	2	2	2	1	3	3	2	0.15
SSR-8	2	n/a	2	2	2	2	3	3	2	0.33
SSR-9A	2	n/a	2	2	2	1	3	3	3	0.61
SSR-9B	2	n/a	2	2	2	2	3	3	3	0.06
SSR-9C	2	n/a	2	2	2	2	3	3	3	0.06
SSR-9D	2	n/a	2	2	2	2	3	3	3	0.02
SSR-9E	2	n/a	2	2	2	2	3	3	3	0.02
SSR-10A	2	n/a	2	2	2	1	3	3	3	1.21
SSR-10B	2	2	2	2	2	1	3	3	2	0.10
SSR-11	2	n/a	2	2	2	1	3	3	1	1.35
SSR-12	2	n/a	2	2	2	1	3	3	1	26.62
SSR-13	2	n/a	2	2	2	1	3	3	1	0.54
SSR-14	2	n/a	2	1	2	1	3	3	1	41.30
SSR-15	2	n/a	2	2	2	1	3	3	3	3.75
SSR-16	2	n/a	2	1	2	1	3	3	2	1.13
SSR-17	2	n/a	2	1	2	1	3	3	1	0.92
SSR-18A	2	2	1	1	2	1	3	3	1	1.67
SSR-18B	2	2	2	2	2	1	3	3	2	0.02
SSR-18C	2	n/a	2	2	2	1	3	3	2	0.08
SSR-19A	2	2	1	1	2	1	3	3	2	1.00
SSR-19B	2	n/a	2	2	2	1	3	3	3	0.25
SSR-19C	2	n/a	2	2	2	1	3	3	3	0.16
SSR-19D	2	n/a	2	2	2	1	3	3	3	0.05

Table 9. Continued

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
SSR-20	2	2	2	2	2	1	3	3	3	5.88
SSR-21A	2	n/a	2	2	2	2	3	3	2	0.45
SSR-21B	2	n/a	2	2	2	1	3	3	2	0.65
SSR-21C	2	n/a	2	2	2	1	3	3	2	2.13
SSR-22	2	n/a	2	2	2	1	3	3	2	2.01
SSR-23	1	n/a	2	2	2	n/a	3	3	1	2.18
SSR-24A	1	1	2	1	2	n/a	3	3	1	5.34
SSR-24B	2	n/a	2	2	2	1	3	3	1	0.78
SSR-24C	1	1	2	1	2	n/a	3	3	1	6.36
SSR-24D	2	2	2	2	2	1	3	3	1	0.25
SSR-24E	2	2	2	2	2	1	3	3	3	0.02
SSR-25A	2	2	2	2	2	2	3	3	3	0.15
SSR-25B	2	2	2	2	2	1	3	3	3	0.30
SSR-26	2	2	2	2	2	1	3	3	3	0.76
SSR-27	2	n/a	2	2	2	1	3	3	3	0.24
SSR-28	2	n/a	2	2	2	1	3	3	3	0.24
SSR-29A	2	n/a	2	1	2	1	3	3	2	4.17
SSR-29B	2	n/a	2	2	2	2	3	3	3	0.18
SSR-30A	2	2	2	2	2	1	3	3	1	4.60
SSR-30B	2	2	2	2	2	1	3	3	1	2.78
SSR-30C	2	n/a	2	2	2	1	3	3	1	0.87
SSR-30D	2	n/a	3	2	2	2	3	3	1	0.16
SSR-30E	2	n/a	3	2	2	2	3	3	1	0.13
SSR-30F	2	n/a	3	2	2	2	3	3	1	0.05
SSR-30G1	2	2	3	2	2	2	3	3	1	0.12
SSR-30G2	2	2	3	2	2	2	3	3	1	0.08
SSR-30G3	2	2	3	2	2	2	3	3	1	0.11
SSR-30G4	2	2	3	2	2	2	3	3	1	0.13
SSR-30G5	2	2	3	2	2	2	3	3	1	0.13

