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City of Vernonia
Local Wetland Inventory and Riparian Assessment

Prepared for

The City of Vernonia

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APPROVED WETLANDS INVENTORY
Oregon Division of State Lands
Meets LWI standards
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1.0 INTRODUCTION

This report documents the methods and results of the City of Vernonia's (City's) Local Wetland Inventory (LWI). The City hired Shapiro and Associates, Inc. (SHAPIRO) to conduct the wetland inventory, wetland function assessment, and riparian assessment inside the City's Urban Growth Boundary (UGB; Figure 1). The cartographic products and supporting documentation of this LWI have been prepared to satisfy requirements of Oregon Administrative Rule (OAR) 141-86-180.

Vernonia is nestled in the Nehalem River Valley of the Oregon Coast Range. Early settlement and development of the City were based on a resource extraction economy (timber harvesting and milling). Records indicate that the first European settlement in the area probably occurred in the Nehalem Valley in 1867. By 1877, 150 settlers were living in the valley. In 1949, 300 farms were reported in the Vernonia area (St. Helens Sentinel Mist, 1949). The Oregon-American Lumber Mill was established in 1924. In 1994, the City's population was 2,035 (Levine, 1996).

The City was awarded a 1998/1999 Wetlands Planning Assistance Grant by the Oregon Division of State Lands (DSL), funded by the U.S. Environmental Protection Agency (EPA) Region X. The work described in the grant includes conducting a LWI and a Riparian Assessment. The City is required to complete the LWI as part of the requirements of the periodic land use planning review process established by state land use planning Goal 5. Further, the City suspected wetlands existed on large areas zoned for development. A public meeting was held June 3, 1999, to inform citizens about the LWI process.

The relative quality of wetlands in the study area also was assessed. This information was used to identify locally significant wetlands to facilitate meeting Goal 5 requirements for wetland protection. Riparian assessments were conducted to provide additional information to meet Goal 5 requirements.

When approved and accepted by the DSL, this inventory and assessment of wetland and riparian resources will supplement the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps the City currently uses to provide information on the location and size of wetlands. The LWI also will be incorporated into the statewide wetland inventory and used for the wetland – land use notification program. This means that applicants for City development permits will be referred to the DSL for any necessary wetland clearance if their lot has a mapped wetland or waterway.

SHAPIRO conducted the inventory using experienced LWI staff. Dan Cary, a wetland delineator certified by the U.S. Army Corps of Engineers (COE), was Project Manager. Trained wetland delineators Colin MacLaren, John Gordon, and Ed Strohmaier, who all have prior experience performing wetland inventories, assisted on the project. The cartographer for the project was Sylvia Jung, who has performed cartographic work for several LWIs and numerous wetland delineations. The base map for the inventory was prepared in the by Tetra Tech, Inc.

2.0 SOURCE MATERIALS AND METHODS

2.1 Source Materials

Available information was compiled and reviewed before field work was conducted. Soil information was compiled from data in *Soil Survey of Columbia County, Oregon* (U.S. Department of Agriculture [USDA], 1986). Preliminary wetland information was obtained from the Vernonia, Oregon NWI maps (USFWS, 1981). Floodplain information was obtained from Columbia County, Oregon and Incorporated Areas Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FEMA, 1988).

A digitized base map of the study area that included layers for tax lot lines, street names, rights-of-way, and section boundaries was prepared by Tetra Tech, Inc. Tax assessor maps and aerial photograph overlays were used as the information source for this base map. Property boundaries were not surveyed. Zoning information was obtained from the City of Vernonia Planning/Zoning Map (1996, scale 1 inch = 800 feet). A 1:4800 scale color aerial photograph taken in 1994 was obtained from Spencer B. Gross, Inc.

Other source materials included the Oregon Rivers Information System (ORIS; Baker and Forsberg, 1994) fish presence database; telephone conversations with Joe Sheehan, District Fish Biologist with the Oregon Department of Fish and Wildlife (ODFW); Oregon's 1998 Section 303(d) List of Water Quality Limited Waterbodies (Oregon Department of Environmental Quality [DEQ], 1998); *Classification and Catalog of Native Wetland Plant Communities in Oregon* (Christy, 1993); and a current data search from the Oregon Natural Heritage Program (ONHP, 1998). This information was used to develop a preliminary indication of the location and possible quality of wetlands, facilitate on-site gathering of data, and complete the assessments.

The City, with assistance from SHAPIRO, identified properties likely to contain wetlands. The owners of the identified properties then were sent an access permission letter. Properties to which access was granted were located on tax assessor maps, marked on the aerial photograph, and later noted on inventory maps.

2.2 Local Wetlands Inventory

2.2.1 Overview of the Local Wetlands Inventory

The 1989 Oregon State Legislature authorized the DSL to develop a statewide wetlands inventory suitable for planning and regulatory purposes. Pursuant to ORS 196.674, in 1994 the DSL established LWI standards and guidelines, which are located in OAR 141-86-180 through 141-86-240. The purpose of an LWI is to locate, map, and classify wetlands over a relatively large geographic area. In accordance with LWI standards, wetlands at least 0.5 acre in size are identified in the inventory. Their boundaries are mapped to an accuracy of + or -25 feet.

This LWI also includes three wetland delineations approved by the DSL and COE. These wetland delineations were confirmed by the DSL in 1993, 1995, and 1998.

2.2.2 Overview of Local Wetlands Inventory Methods

A LWI is conducted using color or color infrared, aerial photographs taken within five years of inventory initiation and at a minimum scale of 1 inch = 800 feet (1:9600). In general, wetlands are located using aerial photographs. Site visits are conducted as described in the LWI standards and guidelines. If access to a parcel is not obtained, wetlands can be mapped off-site using information such as topographic maps and aerial photographs. The product of a LWI is a parcel-based map showing the approximate location of wetlands at a minimum scale of 1 inch = 800 feet. The parcel-based map allows the property owner, local jurisdiction, and DSL to know which tax lots may contain jurisdictional wetlands.

Aerial photographs used for the Vernonia LWI were taken on May 10, 1994, and printed at a scale of 1 inch = 400 feet (1:4800). Map products for the inventory are at the same scale.

2.2.3 On-site Wetland Determination

Where property access permission had been granted, on-site wetland determinations were made using the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (Manual; Environmental Laboratory, 1987). The COE and DSL recognize the use of the 1987 Manual for delineation of wetlands.

The Manual provides technical criteria, field indicators, and recommended procedures to be used in determining whether an area has wetland characteristics that qualify it as a jurisdictional wetland subject to regulation by federal and/or state agencies. The Manual requires that three criteria be met in undisturbed situations before areas can be considered wetland under federal or state regulations. These criteria are the presence of wetland hydrology, hydrophytic vegetation, and hydric soils, under normal circumstances. If one of these criteria cannot be determined because of disturbance caused by recent natural events or human activities, an alternative method must be used in making a wetland determination.

Observations of soils, vegetation, and hydrology were made using a modification of the Manual's "Routine Onsite" method. On parcels to which access was obtained, plot locations were selected to provide a valid representation of site conditions. Data were collected from representative sample plots to characterize the wetland and determine the approximate location of the wetland boundary.

Hydrologic Assessment

The Manual defines wetland hydrology as saturation within a major portion of the root zone (usually above 12 inches), typically for at least 12.5% of the growing season. The growing season for any given site or location is determined from Soil Conservation Service (SCS) or Natural Resource Conservation Service (NRCS) data. The growing season is defined as the frost-free period recorded at the nearest recording station five years out of ten. Wetland hydrology field indicators were recorded for each excavated soil pit. Data typically recorded

include depth of inundation, water table, and soil saturation. Primary indicators, such as sediment deposits, watermarks, drift lines, and drainage patterns, or secondary indicators, such as oxidized rhizospheres (root zones), also were recorded.

Soils Assessment

Hydric soils are those that have formed exclusively under wet conditions (soils that characteristically have high water tables, are ponded or frequently flooded, or are otherwise saturated for extended periods during the growing season). The possible locations of hydric soils in the study area were obtained from the SCS or NRCS county soil survey. Soil pits were excavated to a depth of 18 inches or more at sample plot locations. Soil profiles were examined for hydric soil indicators. Soil characteristics (matrix color, mottling, texture, and other features) were recorded.

Vegetation Assessment

Hydrophytic vegetation is plant species that have adapted to growing in substrates that are periodically deficient of oxygen because of saturated soil conditions. The *Regional List of Plant Species That Occur in Wetlands: Northwest (Region 9)* (Reed, 1988 with 1993 supplement) lists commonly encountered plant species and their wetland status. Nomenclature in this report follows this regional list.

The wetland indicator status of a species is the estimated probability that any individual plant of that species is growing in a wetland. Five basic groups of vegetation are recognized in the USFWS plant list based on the probability of their occurrence in wetlands. These categories, referred to as the "wetland indicator status" (from the wettest to driest habitats), are as follows: obligate wetland (OBL) plants; facultative wetland (FACW) plants; facultative (FAC) plants; facultative upland (FACU) plants; and obligate upland (UPL) plants. Further resolution of wetland status is possible with a "-" or "+" sign after the status indicator. The "-" indicates plant species that prefer slightly drier conditions on average. A "+" indicates plant species that prefer slightly wetter conditions on average. The wetland indicators of plants found in this inventory are included on the data sheets in Appendix A.

Many plants 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 be present in upland areas.

A visual percent-cover estimate of the plant community's dominant species was performed for key sample sites. A 30-foot-radius area was investigated for dominant tree and shrub species, and a 10-foot-radius area for dominant herbaceous species, using soil pit locations as a center of reference. Dominance of plant species was determined by estimating their percent areal cover per stratum (herbaceous, shrubs, woody vines, and trees). Species from each stratum were listed together in descending order of percent cover.

A determination as to predominance of hydrophytic vegetation was made using the 50-20 technique. The most abundant plant species (when ranked in descending order of abundance and cumulatively totaled) that, when totaled, immediately exceed 50% cover, plus any species comprising more than 20% cover, represent the dominant species (Federal Interagency Committee for Wetland Delineation, 1989). If more than 50% of the dominant species included by the above criteria are FAC or wetter (FAC- species are excluded and are considered non-hydrophytic vegetation), the vegetation community is considered hydrophytic.

2.2.4 Off-site Wetland Determination

No on-site sampling could be conducted where property access permission had been denied or not explicitly approved. Therefore, off-site determinations were made on the basis of aerial photograph inspection, review of all available mapped resources (e.g., SCS soil surveys and NWI maps, confirmed determinations and delineations), and, where possible, a reconnaissance from nearby public or approved private vantage points. Observations from vantage points included documentation of dominant vegetative communities (forested, scrub/shrub, or emergent) and water regimes (such as ponded areas and obviously wet meadows). Approximate wetland boundaries were drawn on aerial photographs. Where views into properties from vantage points were not possible or otherwise restricted, and where aerial photographs and mapped information were inconclusive, some wetland areas may have been missed and were not inventoried. Data sheets were not completed for sites where access was not obtained.

2.2.5 Classification of Wetlands

The Cowardin wetland classification system (Cowardin, 1979) was used to classify the wetlands mapped in the inventory. The NWI maps also use the Cowardin classification system for mapped wetland habitats. The Cowardin system classifies wetlands according to general systems, structure, vegetation types, water regime, and other modifiers. For example, wetlands within the Vernonia study area are classified as palustrine and riverine wetlands. The palustrine class combines vegetated freshwater wetlands (traditionally called marshes, swamps, bogs, fens, and wet prairies) and small, shallow, permanent, or intermittent water bodies (ponds) that are less than 2 meters (6.6 feet) deep.

Wetlands dominated by grasses and other herbaceous plants are classified as Palustrine Emergent (PEM). Wetlands dominated by woody species less than 30 feet high are classified as Palustrine Scrub/Shrub (PSS). A site dominated by woody species over 30 feet high is classed as Palustrine Forested (PFO). Unvegetated open water in ponds is classified as Palustrine Open Water (POW). The riverine classification is used to describe unvegetated stream channels.

2.2.6 Data Compilation and Interpretation

Data were recorded in the field and subsequently transferred to computerized standard wetland delineation data sheets. Sampling site locations were recorded on the aerial photographs. The approximate wetland boundaries and sample site locations were drafted on the aerial photograph in the field. These boundaries subsequently were digitized onto AutoCAD maps. All wetlands received a unique code to aid in their identification. In general, parts of wetlands received

separate codes where major roads or distinct breaks in wetland character occurred. Some wetlands were grouped and coded as one unit where they were adjacent, hydrologically linked, or similar in character, thus functioning as a unit. The three wetland delineation boundaries confirmed by the DSL in 1993, 1995, and 1998 were digitized from original maps or photocopies of maps in the delineation report submitted to the DSL.