Table 9. Continued

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
SSR-30H	2	2	2	2	2	1	3	3	1	1.72
SSR-30I	2	2	2	2	2	1	3	3	1	2.59
SSR-30J	2	2	3	2	2	2	3	3	1	0.28
SSR-30K	2	2	3	2	2	2	3	3	1	0.24
SSR-31	2	n/a	2	2	2	2	3	3	1	0.45
SSR-32	2	n/a	2	2	2	2	3	3	1	0.40
SSR-33	2	2	2	2	2	1	3	3	1	0.58
SSR-34	2	n/a	2	2	2	1	3	3	1	0.35
SSR-35A	2	n/a	2	3	2	3	3	3	3	0.13
SSR-35B	2	2	2	3	2	2	1	1	1	0.08
SSR-36A	2	2	2	2	2	2	3	3	3	34.07
SSR-36B	2	2	2	2	2	2	3	3	3	8.36
SSR-36C	2	2	2	2	2	2	3	3	3	5.07
SSR-36D	2	2	2	2	2	2	3	3	3	10.90
SSR-37	2	n/a	2	2	2	2	3	3	3	0.77
SSR-38	1	n/a	2	2	2	n/a	3	3	1	0.91
SSR-39	1	n/a	2	2	2	n/a	3	3	1	1.05
SSR-40	1	2	2	2	1	n/a	3	3	1	1.34
SSR-41	2	2	2	2	2	2	3	3	1	0.37
SSR-42	2	n/a	2	2	2	1	3	3	1	0.65
SSR-43	2	n/a	2	2	2	1	3	3	1	0.78
SSR-44	2	n/a	2	2	2	1	3	3	3	0.63
SSR-45A	1	1	2	1	2	n/a	3	3	3	4.37
SSR-45B	2	n/a	2	2	2	1	3	3	3	0.04
SSR-46A	2	2	2	2	2	1	3	3	3	0.70
SSR-46B	2	2	2	2	2	2	3	3	3	0.07
SSR-46C	2	2	2	2	2	2	3	3	3	0.11
SSR-47A	2	2	2	1	2	1	3	3	3	7.45
SSR-47B	2	2	2	2	2	2	3	3	3	0.37
SSR-47C	2	2	2	2	2	1	3	3	3	0.92

Table 9. Continued

Wetland Code	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Sensitivity to Impact	Enhancement Potential	Education	Recreation	Aesthetic Quality	Size (acres)
SSR-48A	2	1	1	2	2	1	2	1	1	1.24
SSR-48B	2	2	2	2	2	1	3	2	2	0.43
SSR-48C	2	n/a	2	2	2	1	3	3	1	0.47
SSR-48D	2	2	2	2	2	1	3	3	1	0.05
SSR-48E	2	2	2	2	2	1	3	3	1	0.10
SSR-49	2	n/a	2	2	2	2	3	3	3	0.21
SSR-50	1	1	2	2	2	n/a	2	1	1	0.38
SSR-51	2	2	2	1	2	1	3	3	1	0.59
SSR-52	2	n/a	2	2	2	1	3	3	3	0.15
SSR-53	2	n/a	2	2	2	1	3	3	1	0.12
SSR-54	2	n/a	2	2	2	1	3	3	1	0.18
WC-1	2	2	2	1	2	1	3	3	3	57.42
WC-2	2	2	2	2	2	2	3	3	3	0.28
WC-3A	1	1	1	2	2	n/a	2	1	2	2.20
WC-3B	1	1	1	2	2	n/a	2	1	2	2.19
WC-3C	1	1	1	2	2	n/a	2	1	2	2.42
WC-3D	2	2	2	2	2	2	1	1	1	0.04
WC-3E	2	n/a	3	3	2	2	3	3	2	0.06
WC-4	2	n/a	2	2	2	1	3	3	1	0.16

The majority of the wetlands (54%) were not assessed for the fish habitat function due to the lack of perennial surface water or connection to surface water. Of the 75 wetlands which were assessed for fish habitat, 12 (16%) were determined to have intact fish habitat due to perennial surface water, large woody debris, shade, and natural, unmodified channels. The other 63 wetlands assessed for this function were determined to be impacted or degraded.