2.2.7 Confirmation of LWI

A draft report and set of maps is provided to the DSL for review and confirmation. Once the DSL has reviewed and commented on the documents, SHAPIRO reviews the comments and makes modifications to the draft wetland maps and report. The products are then resubmitted for final approval. The status of the report as draft or final is indicated on the report cover and maps.

2.3 Wetland Quality Assessment

2.3.1 Overview of the Oregon Freshwater Wetland Assessment Methodology

The Oregon Freshwater Wetland Assessment Methodology (OFWAM; Roth et al., 1996) was developed by an interagency committee to assess the relative quality of wetlands. The methodology is intended for use by planners, public officials, and community members for planning and educational purposes. Completion of this methodology provides basic information, which is not intended for evaluation of detailed, site-specific impacts on individual wetlands.

OFWAM is based on the idea that an understanding of the wetland system functions and conditions at local, state, and federal levels is necessary to make management decisions. Recommended uses of OFWAM include collection of basic information about wetlands in an assessment area, creation of a database of functions and conditions and other wetland data, support of decision making and planning within a jurisdiction, and education. OFWAM requires that the same functions and conditions be evaluated for each wetland within a study area. There are, in addition, other considerations noted in the following sections that determine the wetland's overall value.

2.3.2 Application of OFWAM

OFWAM assessments were partially completed during field work using data gathered in the field. Other source materials were used to complete the assessments. The methodology provides qualitative information on the relative value of wetlands based on a series of questions related to wetland functions. The following functions are assessed: wildlife habitat, fish habitat, water quality, hydrologic control, sensitivity to impact, enhancement potential, education, recreation, and aesthetic quality. Each function is assessed by criteria that give an indication of whether a wetland function is (1) intact, (2) affected or degraded, or (3) lost or not present. OFWAM is designed to be open-ended; therefore, other functions and conditions may be added later, or some may be dropped if not important to the user.

OFWAM results and a summary of the functions and conditions for each wetland are included in Appendix A. The OFWAM document, which includes detailed information about assessing the functions and conditions of wetlands, is provided in Appendix C.

2.3.3 Wetlands of Special Interest for Protection

A subset of questions within OFWAM provides a method to assess whether any wetlands within the study area should be considered Wetlands of Special Interest for Protection (WSIP). WSIP assesses whether the wetland is currently in a management plan, is protected by regulatory rules or statutes, or is uncommon in Oregon. The presence of rare, threatened, or sensitive species within an area makes the wetland a potential WSIP. An affirmative answer to any one of these questions also will place the wetland in a category for protection. This information can be used in management decisions for a site. The use of OFWAM and WSIP screening questions assists in providing an overall evaluation of wetlands in the assessment area. Many of these WSIP questions are repeated in the locally significant criteria questionnaire (see next section), so the results are combined in Table 5.

2.3.4 Locally Significant Wetland Assessment

The term "significant wetlands" has meaning in the context of Statewide Planning Goal 5. Under this Goal, local governments are instructed to identify their significant resources, including wetlands, so those resources serving significant functions in the local community are given proper consideration in planning decisions. The DSL established a technical advisory committee to develop the locally significant wetlands (LSW) criteria. The DSL adopted the Oregon Administrative Rules for Identifying Significant Wetlands in January 1997 (141-86-300 through 141-86-350). The criteria rely heavily on the results of OFWAM. Only wetlands with the characteristics defined in the Manual are assessed with OFWAM.

Locally Significant Wetland Criteria Summary

A water resource is excluded from further assessment using the locally significant wetland criteria if they fall within any one of the following categories:

- Wetlands artificially created entirely from upland that are:

  Created for the purpose of controlling, storing, or maintaining stormwater; or active surface mining or active log ponds; or ditches without a free and open connection to natural waters of the state (as defined in OAR 141-085-0010[9]) and which do not contain food or game fish (as defined in ORS 496.009); or:

  Less than 1 acre in size and created unintentionally as the result of irrigation water overflow or leakage; or construction activity not related to compensatory mitigation for permitted wetland impacts; or

  Of any size and created for the purpose of wastewater treatment, cranberry production, farm or stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

- Wetlands or portions of wetlands that are contaminated by hazardous substances, materials, or wastes as per the following conditions:

  The wetland is documented as contaminated on either the U.S. Environmental Protection Agency's (EPA) National Priority List (NPL, also known as the "superfund list"), or the Department of Environmental Quality's (DEQ) Inventory of Hazardous Substance Sites (ORS 465.225).

  Only the portion of the wetland affected by such hazardous substances or wastes shall be excluded from the LSW analysis. Affected portions shall be delineated in consultation with the EPA and DEQ, and shall include areas potentially disturbed by clean-up activities.

Wetlands not excluded by inclusion in the above categories are evaluated using the locally significant criteria below.

A wetland is considered significant if it meets one or more of the following criteria:

- It has the highest rank for any of the four ecological functions addressed by OFWAM or an equivalent methodology (see Appendix A for more details on the ranking), including:
  - wildlife habitat,
  - fish habitat,
  - water quality, or
  - hydrologic control.

- It is (1) rated either in the highest or second highest category for water quality (in OFWAM or equivalent) AND (2) within 0.25 mile from a water quality limited stream, as listed by the DEQ.

- It contains one or more rare wetland plant communities, including those listed in the OHNP's *Classification and Catalog of Native Wetland Plant Communities in Oregon* (Christy, 1993) as G1-G3 and S1-S3.

- It is inhabited by any species listed by the federal or state government as sensitive, threatened, or endangered in Oregon (unless consultation with an appropriate agency deems the site not important for the maintenance of the species).

- It has a direct surface water connection to a stream segment mapped by the ODFW as habitat for indigenous anadromous salmonids, and it has "intact" or "impacted or degraded" fish habitat function using OFWAM.

The final two criteria are at the discretion of the local government, but have direct connections to OFWAM results.

Optional Criterion (at discretion of local government): The wetland represents a *locally* unique plant community. The wetland is or contains the only representative within the UGB of a particular native plant community (listed in the ONHP's *Classification and Catalog of Native Wetland Plant Communities in Oregon).* To be identified as a LSW, such a wetland also must score the highest or second highest rank for any of the four ecological functions addressed by OFWAM.

Optional Criterion (at discretion of local government): The wetland is publicly owned, scores the highest rank for educational potential, and a school or organization has a documented educational use for the wetland.

The City will be required to prepare local wetland protection ordinances to apply to locally significant wetlands. Additional wetlands may be protected based on other information, such as the results of the WSIP. Any wetlands not protected by local ordinances may still be under the jurisdiction of the DSL and COE.

2.4 Riparian Assessment

2.4.1 Overview of Riparian Assessment

In accordance with Goal 5 requirements, a riparian inventory and assessment was performed for limited areas within Vernonia's UGB. Goal 5 requires local governments to inventory and protect riparian corridors. Riparian areas are zones of transition between aquatic ecosystems and terrestrial ecosystems. Goal 5 includes definitions that establish a riparian area adjacent to every fish bearing river, lake, or stream, including intermittent streams with a defined channel. Human-made irrigation or drainage ditches are specifically excluded. Riparian areas can enhance water quality, reduce erosion, moderate water temperatures and flood flows, and provide important fish and wildlife habitat. Riparian areas are particularly important for anadromous salmonids, which rely on cold, clean water and the habitat created by large woody debris (LWD).

Local governments have two options that can be implemented to protect riparian areas. One option is to inventory and assess all riparian areas as described above, establishing the width of the riparian corridor on the basis of riparian vegetation. The inventoried sites are then analyzed to determine their significance, and ordinances are implemented to provide appropriate protection.

The other option is to implement the "safe harbors" provision. Under this plan, only riparian areas adjacent to fish-bearing water resources are included for protection, and their width is based on the average stream flow of the water resource. Local governments may use either of these options, or some combination of them, to manage their riparian resources.

The riparian inventory and assessment was conducted using the methods contained in the Urban Riparian Inventory and Assessment Guide (Riparian Guide; Oregon Division of State Lands, 1998), which is included in Appendix D. The Riparian Guide is a rapid inventory and assessment method for defining the location and quality of riparian areas. It is intended as a tool

to provide consistent riparian inventory results. This document provides guidance for determining the width and length of riparian areas, and for assessing their water quality, flood management, thermal regulation, and wildlife habitat functions.

2.4.2 Riparian Assessment Methods

The Riparian Guide includes a field inventory component, during which information is gathered on the width and other physical characteristics of the riparian areas. The riparian areas on each side of the water resources are divided into reaches based on various characteristics, primarily the type of development (or lack thereof) adjacent to the stream, and the dominant vegetation. Each riparian reach is coded as to the side of the stream (looking downstream; right side [R] and left side [L]) and its sequential number, with number 1 being the farthest upstream. The ends of the riparian reaches are shown on the inventory maps.

The width of the riparian study areas are determined by the potential tree height (PTH) as listed in the Riparian Guide for the tree species determined by the investigators to be the dominant tree in the riparian area. The PTH of the dominant tree species determines the width of the riparian area. The actual width of existing riparian vegetation varies widely depending on the degree of development and other factors. It may, therefore, be different from the PTH-determined riparian width.

Based on field observations, the following functions of the riparian area are assessed: (1) Water Quality, (2) Flood Management, (3) Thermal Regulation, and (4) Wildlife Habitat. The functional rank of a riparian area increases as more of the following criteria are met:

- surface water is present throughout the year;
- the developed area is less than 25%;
- the slope is less than 10%;
- impervious surfaces constitute less than 10% of the area;
- the water resource is shaded at midday during the summer;
- flood prone areas dominated by woody vegetation are present;
- the stream or water resource is not in an excavated or lined channel;
- more than one type of water resource is in or adjacent to the riparian reach; and
- the water resource is bordered by a vegetated riparian area at least 30 feet wide.

Where these factors are present or developing, the riparian area provides for water quality, flood management, thermal regulation of the water resource, and wildlife habitat. The factors listed here are an incomplete, synthesized list. For details, consult the Riparian Guide in Appendix D.

2.5 Cartographic Products

Wetland boundaries were drawn on aerial photographs. Aerial photographs can have distortion at the edges, so digitized boundaries were adjusted. The inventory was mapped at a scale larger than the scale required in the LWI rules to allow for more resolution. Wetland field staff reviewed early draft maps and made corrections where necessary to increase the accuracy of the maps. Sample sites were identified within properties to which access was permitted. Ditches

and other narrow, linear features located on the edge of a property were occasionally drawn slightly to the side of the property line for graphic clarity. A map was prepared for each section within the UGB (see Figure 1). Each section map includes a small portion of the adjoining sections. The overlap allows for ease in viewing a wetland that may cross section boundaries.

Riparian study areas included in the project are mapped by reach endpoints only.

3.0 PROJECT AREA CHARACTERISTICS

3.1 Setting

The Vernonia LWI study area encompasses 994 acres of the Nehalem River floodplain and surrounding uplands in the Oregon Coast Range (Figure 2). Elevations within the study area vary from 600 feet National Geodetic Vertical Datum (NGVD) in the floodplain to 800 feet on the highest hilltops. Level ground in the floodplain is developed for residential, commercial, light industrial, and agricultural uses. The City core is situated slightly above the floodplain on gently sloping ground. Residential developments are built on some of the moderately sloping hillsides. Steeper and higher parts of the study area are forested with a mix of evergreen and deciduous trees.

State Highway 47, the Nehalem Highway, is the main transportation corridor through the study area. It connects with U.S. Highway 26, the Sunset Highway, approximately 15 miles south of the study area, and U.S. Highway 30, the Columbia River Highway, about 30 miles north of the study area.

3.2 Hydrology

The Nehalem River and three of its tributaries flow through the study area. Approximately 3 river miles of the Nehalem, from river mile (RM) 88 to 91, are included in the study area. This part of the Nehalem River is classified as a lower perennial stream by the NWI.

Rock Creek drains an area that is northwest of, and mostly outside, the study area. It enters the Nehalem River at approximately RM 90.6, near the western end of the study area. Rock Creek is classified as a lower perennial stream by the NWI. Bear Creek, a tributary of Rock Creek, flows off hillsides to the west of the study area and enters Rock Creek just above its confluence with the Nehalem River. Bear Creek is not mapped by the NWI, but is mapped by the USGS as a perennial stream.

Knickerson Creek drains an area on the eastern edge of the study area and flows into the Nehalem River at approximately RM 88, on the northeast edge of the study area. Knickerson Creek is classified as an intermittent stream by the NWI. Information from the ODFW (Sheehan, 1999) indicates that water persists in the upper part of Knickerson Creek throughout the year.

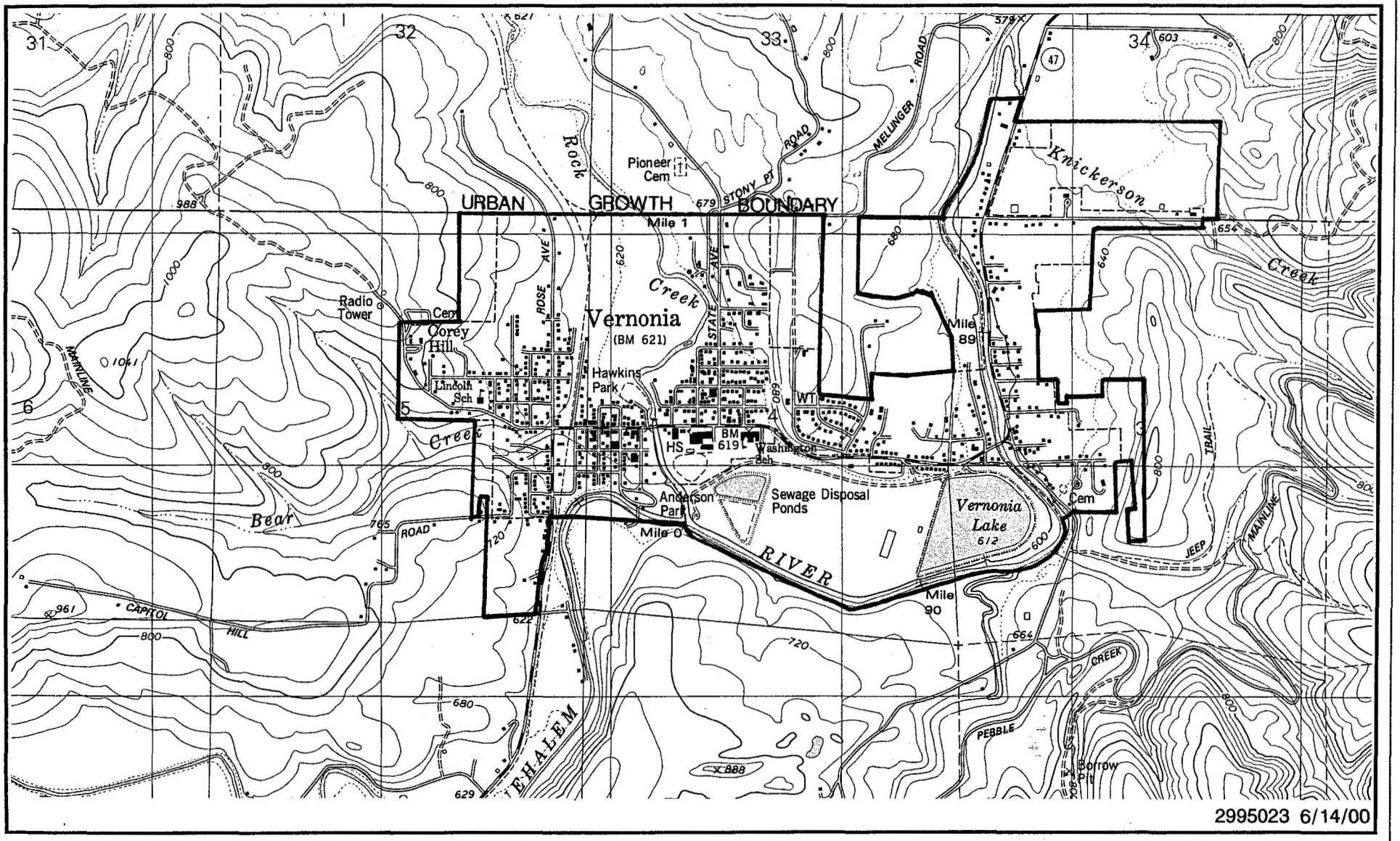

FIGURE 2

Location and generalized topography of the Vernonia Local Wetland Inventory study area, Columbia County, Oregon (U.S.G.S Vernonia, Oregon, 7.5-minute quadrangle, 1:24000, 1979).

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Precipitation is a significant source of water in the study area. Average annual precipitation at Vernonia is 48.44 inches. Total precipitation during the first three months of the growing season (April, May, and June) averages 7.16 inches, 15% of the average annual total. Total precipitation during the growing season averages 14.82 inches, 31% of the annual total (NRCS, 1999).

3.3 Soils

3.3.1 Overview

Three major soil associations are present in the study area. Most of the soils in the study area were formed in alluvium, in silty material, and in colluvium derived from sedimentary rock. Alluvium is unconsolidated sediment deposited by streams. Colluvium is soil material, rock fragments, or both moved by creep, slide, or local wash and deposited at the base of steep slopes. All soil descriptions in this section are excerpted from *Soil Survey of Columbia County, Oregon* (SCS, 1986).

The Eilertsen-Treharne-McNulty association consists of deep, nearly level, well drained and moderately well drained silt loams that formed in old and recent alluvial deposits on long, narrow floodplains and terraces. The association is mapped along the stream drainages of the Nehalem River and Rock Creek. Eilertsen, Treharne, and McNulty soils are the main components, with smaller amounts of Natal, Hapludalfs, Dystrochrepts, and Udifluvents soils. McNulty soils are subject to frequent flooding, while Treharne soils experience a seasonal high water table and moderately slow permeability.

The Vernonia-Scaponia-Braun association consists of deep and moderately deep, gently sloping to very steep, well drained silt loams that formed in colluvium derived from sedimentary rock. This map unit is on broad, stable ridgetops and side slopes of mountains. It is mapped on the western margin of the study area. Vernonia, Scaponia, and Braun soils are the main components, with smaller amounts of Mayger and Glohm soils on stable ridgetops and side slopes. Scaponia and Braun soils are on active, complex slopes of mountains, while Vernonia soils are on broad, stable ridgetops and side slopes of mountains.

The Mayger-Glohm association consists of deep and moderately deep, gently sloping to moderately steep, moderately well drained and somewhat poorly drained silt loams that formed in colluvium derived from sedimentary rock. This map unit is on smooth, broad ridgetops of terraces and on side slopes of rolling hills. It is mapped in the northeastern portion of the project area. Mayger and Glohm soils are the main components, with smaller amounts of Vernonia soils on stable uplands, and the poorly drained Kenusky soils in concave positions. Mayger soils are on smooth, broad ridgetops of terraces and side slopes of rolling hills, while Glohm soils are on broad, convex, stable ridgetops of terraces and side slopes of rolling hills.

3.3.2 Hydric Soils

Eleven soils are mapped within the Vernonia UGB. These soils are shown with their mapping codes in Table 1. Hydric soils and soils with hydric inclusions and wet spots also are indicated in the table. Soil mapping units and hydric soils are shown in Figure 3. Hydric soils mapped in the study area are described below.

Kenusky silty clay loam (26C) is a poorly drained soil formed in clayey material and found in concave areas on mountain ridgetops. The surface layer is typically black, mottled, silty clay loam and silty clay about 13 inches thick. The subsoil consists of an upper layer about 6 inches thick of dark gray, mottled silty clay loam, and a lower layer of dark gray, mottled clay about 25 inches thick. The substratum extending to a depth of 60 inches or more is grayish brown, distinctly mottled clay. The soil is classified as clayey, mixed, mesic Typic Umbraquults. Permeability is slow to a depth of 19 inches and very slow below this depth.

Only one small unit of Kenusky silty clay loam is mapped in the inventory area north of Vernonia Lake along the eastern edge of the project boundary.

Natal silty clay loam (37) is a deep, poorly drained soil found in concave areas on low terraces of major streams in the Coast Range. The surface layer is typically black silty clay loam about 9 inches thick. The subsoil is mottled, very dark grayish brown and dark grayish brown silty clay about 31 inches thick. The substratum extending to a depth of 60 inches or more is mottled, very dark grayish brown and dark grayish brown silty clay. This soil is classified as fine, mixed, mesic Umbric Ochraqualfs. The permeability of Natal soil is slow, with available water capacity about 9 to 11 inches.

Natal silty clay loam is mapped as a south–to-north trending band, located between Rose Avenue and Rock Creek in the northwestern portion of the study area.

3.4 Vegetation

3.4.1 Historic Vegetation Communities

Vegetation in the study area has been affected significantly by recent human disturbance. The vegetation communities and conditions described below, taken from Franklin and Dyrness (1973), refer to conditions that existed before removal and disturbance of the native communities, and which would be expected, in time, to be reestablished in the Vernonia area. This vegetation information is general in nature and refers primarily to upland vegetation.

Vernonia is in the western hemlock (*Tsuga heterophylla*) zone of the Coast Ranges Province. This province stretches from the southern end of the Olympic Peninsula to the northern end of the Klamath Mountains. The northeastern side is bordered by the Puget Trough, which extends south to the northern bank of the Columbia River. The southeastern side of the province is bordered by the Willamette Valley.

Table 1. Soil Types within the Vernonia UGB

Soil Type	Map Code	Hydric	Drainage Class	Erosion Hazard
McNulty silt loam	32	No*	Well drained	Moderate
Treharne silt loam	58	No*	Moderately well drained	Slight
Natal silty clay loam	37	Yes	Poorly drained	Slight
Mayger silt loam	30	No*	Somewhat poorly drained	Moderate
Glohm silt loam, 3 to 30 percent slopes	21-D	No*	Moderately well drained	Slight to moderate
Vernonia silt loam	62-D	No	Well drained	Moderate to high
Scaponia-Braun silt loams, 30 to 60 percent north slopes	49-E	No	Well drained	High
Scaponia-Braun silt loams, 30 to 60 percent south slopes	50-E	No	Well drained	High
Kenusky silty clay loam, 0 to 15 percent slopes	26-C	Yes	Poorly drained	Slight to moderate
Eilertsen silt loam	20	No*	Well drained	Slight
Udifluvents-Dystrochrepts complex	59	No*	Well to poorly drained	Slight to moderate

*May have hydric soil inclusions.

Source: USDA SCS, 1972 (Soil Survey of Marion County, Oregon)
USDA SCS, 1989 (Hydric Soils of Oregon by County)

Parts of the western hemlock zone are dominated by Douglas-fir (*Pseudotsuga menziesii*), but western hemlock is the climax species. Franklin and Dyrness subdivide the hemlock zone into six vegetation associations based on dominant vegetation, which is indicative of relative site moisture. From wettest to driest, the associations are *Tsuga/Polystichum/Oxalis* (hemlock/sword fern/oxalis); *Tsuga/Polystichum* (hemlock/sword fern); *Tsuga/Rhododendron/Berberis* (hemlock/rhododendron/Oregon grape); *Tsuga/Rhododendron/Gaultheria* (hemlock/rhododendron/salal); *Tsuga/Castanopsis* (hemlock/chinkapin); and *Pseudotsuga/Holodiscus* (Douglas-fir/ocean spray). All of these associations may have existed in the study area before disturbance.

Most, if not all, of the components of these associations still exist in the inventory area. Activities like agriculture, logging, and construction have created conditions that re-sort the species, making the original associations difficult to locate or identify. Forested upland areas in the inventory area are dominated by Douglas-fir, with a mixed understory that contains several of the species named above.

Before human disturbance, deciduous tree species (primarily red alder [*Alnus rubra*] and big-leaf maple [*Acer macrophyllum*]) were limited to riparian or naturally disturbed sites. Forest management practices, agriculture, construction, and other activities probably make both species more abundant and widespread now than they were before Euroamerican settlement.

3.4.2 Riparian Vegetation

Vegetation associations discussed in this section are in and adjacent to wetlands or other water resources in direct response to the water resource. (Note that this use of "riparian" differs from the use elsewhere in this report. The use in other sections of this report refers to any site adjacent to a water resource, regardless of the presence or absence of vegetation, or the type of vegetation, if any is present.)

Before Euroamerican settlement, riparian vegetation probably was widely distributed on the floodplains of the Nehalem River and Rock Creek, and possibly in corridors along Bear Creek, Knickerson Creek, and smaller drainages or wet areas. Lowland riparian sites in the floodplains of the Nehalem River and Rock Creek probably supported stands of cottonwood (*Populus balsamifera*), Oregon ash (*Fraxinus latifolia*), willow species (*Salix* spp.), Douglas' hawthorn (*Crataegus douglasii*), red-osier dogwood (*Cornus stolonifera*), roses (*Rosa* spp.), and a variety of herbaceous species.

Riparian vegetation along the tributaries may have been dominated by red alder and western red cedar (*Thuja plicata*). Shrubs may have included devil's club (*Oplopanax horridus*), thimbleberry (*Rubus parviflorus*), and salmonberry (*R. spectabilis*).

Much of the riparian vegetation in the floodplains of the study area has been removed for development. Narrow strips of forested and scrub/shrub riparian area remain on significant parts of the banks of the Nehalem River and Rock Creek.