The water quality function was assessed as impacted or degraded in many wetlands if the primary source of hydrology was groundwater and the dominant existing land use is open space or agricultural lands. The rationale is that wetlands which are groundwater-driven or surrounded by open space may not play as significant a water quality function as wetlands derived from surface water or surrounded by developed lands. Wetlands in the more developed portions of the study area were assessed as having their water quality function intact due to downstream or adjacent development. A total of 16 wetlands (10%) were assessed as having their water quality function intact. The majority (82%) were assessed with impacted or degraded water quality function, and 8% were assessed with water quality function lost or not present.

Hydrologic control was generally assessed as impacted or degraded (80%), or lost or not present (3%) due to unrestricted outflow, dominance of emergent vegetation, and surrounding agricultural lands or downstream open space. Twenty-eight (28) of the 165 wetlands (17%) were assessed with hydrologic control function intact. The wetlands assessed with intact hydrologic control function are generally located within the 100-year floodplain and are upstream of developed areas.

Recreational and educational functions were considered impacted or degraded in a majority of the wetlands due to the lack of public access or developed paths, and safety concerns associated with public access and handicap access. In addition, the aesthetic quality of many of the wetlands was impaired by the presence of major roads, adjacent development and/or agricultural practices.

6.0 SIGNIFICANT WETLANDS DETERMINATION

6.1 Locally Significant Wetlands Criteria

On September 1, 1996, the Land Conservation and Development Commission adopted a revised Statewide Planning Goal 5. Goal 5 is the planning goal for natural resources, scenic and historic areas, and open spaces. Its purpose is to "protect natural resources, and conserve scenic and historic areas and open spaces". The goal requires local jurisdictions to inventory the natural resources covered under the goal, determine the significance of these resources, and develop plans to achieve the goal. In other words, local jurisdictions must adopt land use ordinances regulating development in and around significant areas.

Local jurisdictions determining significant wetlands must use the criteria recently adopted by the Oregon Division of State Lands (ORS 197.279(3)(b)). This criteria identifies Locally Significant Wetlands. The significance criteria is divided into three sections, as described in Table 10 (next page).

Table 10 Criteria for Determining Goal 5 Locally Significant Wetlands

***Exclusions*: A wetland cannot be designated as significant if the answer to any of the criteria below is "Yes".**
1 Is this wetland artificially created entirely from upland and: **a.** created for the purpose of controlling, storing, or maintaining storm water **b.** is used for active surface mining or as a log pond **c.** is a ditch without a free and open connection to natural waters of the state **d.** is less than 1 acre and created unintentionally from irrigation or construction **e.** created for the purpose of wastewater treatment, cranberry production, farm watering, sediment settling, cooling industrial water, or a golf hazard **2** Is the wetland or portion of the wetland contaminated by hazardous substances, materials or wastes as per the conditions of ORS 141-86-350 1(b)
***Mandatory Locally Significant Wetland Criteria*: A wetland is locally significant if "Yes" is the answer to any of the criteria below.**
1 Does the wetland provide *diverse wildlife habitat*? **2** Is the wetland's *fish habitat function intact*? **3** Is the wetland's *water quality function intact*? **4** Is the wetland's *hydrologic control function intact*? **5** Is the wetland less than 1/4 mile from a water body listed by DEQ as a water quality limited water body (303(d) list) and is the wetland's *water quality function intact, or impacted or degraded*? **6** Does the wetland contain a rare plant community? **7** Is the wetland inhabited by any species listed federally as threatened or endangered, or state listed as sensitive, threatened or endangered? **8** Does the wetland have a direct surface water connection to a stream segment mapped by ODFW as habitat for indigenous anadromous salmonids and is the wetland's *fish habitat function intact, or impacted or degraded*?
***Optional Locally Significant Wetland Criteria*: local governments may identify a wetland as significant if "Yes" is the answer to the criteria below**
1 Does the wetland represent a locally unique native plant community and provides *diverse wildlife habitat or habitat for some species* or has a *intact, or impacted or degraded fish habitat function* or has a *intact, or impacted or degraded water quality function* or has a *intact, or impacted or degraded hydrologic control function*. **2** Is the wetland publicly owned and used by a school or organization and does the wetland provide *educational uses*?