3.4.3 Wetland Vegetation

Wetland vegetation in the Vernonia LWI study area is made up of herbaceous, shrub, and tree species. Most of the wetland acreage mapped in the inventory supports wetland shrub and tree species. Herbaceous emergent vegetation is a less dominant component of wetland species within the study area.

Willows, red-osier dogwood, roses, Oregon ash, Pacific ninebark (*Physocarpus capitatus*), Douglas' hawthorn, and Douglas' spirea (*Spiraea douglasii*) were the most common wetland shrubs. The old mill site north of the Nehalem River and west of Vernonia Lake contains a mosaic of dense patches of wetland and upland shrubs. Additionally, wetland shrubs are an important understory component, adding structural diversity to forested wetlands within the study area. Willow and Oregon ash were a common association in the highly saturated wetland sites. Rose species and spirea were found in several locations. The roses were generally growing individually or in small groups. The spirea was typically found growing in small, dense stands.

Oregon ash, black cottonwood, red alder, and Pacific willow (*Salix lasiandra*) were the four most common wetland tree species encountered in the inventory area. Cottonwood trees were concentrated along the Nehalem River floodplain. Oregon ash was the dominant tree in ten wetlands. Alder was generally found on the margins of wetlands, occupying the transitional zone between wetland and upland. Pacific willow was a co-dominant tree species with Oregon ash in two wetlands, while red alder was a co-dominant with Oregon ash in two other wetlands.

Common wetland herbaceous species in the study area included reed canarygrass (*Phalaris arundinacea*), slough sedge (*Carex obnupta*), manna grass (*Glyceria* sp.), and creeping buttercup (*Ranunculus repens*).

Reed canarygrass is ubiquitous in some of Vernonia's wetlands and riparian areas. It grows in near-monocultural conditions along the Nehalem River, south and east of Vernonia Lake, and as a co-dominant species in several other wetlands.

4.0 WETLAND FINDINGS

4.1 Total Wetland Acreage

The LWI mapped 18 water resources within the UGB totaling 131.37 acres (Figure 4). These water resources included 15 palustrine wetlands, one lacustrine wetland, and two riverine wetlands regulated as Waters of the State. Of the 15 palustrine wetlands, three sewage water treatment ponds (VR16) were mapped, but they are not assessed further in any way. The total acreage of palustrine wetlands mapped in the LWI is approximately 68.37 acres. The total acreage of riverine wetlands mapped in the LWI is approximately 25.3 acres. The total acreage of lacustrine wetlands mapped in the LWI is approximately 37.7 acres. Acreage was calculated

Table 2. Wetlands and Sizes of Wetlands Mapped in the City of Vernonia LWI

Wetland Code	Drainage Basin	Total Acreage
VR-01	Nehalem River	9.52
VR-02	Nehalem River	5.04
VR-03	Nehalem River	2.8
VR-04	Nehalem River	0.9
VR-05	Nehalem River	8.31
VR-06	Nehalem River	1.1
VR-07	Nehalem River	12.3
VR-08	Nehalem River	1.08
VR-09	Nehalem River	37.7
VR-10	Nehalem River	2.1
VR-11	Nehalem River	0.8
VR-12	Nehalem River	1.85
VR-13	Nehalem River	2.21
VR-14	Nehalem River	6.8
VR-15	Nehalem River	1.27
VR-16	Nehalem River	12.3
VR-17	Nehalem River	6.09
VR-18	Nehalem River	19.2
	TOTALS	**131.37**

Table 3. U.S. Fish and Wildlife Service Wetland Classes Mapped by the National Wetlands Inventory within the Vernonia UGB

Classification	Description of NWI Mapped Wetlands within the Vernonia UGB	Number Mapped
R2OWH	Riverine, lower perennial, open water, permanently flooded	2
R4SBF	Riverine, intermittent streambed, semipermanently flooded	1
L1OWHh	Lacustrine, limnetic open water, permanently flooded, diked/impounded	1
PFO1J	Palustrine forested, broad-leaved deciduous, intermittently flooded	4
PEM1A	Palustrine emergent, persistent vegetation, temporarily flooded	3
PEM1B	Palustrine emergent, persistent vegetation, saturated	1
PEM5Ch	Palustrine emergent, seasonally flooded, diked/impounded	1
PEM5B	Palustrine emergent, saturated	1
PAB7Hh	Palustrine aquatic bed permanently flooded, diked/impounded	1

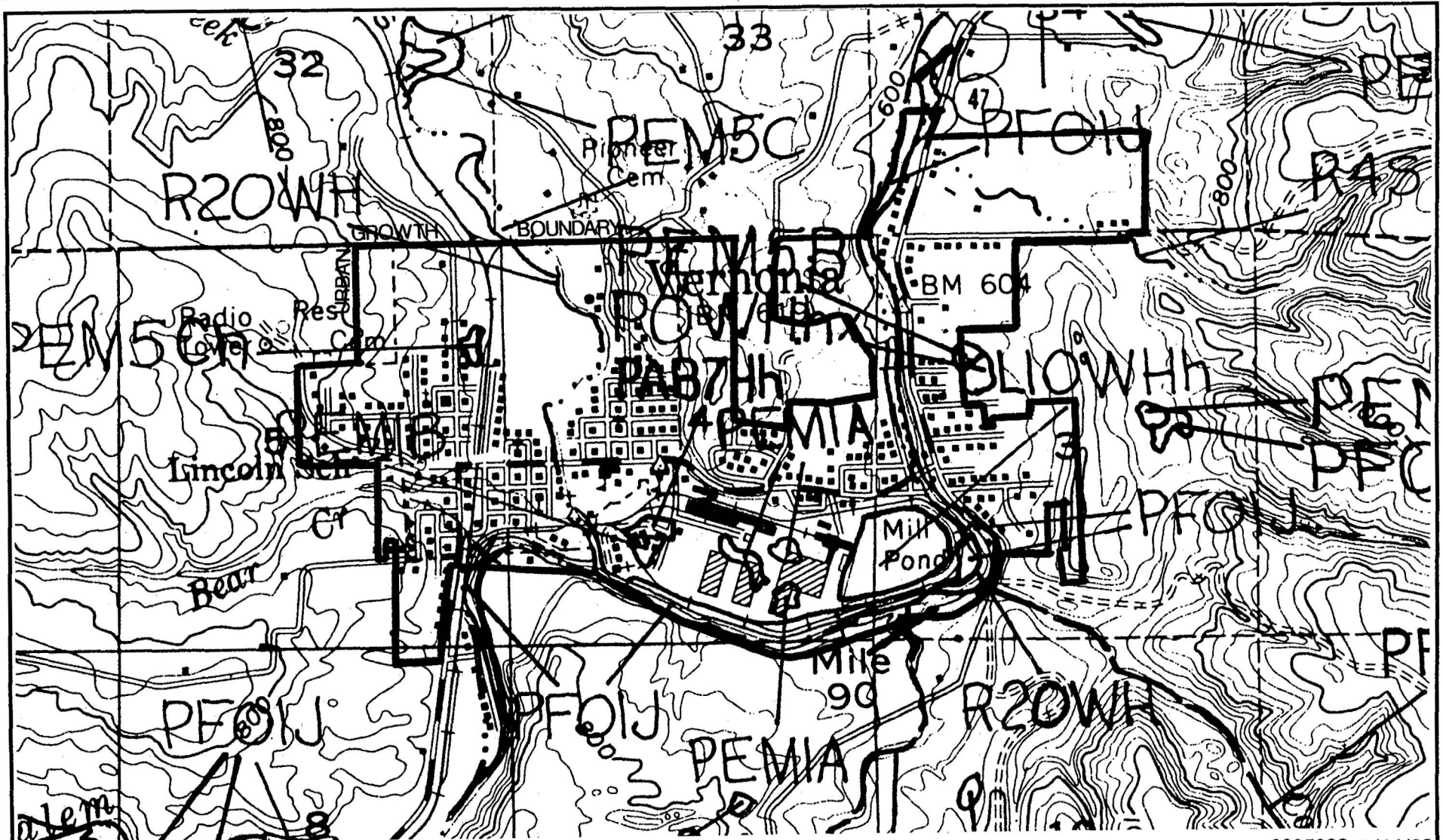

FIGURE 4

National Wetlands Inventory designations of the Vernonia Local Wetland Inventory study area, Columbia County, Oregon (U.S. Fish and Wildlife Service, Vernonia, Oregon, 15-minute quadrangle, 1:62500 enlarged to 1:24000, based on 1975 black and white aerial photography).

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digitally from the AutoCAD inventory maps. A summary of the wetland acreage and classes is shown in Table 2. Wetland summary sheets and data sheets documenting the characteristics of the wetlands to which access was permitted are arranged by wetland in Appendix A.

4.2 Distribution and Character of Wetlands

The USFWS mapped wetlands in the study area as part of the NWI program (Figure 5). The NWI map was produced by interpretation of small-scale (1 inch = 4,833 feet [1:58000]), black and white aerial photographs. Ground reconnaissance was conducted to confirm the interpretation of selected wetlands. The Cowardin classification of wetlands identified by the NWI in Vernonia are found in Table 3. The LWI conducted by SHAPIRO identified many wetlands within Vernonia that were not mapped by the NWI, because of SHAPIRO's more extensive field investigation of the study area.

Palustrine forested (PFO) wetlands comprise the majority of wetlands mapped in the inventory. These wetlands range in their distribution across the study site from associations with the major stream drainages to more isolated sites in topographically low areas or near the bottom of slopes.

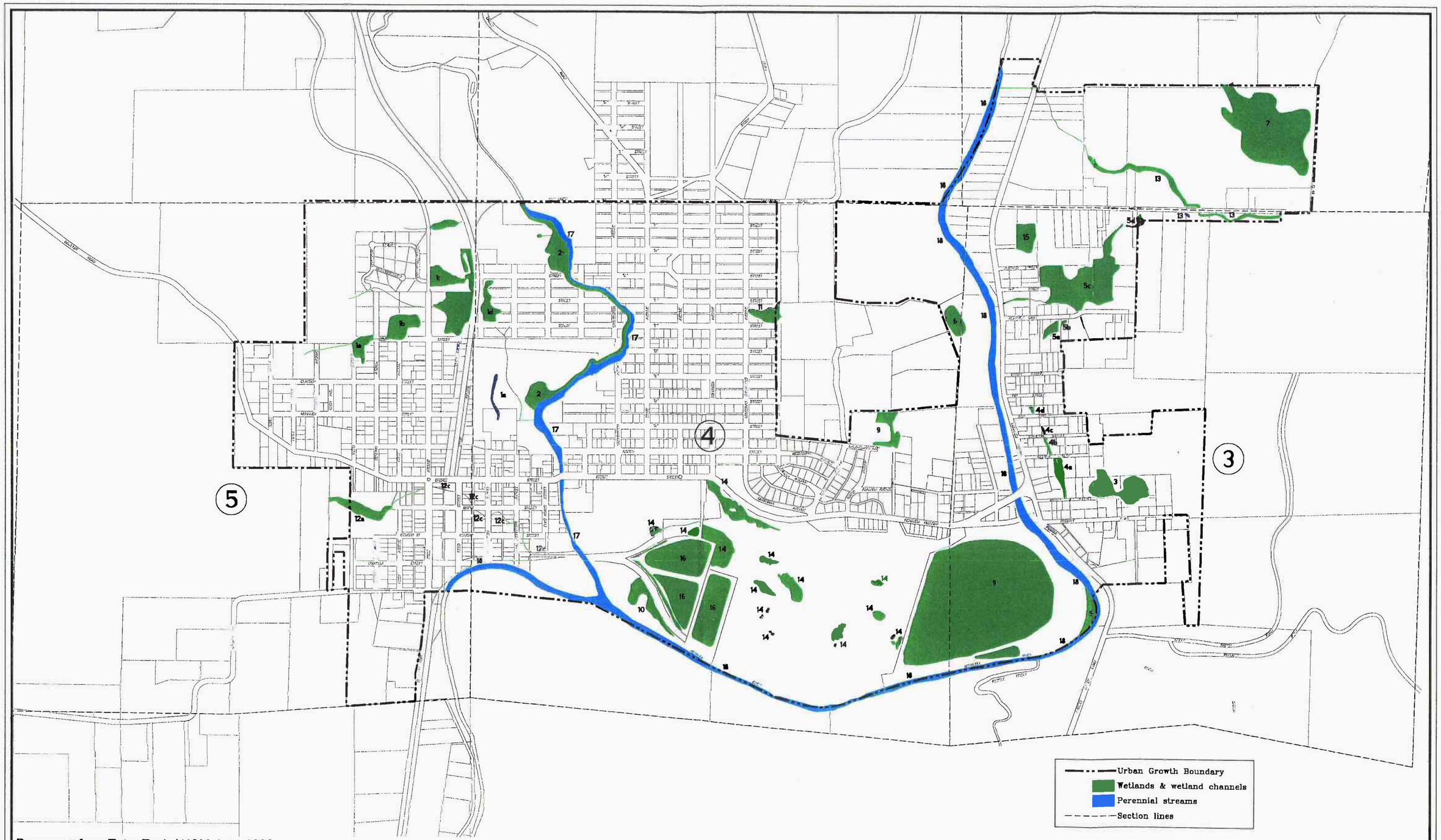
East of the Nehalem River, forested wetland is mapped in the northeastern corner of the study area and extends north outside the study area. Other smaller forested wetland segments are mapped in residential areas east of the Nehalem River. The dominant tree species is Oregon ash, with a few specimens of red alder and Pacific willow. The understory includes Pacific ninebark, Douglas' spirea, red-osier dogwood, and clustered rose. Herbaceous vegetation under the canopies generally consists of diverse assemblages of wetland grasses, sedges, rushes, and forbs.