6.2 Applying Significant Wetland Criteria to the LWI Study Area

The locally significant wetlands criteria were applied to the 165 wetlands within the study area. Forty-one (41) wetlands or 25% of total wetlands satisfied the criteria for significant wetlands. Several of the log ponds met the exclusion criteria (i.e. active log ponds) for locally significant wetlands. The results of applying the criteria are included in Appendix D. These are summarized in Table 11 below:

Table 11. Locally Significant Wetlands in the Sweet Home LWI

WC-3A	SSR-1B	AC-1A	CC-3A	SBC-1C
WC-3B	SSR-3F	AC-2B	CC-3C	
WC-3C	SSR-14	AC-3A	CC-4	
WC-3D	SSR-16	AC-3B	CC-5A	
	SSR-17	AC-3C	CC-5B	
	SSR-18A	AC-3D	CC-5C	
	SSR-19A	AC-3E	CC-5F	
	SSR-23	AC-3F		
	SSR-24A	AC-4		
	SSR-24C	AC-5		
	SSR-29A			
	SSR-38			
	SSR-39			
	SSR-40			
	SSR-45A			
	SSR-48A			
	SSR-48B			
	SSR-50			
	SSR-51			

Four (4) of the 8 (50%) Wiley Creek wetlands; 1 of the 4 (25%) Stonebrook Creek wetlands; 19 of the 116 (16%) South Santiam River wetlands; 7 of the 17 (41%) Cotton Creek wetlands; and 10 of the 20 (50%) Ames Creek wetlands were determined to be significant.

The majority of the wetlands which met the criteria for significance were undisturbed areas in the floodplain which contained a variety of plant species and which were hydrologically connected to other wetlands or waters of the state. Although other wetlands within the study area are valuable for some functions, they do not satisfy the mandatory significant wetlands criteria or they do satisfy the exclusion criteria.

7.0 PROJECT SUMMARY

- The City of Sweet Home hired Pacific Habitat Services, Inc. (PHS) to conduct a Local Wetlands and Riparian Inventory (LWI) for areas within the City's Urban Growth Boundary.

- The project area is approximately a 3,520- acres and includes portions of the South Santiam River, Wiley Creek, Ames Creek, Taylor Creek, Stonebrook Creek and Cotton Creek drainages.

- Field work was conducted between April 1999 and January 2000. Each wetland unit was assigned an unique code based on the watershed. A wetland characterization and wetland assessment was completed for each wetland unit. The wetland assessment was based on the Oregon Freshwater Wetland Assessment Methodology.

- In addition to the determination and wetland assessment, Locally Significant Wetlands were identified based on Oregon Administrative Rules.

- A total of 165 wetland units were identified in the project area, with a total acreage of approximately 330 acres.

- Most of the wetlands can be classified as palustrine emergent (30%), followed by palustrine unconsolidated bottom (21%) and palustrine emergent, farmed (20%), forested (13%), palustrine scrub-shrub (8%), and palustrine aquatic bed (4%). Some creek areas would be classified as riverine systems (3%).

- One of the wetlands (SSR-14) met the criteria for "wetlands of special interest for protection".

- Thirty-nine (39) of the 165 wetlands met the criteria for Locally Significant Wetlands due to either diverse wildlife habitat, intact fish habitat, intact water quality function and/or intact hydrologic control function. Many of these wetlands also are connected by surface water to the South Santiam River or Wiley Creek, which are designated Essential Salmonid Habitat. Some areas met the exclusion criteria since they are active log ponds, created out of upland, or aggregate sites.