West of the Nehalem River, smaller, isolated Oregon ash-dominated wetlands are mapped on the eastern edge of Spencer Park and just east of Vernonia Grade School. These wetlands are located in low-lying areas on the edges of upland forest.

Forested wetlands are also mapped along the Nehalem River near Vernonia Lake, west of Rock Creek in the northwestern part of the study area, adjacent to Bear Creek in the southwestern area of the study site, and at a few isolated locations west of Rock Creek. Oregon ash and red alder are the dominant tree species. Common shrubs include willow, Oregon ash, red-osier dogwood, Douglas' spirea, and clustered rose. Herbaceous species typically found in these wetlands include slough sedge, reed canarygrass, and creeping buttercup.

Palustrine emergent (PEM) wetlands were mapped at locations spaced widely across the study area. The largest emergent wetland is a wet meadow area in the northeastern corner of the study site, contained within an agricultural field, adjacent to forested and scrub/shrub wetlands. The site is dominated by grasses and rushes.

A fringe area of emergent wetland was identified around the edge of Vernonia Lake. Herbaceous vegetation includes broad-leaf cattail (*Typha latifolia*), yellow cow-lily (*Nuphar luteum*), small-fruit bulrush (*Scirpus microcarpus*), soft rush (*Juncus effusus*), reed canarygrass, and broad water-weed (*Elodea canadensis*).



Base map from Tetra Tech / KCM, Inc., 1999

2995023 6/14/00

NORTH

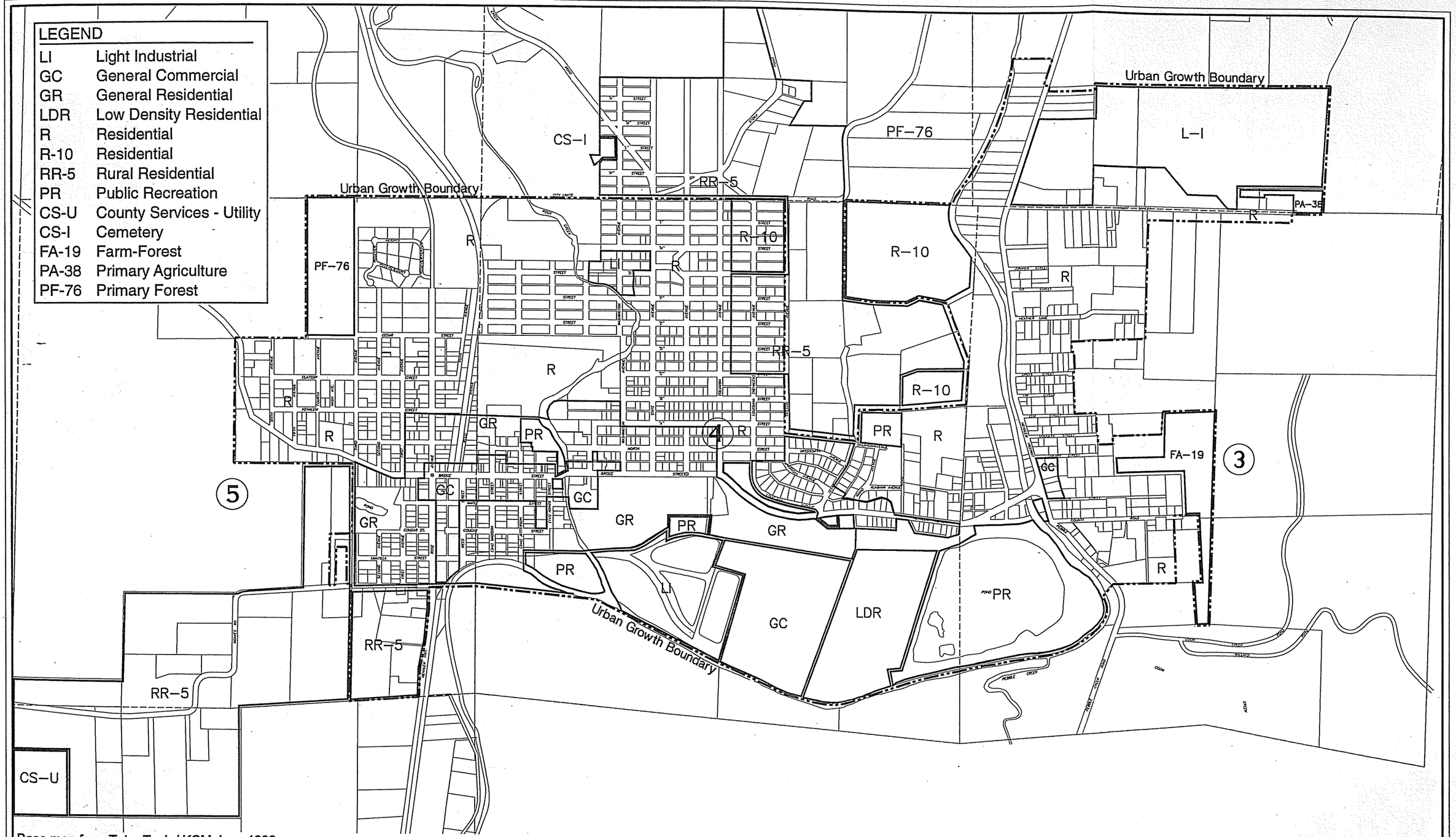
0 1000 2000

FEET

Wetlands, wetland channels, and perennial streams identified within the City of Vernonia Local Wetland Inventory study area.

FIGURE 5

SHAPIRO & ASSOCIATES, INC.



Base map from Tetra Tech / KCM, Inc., 1999

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NORTH

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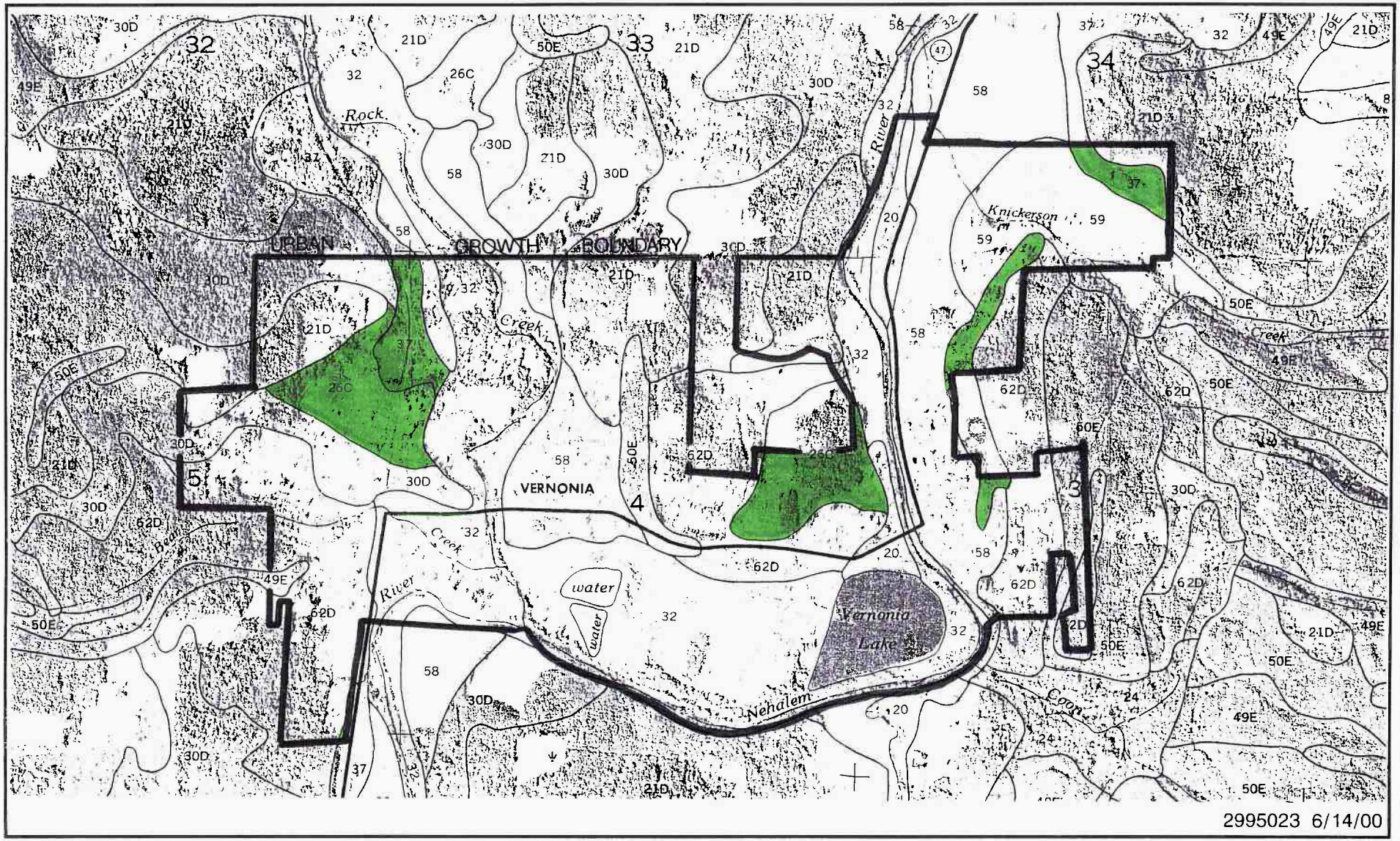
Urban Growth Boundary, zoning, and comprehensive plan designations of Vernonia, Oregon.

FIGURE 1

SHAPIRO & ASSOCIATES, INC.



Hydric soil mapping units within the Vernonia Local Wetland Inventory study area, Columbia County, Oregon (Soil Conservation Service, *Soil Survey of Columbia County, Oregon,* 1:20000, 1986).

FIGURE 3

SHAPIRO & ASSOCIATES, INC.

A ponded section of Bear Creek in the southwestern part of the study area contains an emergent wetland surrounded by forested wetland. Reed mannagrass (*Glyceria grandis*), reed canarygrass, marsh seedbox (*Ludwigia palustris*), Pacific willow, and Sitka willow (*Salix sitchensis*) are dominant species at this wetland.

Wetland mapped along Knickerson Creek in the northeastern part of the study area has sections of emergent and scrub/shrub wetland. Because of development and alterations to the stream hydrology, wetland and riparian vegetation has likely been significantly altered.

South of Knickerson Creek are two areas, one predominantly classified as PEM and the other a mosaic with components of emergent, scrub/shrub, and forested wetland. These wetlands consist of open pastureland with low topography, which allows seasonal ponding to occur, and pasture intermixed with woody vegetation and trees, with a small associated drainage ditch.

Several isolated wetlands also were classified as PEM. The northern section of Spencer Park is dominated by herbaceous wetland species likely supported by ponding on clay soils and a high water table. The second isolated PEM wetland is located east of Anderson Park near the water treatment facility. This area is an open field dominated by wetland grasses. Reed canarygrass, redtop (*Agrostis alba*), and common horsetail (*Equisetum arvense)* are the dominant herbaceous species at this wetland. In the southeastern part of the study area is a PEM wetland associated with a llama pasture and excavated, seasonally-flooded pond. Just east of the emergent area, on slightly higher terrain, is a mixed forested, scrub/shrub, and emergent wetland mosaic that eventually merges upslope to upland forest.

Palustrine scrub/shrub (PSS) wetlands were found in two main locations. In the northeastern area of the study site, north of Knickerson Creek, PSS wetland is a component of a larger forested and emergent wetland complex. Clustered rose, large-leaved lupine (*Lupinus polyphyllus*), slough sedge, creeping butter-cup, and Oregon ash are dominant species at this wetland. The largest PSS wetland is a previously delineated area located between the sewage water treatment ponds and Vernonia Lake. This area is a mosaic of wetland shrubs (roses, Douglas' spirea) interspersed with open areas of emergent herbaceous vegetation and upland vegetation. An isolated PSS/PEM wetland was also identified in the northern central section of the study area on sloping terrain on the margin of a clearcut. Evidence of hydrology was observed from ponding on the adjacent road and the photo signature of the site on an aerial photograph. Before logging, the site was probably forested wetland.