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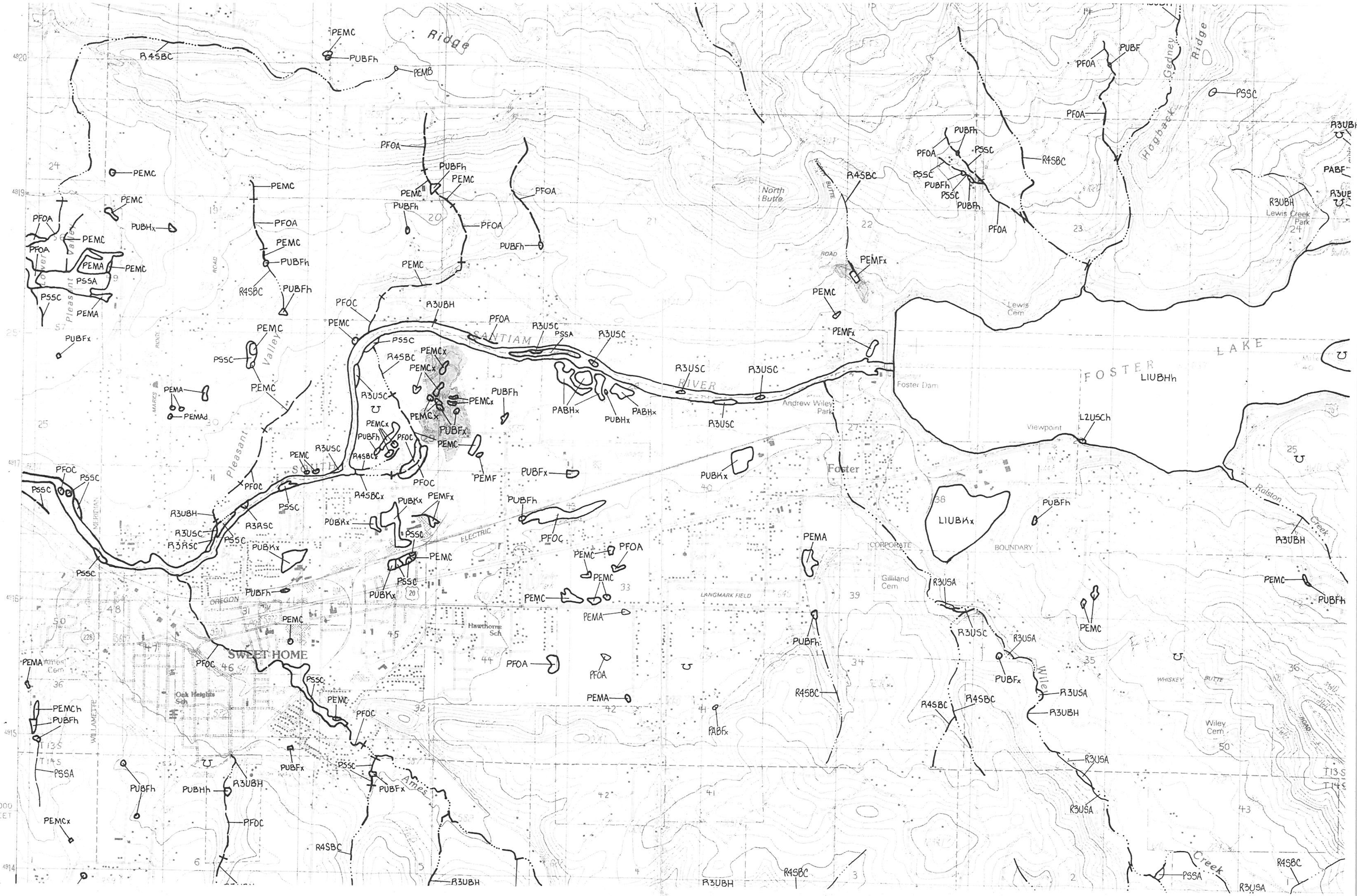
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Valley
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PUBFx
PUBKx
Foster
Foster Dam
Andrew Wiley Park
FOSTER
LAKE
L1UBHh
L2USCh
Viewpoint
North Butte
ROAD
PEMFx
Lewis Cem
Lewis Creek Park
Gedney
Hogback
Ridge
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SOUTH
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CORPORATE
Ralston
Creek
Gilliland Cem
LANGMARK FIELD
OREGON
SWEET HOME
Hawthorne Sch
Oak Heights Sch
PEMCh
PUBFh
Ames Cem
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MERIDIAN
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