Lacustrine limnetic open water (L1OW) wetland is mapped inside the banks of Vernonia Lake. The majority of the lake surface is open water habitat. In the northern part of the lake, extensive mats of yellow cow-lily are present on the lake surface.

Riverine lower perennial open water (R2OW) wetland is mapped within the channels of the Nehalem River and Rock Creek. Within the study area, these streams are characterized by low gradient and low water velocity. Channel banks vary from steeply incised to nearly level with the water's edge. Vegetation along the stream channels generally consists of riparian trees and

shrubs, with red alder, big-leaf maple, Douglas-fir, and black cottonwood common dominant tree species. Some reaches of both streams are bordered by sections of mapped forested wetlands. These wetlands are regulated as Waters of the State.

4.3 Oregon Freshwater Wetland Assessment Methodology Results

The OFWAM results are summarized in Table 4. This table is useful primarily for obtaining an overview of the current and potential functional level of each wetland. The functional level of each assessed characteristic is shown for each wetland. These functional levels are derived directly from the assessment summary forms. Expanded information about wetlands that scored in the highest category for any of the assessed functions is provided below.

More detailed information (individual OFWAM data sheets) should be consulted before making decisions regarding any wetland. Detailed responses used to generate the summary results are available on the data forms for each wetland, which are arranged by alphanumeric code in Appendix A.

The functions of 15 palustrine and lacustrine wetlands were assessed. Nehalem River (VR18) and Rock Creek (VR17) were not assessed using the OFWAM process, because they are not jurisdictional wetlands. These wetlands are regulated as Waters of the State. Of the 15 palustrine wetlands, three sewage water treatment ponds (VR16) are not jurisdictional wetlands and were not assessed.
Wetland VR07 scores the highest rank for wildlife habitat. At least four of the following criteria must be met to be given a high rank for this category: dominated by woody vegetation; presence of open water; connection to other wetlands or other bodies of water; no water quality limited streams adjacent to or above the wetland; and an unmaintained vegetated buffer greater than 25 feet wide bordering more than 40% of the wetland. These characteristics probably make the wetlands valuable habitat for a variety of wildlife species.

Wetland VR13 (Knickerson Creek) scores the highest rank for fish habitat. At least four of the following criteria must be met to be given a high rank for this category: more than 75% of stream shaded by riparian vegetation, stream is natural or returning to natural physical character, stream contains more than 25% of instream structures, and upstream is not water quality limited. This means other fish habitats assessed in the inventory, such as Bear Creek and Vernonia Lake, do not have outstanding fish habitat quality. It should be noted that the Nehalem River and Rock Creek were not assessed by the OFWAM process because they are not jurisdictional wetlands. Though these streams are known to contain prime fish habitat and threatened and endangered fish, their fish habitat quality is not reflected in this assessment.

Wetlands VR01, VR02, VR04, VR12, VR13, and VR15 score the highest rank for water quality. This implies that the wetlands have valuable and effective water quality functions, such as trapping sediments or absorbing contaminants from floodwaters.

Wetlands VR02, VR03, VR04, VR06, VR09, VR12, VR14, and VR15 score the highest rank for hydrologic control. This implies that these wetlands serve valuable functions related to the control of surface water during heavy precipitation or high water events. To rank the highest

category for hydrologic control, a wetland must meet at least four of the following criteria: location in the 100-year floodplain; evidence of flooding or ponding; restricted flow of water out of the wetland; woody vegetation as the dominant vegetation cover type; residential/industrial development as the dominant land use within 500 feet of the wetland on the downstream edge; and urban/urbanizing as the dominant existing land use in the watershed upstream from the area.

Wetlands VR05, VR08, and VR09 score the highest category for the ability to provide educational opportunities. This rating indicates that the wetlands have significant natural resource values or are readily and safely accessible.

Wetland VR09 scores the highest rank for its ability to provide recreation. This rating may be associated with fishing opportunities available in the wetland, or with opportunities to view the wetland. Wetlands can provide important non-consumptive recreation, such as wildlife viewing that may not be reflected in the analysis.

Wetlands VR03, VR06, VR07, and VR09 score the highest rank for aesthetic quality. This indicates that the wetlands are easily observed from accessible viewing points, blend well with the surrounding landscape, and are not excessively degraded by objectionable sounds, odors, or visual detractors.

No wetlands score the highest rank in the enhancement potential or sensitivity to future impacts categories.

The assessment indicates that none of the wetlands are outstanding candidates for enhancement, although all but two of the wetlands scored in the moderate category for this characteristic. This means that these wetlands could be enhanced to some degree.

All of the wetlands were found to be moderately sensitive to future impacts. The position of the wetlands in the landscape, surrounding land use zones, and existing characteristics in the watershed above the wetlands make them susceptible to degradation from future development activity. This means that care should be taken when development is undertaken adjacent to or upslope from the wetlands, in order to prevent undue degradation of these resources.

Wetlands VR10 and VR11 did not score in the highest category for any of the assessed characteristics. These wetlands still possess valuable characteristics and serve useful functions that should be protected.

4.4 Locally Significant Wetlands

Eleven wetlands meet OFWAM requirements for LSW for a total of 81.49 acres (Table 5). Four of these wetlands also have characteristics that qualify them as Wetlands of Special Interest for Protection (WSIP).

Wetlands VR02, VR03, VR04, VR06, VR09, VR12, VR14, and VR15 qualify as LSW because they score the highest OFWAM rank for hydrologic control (described above).

Table 4. Summary of Oregon Freshwater Wetland Assessment Methodology (OFWAM) Results for City of Vernonia

Wetland Code	OFWAM Assessment Elements: Functions (F) and Conditions (C)									
	Wildlife Habitat (F)	Fish Habitat Streams (F)	Fish Habitat Lakes/Ponds (F)	Water Quality (F)	Hydrologic Control (F)	Education (F)	Recreation (F)	Enhancement Potential (C)	Aesthetic Quality (C)	Impact Sensitivity (C)
VR-01 a, b, c, d	Provides Limited	N/A	N/A	Intact	Impacted	Inappropriate	Potential	Moderate	Moderately Pleasing	Moderate
VR-02	Provides Limited	N/A	N/A	Intact	Intact	Inappropriate	Potential	Moderate	Not Pleasing	Moderate
VR-03	Provides Limited	N/A	N/A	Impacted	Intact	Inappropriate	Potential	Moderate	Pleasing	Moderate
VR-04	Provides Limited	N/A	N/A	Intact	Intact	Potential	Inappropriate	Moderate	Not Pleasing	Moderate
VR-05	Provides Limited	N/A	N/A	Impacted	Impacted	Provides	Potential	Moderate	Moderately Pleasing	Moderate
VR-06	Provides Limited	N/A	N/A	Impacted	Intact	Inappropriate	Inappropriate	Moderate	Pleasing	Moderate
VR-07	Provides Diverse	N/A	N/A	Impacted	Impacted	Inappropriate	Inappropriate	N/A	Pleasing	Moderate
VR-08	Provides Limited	N/A	N/A	Impacted	Impacted	Provides	Potential	Moderate	Moderately Pleasing	Moderate
VR-09	Provides Limited	N/A	Impacted	Impacted	Intact	Provides	Provides	Moderate	Pleasing	Moderate
VR-10	Provides Limited	N/A	N/A	Impacted	Not Present	Inappropriate	Inappropriate	Moderate	Not Pleasing	Moderate
VR-11	Provides Limited	N/A	N/A	Impacted	Impacted	Inappropriate	Inappropriate	Moderate	Moderately Pleasing	Moderate
VR-12 a, b, c	Provides Limited	Impacted	N/A	Intact	Intact	Potential	Potential	Moderate	Not Pleasing	Moderate
VR-13	Provides Limited	Intact	N/A	Intact	Impacted	Inappropriate	Potential	Moderate	Moderately Pleasing	Moderate
VR-14	Provides Limited	N/A	N/A	Impacted	Intact	Potential	Inappropriate	Moderate	Moderately Pleasing	Moderate
VR-15	Provides Limited	N/A	N/A	Intact	Intact	Potential	Inappropriate	Low	Not Pleasing	Moderate

Note: N/A = Not applicable for this wetland

Table 5. Significant Wetlands and Wetlands of Special Interest for Protection

Wetland Code	Results of Local Wetland Significance Assessment	Results of Wetlands of Special Interest for Protection Assessment
VR-01	• Wetland scores the highest rank for water quality.	
VR-02	• Wetland scores the highest rank for hydrologic control.	
VR-03	• Wetland scores the highest rank for hydrologic control.	
VR-04	• Wetland scores the highest rank for hydrologic control.	
VR-06	• Wetland scores the highest rank for hydrologic control.	
VR-07	• Wetland scores the highest rank for wildlife habitat.	
VR-09	• Wetland scores the highest rank for hydrologic control.	
VR-12	• Wetland scores the highest rank for water quality and hydrologic control. • Wetland is inhabited by species listed by the federal or state government as a sensitive, threatened, or endangered species. • Wetland is rated in either the highest or second-highest category for Fish Habitat in OFWAM and is adjacent to a stream segment that is mapped by the ODFW as habitat for "Indigenous anadromous salmonids."	• Wetland contains threatened, endangered, or sensitive fish species. • Wetland designated as critical habitat or essential habitat for federal or state listed threatened or endangered fish species.
VR-13	• Wetland scores the highest rank for fish habitat. • Wetland is rated in either the highest or second-highest category for water quality AND borders a water quality limited stream as listed by the DEQ. • Wetland is inhabited by species listed by the federal or state government as a sensitive, threatened, or endangered species in Oregon. • Wetland rates in either the highest or second-highest category for Fish Habitat in OFWAM and is adjacent to a stream segment that is mapped by the ODFW as habitat for "Indigenous anadromous salmonids."	• Wetland contains threatened, endangered, or sensitive fish species.
VR-14	• Wetland scores the highest rank for hydrologic control.	
VR-15	• Wetland scores the highest rank for hydrologic control.	

Wetlands VR01 and VR12 qualify as LSW because they score the highest OFWAM rank for water quality. Wetland VR13 qualifies as a LSW because it scores the second-highest rank for water quality and borders a stream (the Nehalem River) that is listed by the DEQ for water quality. This usually means that the wetland has particularly valuable characteristics for maintaining the quality of water that passes through it. The implication is that compromising the water quality functions of these wetland by filling or draining them, or degrading their vegetation, could have adverse effects on water quality.

Wetland VR07 qualifies as a LSW because it scores the highest OFWAM rank for wildlife habitat quality, implying that it provides important opportunities for foraging, hiding, breeding, or other essential wildlife needs. These characteristics are based on the wetland's position in the landscape relative to development and surface water resources, and diversity of plant species and structure.

Wetlands VR12 and VR13 are considered LSW because they score the highest or second-highest OFWAM rank for fish habitat and are adjacent to stream segments mapped as habitat for indigenous anadromous salmonids. Specifically, wetlands VR12a and b are adjacent to VR12c (Bear Creek), which is listed as essential salmon habitat. Wetland VR13 (Knickerson Creek) is adjacent to (flows into) the Nehalem River, which is also listed as essential salmon habitat.

Wetlands VR12 and VR13 qualify as LSW because they are inhabited by species listed by the federal or state government as sensitive, threatened, or endangered in Oregon. These wetlands also qualify as WSIP because they contain sensitive, threatened, or endangered fish species, or are designated as critical or essential habitat for threatened or endangered fish species.

Wetlands VR05, VR08, VR10, VR11, and VR16 do not meet any criteria for identification as a LSW. Their position in the landscape, vegetation, and hydrologic and spatial characteristics prevent them from being ranked high enough to qualify as a LSW in any category.

5.0 RIPARIAN FINDINGS

5.1 Riparian Assessment Scope

The riparian inventory and assessment was performed adjacent to fish-bearing waters within the study area, as defined by the contract scope of work between the City and SHAPIRO. The presence of fish was determined by consulting the City of Vernonia Wetlands Planner, the DSL Essential Salmon Habitat Maps (DSL, 1999), and through a telephone call to the Astoria office of the ODFW (Sheehan, 1999). These resources established that fish are present in Vernonia Lake, the Nehalem River, Rock Creek, Bear Creek, and Knickerson Creek.

Four tree species were found to be dominant in the riparian areas. The species, along with their potential tree height (PTH, which is equivalent to the width of the assessed riparian area), are Douglas-fir (120 feet), big-leaf maple (90 feet), Oregon ash (75 feet), and red alder (65 feet).

5.2 Riparian Characterization and Results

Twenty riparian reaches were evaluated. The findings are summarized in Table 6. Data characterizing them, and their functional assessments, are presented in riparian assessment data sheets in Appendix B. In most cases, the start and end points of the reaches were established based on changes in the degree of development along the water resource. For example, a change from agricultural to residential and commercial development would be used as the start and end points of reaches.

Riparian study areas along the Nehalem River were divided into seven reaches, four on the left side and three on the right side. Six of the reaches are adjacent to residential, commercial, agricultural, or road development. The functional riparian values of three of these reaches (NR-L3, NR-R2, and NR-R3) have been significantly altered by removal of woody vegetation and construction of impervious surfaces and commercial and residential structures. Despite these alterations, a narrow corridor of trees and shrubs borders the river within and at the top of the banks. This vegetation, while technically mostly within the jurisdictional waters of the state because it is within the banks of the river, nevertheless has characteristics of upland vegetation rather than wetland vegetation. It makes an important contribution to maintaining water quality in the river by shading the water surface and stabilizing the river bank, preventing erosion of the bank and sediment loading in the water. These functions are normally associated with riparian vegetation in the riparian assessment. Reach NR-L4, the last reach on the downstream end of the left side of the river, borders forest.

One riparian reach was assessed around Vernonia Lake. This reach passes through forested and scrub/shrub areas that were the site of the Oregon-American Mill, but which are returning to a more natural state. On the southern and eastern shore of the lake, this riparian reach overlaps the second reach on the left side of the Nehalem River.

Riparian study areas along Rock Creek were divided into four reaches, two on each side. The upstream reaches on both sides border grassland with scattered trees, while the downstream reaches on each side pass through developed residential and commercial parts of the City. Four riparian reaches were identified along Bear Creek. The two upstream reaches (one on each side) are in grassland with scattered trees and shrubs. The downstream reaches are in developed residential and commercial districts. The downstream reaches on both Rock Creek and Bear Creek have been affected by residential and commercial development and construction of urban infrastructure. All four of these reaches are highly developed, with only remnants of riparian vegetation and other riparian functions remaining. The lower section of Rock Creek retains a narrow corridor of vegetation similar to that along the Nehalem River, described above. It has the same valuable functions along Rock Creek.

Four riparian reaches were identified along Knickerson Creek. One upstream reach borders forest, while the other includes a combination of forest and Knott Street. The downstream reaches pass through pasture or other low-intensity agricultural fields, and low-density residential and commercial development.

Table 6. Urban Riparian Inventory and Assessment Summary

				Riparian Guide Assessment Criteria			
Code	**Length (feet)**	**Salmonids**	**303 (d) Temp**	**Water Quality**	**Flood Management**	**Thermal Regulation**	**Wildlife Habitat**
BCR1	900	Yes	No	High	Medium	High	High
BCR2	3,600	Yes	No	Medium	Medium	Low	Medium
BCL1	800	Yes	No	High	Low	High	High
BCL2	3,600	Yes	No	Medium	Medium	Low	Medium
KCL1	900	Yes	No	High	Medium	High	High
KCL2	2,200	Yes	No	High	Medium	Low	Low
KCR2	2,200	Yes	No	High	Medium	Low	Low
KCR1	800	Yes	No	High	Medium	High	High
NRL1	1,400	Yes	No	High	Medium	High	High
NRL2	7,800	Yes	Yes	High	Medium	High	High
NRL3	2,700	Yes	Yes	High	Medium	High	High
NRL4	800	Yes	Yes	High	High	High	High
NRR1	1,600	Yes	No	High	Medium	High	Medium
NRR2	4,200	Yes	Yes	High	Medium	High	High
NRR3	2,400	Yes	Yes	High	Medium	High	High
RCL1	1,200	Yes	No	Medium	Medium	Medium	High
RCL2	4,400	Yes	No	High	Medium	High	High
RCR1	3,600	Yes	No	High	High	High	High
RCR2	1,800	Yes	No	High	Medium	High	High
VL1	4,800	No	No	High	Medium	High	High

6.0 SUMMARY

Vernonia's Goal 5 wetland resource inventory has been completed in compliance with guidance from the DSL that governs LWIs. The resulting maps are more complete and of greater resolution and accuracy than the data that have been used by the City to determine the location of possible wetlands. The inventory is a tool that can be used by the City to make informed planning decisions.

The study area includes 994 acres. The LWI mapped 18 water resources within the UGB totaling 131.37 acres (Figure 4). Fifteen palustrine wetlands totaling 67.9 acres were identified and mapped by the LWI. Four of these wetlands have open hydrologic connections with the main drainages in Vernonia. The remaining wetlands are isolated, or may have a surface connection with the main drainages during periods of high flow. Of the 15 palustrine wetlands, three sewage water treatment ponds (VR16) were mapped, but they were not assessed further in any way.

One lacustrine wetland in the study area, Vernonia Lake, has a total area of 37.7 acres.

Two riverine wetlands totaling approximately 25.3 acres were included in the inventory. The Nehalem River and Rock Creek have characteristics of Waters of the State, but they do not meet all the criteria to be regulated as wetlands. They were not included in the OFWAM analysis.

Of the 15 palustrine and lacustrine wetlands assessed, 11 wetlands met the criteria as LSW for a total of 81.49 acres.

Vernonia's wetlands and riparian areas have been affected to some degree by a variety of activities, including agriculture, development, forest products processing, dredging, and diking. Each of the wetlands and riparian areas within the study area continues to serve important functions associated with fish and wildlife habitat, water quality, hydrologic control, and quality of life.

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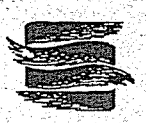
GLOSSARY OF ACRONYMS USED IN TEXT

UGB:	Urban Growth Boundary
LWI:	Local Wetland Inventory
USFWS:	U.S. Fish and Wildlife Service
OAR:	Oregon Administrative Rule
EPA:	Environmental Protection Agency
DSL:	Oregon Division of State Lands
NWI:	National Wetlands Inventory
COE:	U.S. Army Corps of Engineers
USDA:	U.S. Department of Agriculture
FEMA:	Federal Emergency Management Agency
ORIS:	Oregon Rivers Information System
ODF:	Oregon Department of Forestry
ODFW:	Oregon Department of Fish and Wildlife
DEQ:	Oregon Department of Environmental Quality
ONHP:	Oregon Natural Heritage Program
SCS:	Soil Conservation Service
NRCS:	Natural Resource Conservation Service
OBL:	obligate wetland
FACW:	facultative wetland
FAC:	facultative
FACU:	facultative upland
UPL:	obligate upland
OFWAM:	Oregon Freshwater Wetland Assessment Methodology
WSIP:	wetlands of special interest for protection
LSW:	locally significant wetlands
PTH:	potential tree height
NGVD:	National Geodetic Vertical Datum



Appendix A

Wetland Data and Summary Sheets

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99

Wetland Mapping Code: VR-01 a, b, c, d, e, f

Investigator(s): JG/ES/DC

Size (acres): 9.52

Data Sheet Numbers: 1, 2, 30

Location

Legal: T4N, R4W, S4&5

Other: N of Cedar Street, between Third and Jefferson Street.

Basin: Nehalem River

Soils

Mapped Series: 37 - Natal silty clay loam, 26C - Kenusky silty clay loam 0-15% slopes, Glohm silt loam 3-30% slopes

Hydrology

Hydrologic Source: Surface runoff

Wetland Classification(s): PEM

Dominant Vegetation

Trees	Shrubs	Vines	Herbs

Comments:

This was an off-site assessment for much of 1a, b, c, e, f because access was granted only for Wetland 1a. Wetlands 1a and 1b are combinations of PFO/PEM wetlands. Some are probably only marginally wet, based on off-site observations of vegetation. The intermittent stream that passes through this system is deeply incised in places, and has good wetland vegetation in other parts. Wetland 1c has been partly filled in the southern end. Wetland 1d and part of 1c adjacent to the railroad bed/road are good-quality wetlands with a diverse plant community. Wetlands 1c and 1d are hydrologically connected by a culvert under the railroad bed. Wetland e is a wetland swale which reportedly was historical stream channel. Wetland f is a stream drainage wetland swale dominated by emergent vegetation..

The vegetation boundary on the northeastern side is distinct. Solidago canadensis, Daucus carota, Cirsium arvense, and Pteridium aquilinum are dominant in the upland meadow. Upland trees include Pseudotsuga menziesii and Acer macrophyllum. Cytisus scoparius, Holodiscus concolor, and Rubus discolor are visible on the margin. Precipitation and groundwater are the water sources for the northern meadow. The southern part receives surface flow from west of Rose Avenue.

The southeastern field (with fill) is surrounded by ash (Fraxinus latifolia) trees. Fisher Creek flows directly onto the site. Spiraea douglasii is growing around the edges of the fill; reed canarygrass is growing in the fill. Fisher Creek is confined to the channel above and directly below Rose Avenue. The channel disappears on the eastern side of the street. The field south of the fill has Holcus lanatus, Juncus effusus, Rosa pisocarpa, Phalaris arundinacea, and Fraxinus latifolia saplings. The section west of Second Street has Phalaris arundinacea, Juncus effusus, Juncus ensifolius, and Carex unilateralis.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-1c Plot: 30

T 4N R 4W S 5 City: Vernonia County: Columbia State: OR

Plot Location; Topography Ruth Street right-of-way, flat.

Project #: 2995023 Determined by: JG/ES Date: 8/5/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		40
Carex obnupta	OBL	100
Woody Vine Stratum - % total cover:		0

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		50
Fraxinus latifolia	FACW	30
Symphoricarpos albus	FACU	30
Rosa pisocarpa	FAC	20
Cornus stolonifera	FACW	10
Crataegus douglasii	FAC	5
Spiraea douglasii	FACW	5
Tree Stratum - % total cover:		80
Fraxinus latifolia	FACW	100

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 4 of 5 = 80 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-3"	10 YR 3/1	10 YR 4/4 few, fine, faint mottles	Silty clay loam
	3-16"	10 YR 3/1	10 YR 4/4 common medium distinct	Silty clay loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Concretions exist at the 3-16 inch level.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☑ Drift lines

☑ Sediment deposits

☑ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Remarks: Soil is slightly moist.

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-01d Plot: 01

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography East of Weed Ave. and N of "E" St. About 50 feet SW of the NW corner of the pasture on Jim Brunsman's property.

Project #: 2995023 Determined by: CM/JG Date: 6/18/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		**40**	**Shrub/Sapling Stratum** - % total cover:		**40**
	Ind.	**%Cover:**		**Ind.**	**%Cover:**
Polystichum munitum	FACU	40	*Acer circinatum*	FAC-	30
Galium aparine	FACU	10	*Symphoricarpos albus*	FACU	30
Smilacina racemosa	FAC-	10	*Berberis nervosa*	UPL	20
Fragaria virginiana	FACU	5	*Corylus cornuta*	FACU	10
			Holodiscus discolor	UPL	10
Woody Vine Stratum - % total cover:		**10**	**Tree Stratum** - % total cover:		**70**
Lonicera ciliosa	UPL	60	*Pseudotsuga menziesii*	FACU	85
Rubus ursinus	FACU	40	*Acer macrophyllum*	FACU	15

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- **0** of **7** = **0** % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-2"	10 YR 3/3		Approx. 70% organic debris
	2-16"	10 YR 4/4		Loam

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? No

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: No positive hydrological indicators.

Hydrology Criterion Met? No

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-01d Plot: 02

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography NW corner of Jim Brunsman's property, east of Weed Ave. and north of "E" St. Broad, flat bottom area confined by the R/R grade to the west.

Project #: 2995023 Determined by: CM/JG Date: 6/18/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:		Ind.	%Cover:
Herb Stratum - % total cover:		60	**Shrub/Sapling Stratum** - % total cover:		10
Carex obnupta	OBL	100	*Fraxinus latifolia*	FACW	90
			Rubus parviflorus	FAC-	10
Woody Vine Stratum - % total cover:		0	**Tree Stratum** - % total cover:		30
			Fraxinus latifolia	FACW	75
			Rhamnus purshiana	FAC-	25

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 3 of 4 = 75 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-7"	10 YR 3/1		Silty clay loam
	7-13"	2.5 Y 3/1	7.5 YR 4/6 many, coarse, prominent	Clay loam
	13-18"	2.5 Y 4/1	7.5 YR 4/6 many, coarse, prominent	Clay loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☑ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >18" Depth to saturation: >18"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Nearly saturated throughout the soil profile. Positive hydrology is inferred from the sample plot's location on the landscape, the dominance of hydrophytes, and the prominent redox features.

Hydrology Criterion Met? Yes

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	JG/DC
Project Name:	City of Vernonia		
WetlandCode:	VR-01 a, b, c, d	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:	Q1:	Q1:	A	Q1:	B	Q1:	B
Q2:	C	Q2:	Q2:	Q2:	A	Q2:	A	Q2:	B
Q3:	B	Q3:	Q3:	Q3:	A	Q3:	A	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	A	Q4:	B	Q4:	A
Q5:	B	Q5:	Q5:	Q5:	A	Q5:	C	Q5:	
Q6:	B	Q6:	Q6:	Q6:	C	Q6:	A	Q6:	B
Q7:	A					Q7:	C		
Q8:	A								
Q9a:									
Q9b:	A								

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	C	Q1:	A	Q1:	A
Q2:	A	Q2:	A	Q2:	C	Q2:	C
Q3:	A	Q3:	B	Q3:	C	Q3:	B
Q4:	A	Q4:	B	Q4:	B	Q4:	B
Q5a:		Q5:	A	Q5:	B	Q5:	A
Q5b:	A	Q6:	B	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is intact.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland site is not appropriate for educational use.
Recreation:	The wetland has the potential to provide recreational opportunities.
Aesthetic Quality:	The wetland is considered to be moderately pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-01 a, b, c, d	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Emergent veg. or wet meadow. Moderate degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Exclusive Forest use or Open Space within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is intact.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. More than 5 acres of wetland area. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	No part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is more than 5 acres. Minor restrictions slow down waterflow out of the wetland. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has not been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Emergent veg. only or wet meadow is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is surface flow, including streams and ditches. Water flow into wetland is not restricted, but if

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-01 a, b, c, d	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		blocked, obstruction can be removed easily. Wetland's area is more than 5 acres. More than 40% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland site is not appropriate for educational use.	Wetland site is not open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is no existing physical public access to other features, but observation of other features can be made. There is a maintained public access point within 250 feet of the wetland's edge. Access is not available for limited mobility.
Recreation	The wetland has the potential to provide recreational opportunities.	There is a maintained public access point within 250 feet of wetland's edge. Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be moderately pleasing.	More than two Cowardin classes are visible from primary viewing area(s). Less than 25% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors, which can be removed easily. Visual character with surrounding area is landscaped or manipulated by people. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR01

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR01

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland does NOT meet the criteria for identification as a Local Significant Wetland

B. "IN"

No Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **No** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99 **Wetland Mapping Code:** VR-02

Investigator(s): JG/DC **Size (acres):** 5.04

Data Sheet Numbers: 3, 4

Location

Legal: T4N, R4W, S4

Other: Westbank of Rock Creek, from UGB to B Street.

Basin: Nehalem River

Soils

Mapped Series: 32 - McNulty silt loam

Hydrology

Hydrologic Source: Flooding from Rock Creek

Wetland Classification(s): PFO

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Cornus stolonifera*		*Hydrophyllum tenuipes*
Alnus rubra	*Sambucus racemosa*		*Ranunculus repens*
			Vancouveria hexandra
			Tellima grandiflora
			Urtica dioica
			Phalaris arundinacea

Comments:

Access was obtained only for part of this wetland. Wetland 2 is a PFO wetland adjacent to the Nehalem River. Most of the wetland has a canopy of cottonwood (Populus balsamifera) trees, with some ash (Fraxinus latifolia). There is an understory of mixed shrubs and herbaceous species in areas that are open enough to allow enough light in. Parts of the wetland are narrow, restricted to the immediate bank of the river. Other parts extend 100 to 200 feet away from the river. These wider areas include low spots that retain floodwater for prolonged periods.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-02 Plot: 03

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography NE corner of Jim Brunsman's property near the W bank of Rock Creek.

Project #: 2995023 Determined by: CM/JG Date: 6/18/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Comments: Wetland area downstream from sample plot 3 becomes ponded and channelized.

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		**Ind. %Cover: 30**
Hydrophyllum tenuipes	UPL	35
Ranunculus repens	FACW	20
Vancouveria hexandra	UPL	20
Tellima grandiflora	UPL	15
Urtica dioica	FAC+	5
Phalaris arundinacea	FACW	5

Shrub/Sapling Stratum - % total cover:		**Ind. %Cover: 30**
Cornus stolonifera	FACW	80
Sambucus racemosa	FACU	20

Woody Vine Stratum - % total cover: **0**

Tree Stratum - % total cover:		**40**
Fraxinus latifolia	FACW	67
Alnus rubra	FAC	33

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 4 of 7 = 57 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 32 - McNulty silt loam

Drainage Class: Well drained

Taxonomy: Coarse-loamy, mixed, mesic Fluventic Umbric Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-18"	10 YR 3/3-4/2	10 YR 4/3-3/4 many, fine/medium	Loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: McNulty silt loam may have inclusions of Natal soil and poorly drained soil. McNulty silt loam is found in abandoned meanders.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >18" Depth to saturation: >18"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☑ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Remarks: Soil was moist throughout the profile. Drift line deposits in vegetation were approximately 1.5 feet above the ground. This area is susceptible to flooding.

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-02 Plot: 04

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography NE corner of Jim Brunsman's property. About 300 feet SE of McCleod residence.

Project #: 2995023 Determined by: CM/JG Date: 6/18/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		Ind. %Cover: 0	Shrub/Sapling Stratum - % total cover:		Ind. %Cover: 0
Festuca arundinacea	FAC-	50	*Acer circinatum*	FAC-	40
Dactylis glomerata	FACU	20	*Corylus cornuta*	FACU	30
Polystichum munitum	FACU	10	*Sambucus racemosa*	FACU	15
Phalaris arundinacea	FACW	10	*Rubus parviflorus*	FAC-	15
Tellima grandiflora	UPL	5			
Pteridium aquilinum	FACU	5			
Woody Vine Stratum - % total cover:		0	**Tree Stratum** - % total cover:		0
Rubus laciniatus	FACU	70	*Acer macrophyllum*	FACU	60
Rubus ursinus	FACU	30	*Alnus rubra*	FAC	20
			Thuja plicata	FAC	10
			Pseudotsuga menziesii	FACU	10

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 1 of 8 = 12 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 32 - McNulty silt loam

Drainage Class: Well drained

Taxonomy: Coarse-loamy, mixed, mesic Fluventic Umbric Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-4"	10 YR 3/2		Mixed charcoal/org. debris
	4-14"	10 YR 4/2	10 YR 4/4-4/6 many, medium	Silt loam
	14-18"	10 YR 4/3		Loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >18" Depth to saturation: >18"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: No positive hydrological indicators.

Hydrology Criterion Met? No

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/03/99	**Investigator(s):**	JG
Project Name:	City of Vernonia		
WetlandCode:	VR-02	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	B	Q1:		Q1:		Q1:	A	Q1:	A	Q1:	A
Q2:	A	Q2:		Q2:		Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:		Q3:		Q3:	A	Q3:	B	Q3:	A
Q4:	C	Q4:		Q4:		Q4:	B	Q4:	C	Q4:	C
Q5:	A	Q5:		Q5:		Q5:	C	Q5:	A	Q5:	A
Q6:	A	Q6:		Q6:		Q6:	A	Q6:	A	Q6:	A
Q7:	B							Q7:	C		
Q8:	A										
Q9a:											
Q9b:	A										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	C	Q1:	A	Q1:	B
Q2:	A	Q2:	B	Q2:	B	Q2:	C
Q3:	A	Q3:	B	Q3:	C	Q3:	C
Q4:	B	Q4:	A	Q4:	B	Q4:	B
Q5a:		Q5:	A	Q5:	B	Q5:	A
Q5b:	A	Q6:	B	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is intact.
Hydrologic Control:	The wetland's hydrologic control function is intact.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland site is not appropriate for educational use.
Recreation:	The wetland has the potential to provide recreational opportunities.
Aesthetic Quality:	The wetland is not pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-02	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with more than 5 plant species. Woody vegetation is dominant vegetation cover. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. One or more upstream reaches are listed moderate water quality. Exclusive Forest use or Open Space within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is intact.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Exclusive Forest use or Open Space within 500 feet of wetland edge. One or more upstream reaches are listed water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Waterflow out of wetland is unrestricted. Woody vegetation is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. One or more upstream reaches listed as water quality limited in watershed or adjacent to the wetland. Exclusive Forest use or Open Space within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Woody vegetation is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-02	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		Wetland's primary source of water is surface flow, including streams and ditches. Water flow into wetland is not restricted, but if blocked, obstruction can be removed easily. Wetland's area is between 0.5 and 5 acres. More than 40% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland site is not appropriate for educational use.	Wetland site is not open to the public for direct access or observation. One to two visible safety hazards exist at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is existing physical public access to other features or it can be created easily and other habitats can be observed from this site. There is a maintained public access point within 250 feet of the wetland's edge. Access is not available for limited mobility.
Recreation	The wetland has the potential to provide recreational opportunities.	There is a maintained public access point within 250 feet of wetland's edge. Boat launch could be developed within 0.5-1mile. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is not pleasing.	Two Cowardin classes are visible from primary viewing area(s). Less than 25% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors which cannot be removed easily. Visual character with surrounding area is landscaped or manipulated by people. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR02

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR02

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland MEETS the criteria for identification as a Local Significant Wetland

B. "IN"

Yes Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **Yes** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99 **Wetland Mapping Code:** VR-03

Investigator(s): JG/DC **Size (acres):** 2.8

Data Sheet Numbers: 5, 6, 7

Location

Legal: T4N, R4W, S3

Other: N of Birch Street

Basin: Nehalem River

Soils

Mapped Series: 37 - McNulty silt loam, 62D - Vernonia silt loam 3-30% slope, 58 - Treharne silt loam

Hydrology

Hydrologic Source: Groundwater

Wetland Classification(s):

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Rosa pisocarpa*		*Juncus effusus*
	Spiraea douglasii		*Carex obnupta*
			Rorippa curvisiliqua
			Gnaphalium palustre
			Ludwigia palustris
			Plantago major
			Phalaris arundinacea

Comments:

Wetland 3 consists of two lobes. The eastern lobe is forested, with small clearings. Herbaceous species and some shrubs grow in the clearings. Hydrology is subsurface. This lobe is on the western aspect of a hillside. The western lobe is in a residential neighborhood. It consists primarily of an excavated pond (<0.2 acre) that is seasonally flooded. The yard with the pond is used as pasture/recreation area for llamas. Their activity keeps vegetation to a minimum. The owner stated that the site had always been wet, and that excavation just made the pond deeper, bigger, and longer lasting.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-03 Plot: 05

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography Residence with dry ponded area and llamas.

Project #: 2995023 Determined by: JG/ES Date: 7/21/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		50
Ludwigia palustris	OBL	40
Gnaphalium palustre	FAC+	25
Rorippa curvisiliqua	OBL	20
Plantago major	FACU	10
Phalaris arundinacea	FACW	5
Woody Vine Stratum - % total cover:		0

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		0
Tree Stratum - % total cover:		0

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 3 of 3 = 100 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-18"	10 YR 5/1	5 YR 5/8 common, medium, prominent	Silty clay

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Soil surface is distinctly cracked. Soil is moist to the surace at the lowest point of the site.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >18" Depth to saturation: >18"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres

☐ Water-stained leaves

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

☐ Local soil survey data

☐ FAC-Neutral test

Remarks: Resident says site is typically wet through May and sometimes into June. Prior to pond excavation, the site was historically ponded during the winter.

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-03 Plot: 06

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography W edge of Dailey pasture, central N/S.

Project #: 2995023 Determined by: JG/ES Date: 7/21/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		100
Chrysanthemum leucanthemum	UPL	30
Poa sp.	FACU	20
Agrostis stolonifera	FAC	20
Trifolium repens	FAC	20
Cirsium vulgare	FACU	10
Woody Vine Stratum - % total cover:		0

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		0
Tree Stratum - % total cover:		0

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 0 of 0 = 0 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-8"	10 YR 3/2		Clay silt loam
	8-18"	10 YR 3/1		Clay silt loam

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation _____ Depth to water table: _____ Depth to saturation: _____

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Oxidized rhizospheres exist on old root channels, not on current live roots.

Hydrology Criterion Met? No

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-03 Plot: 07

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography Upslope from Dailey wetland, 300 feet N of Cherry Street on bench. Ground is level.

Project #: 2995023 Determined by: JS/ES Date: 7/22/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		Ind. %Cover: 90	Shrub/Sapling Stratum - % total cover:		Ind. %Cover: 10
Agrostis alba	FAC	50	*Pyrus malus*	UPL	50
Ranunculus repens	FACW	20	*Rosa pisocarpa*	FAC	50
Festuca arundinacea	FAC-	10			
Hypochaeris radicata	FACU	5			
Dactylis glomerata	FACU	5			
Anthoxanthum odoratum	FACU	5			
Holcus lanatus	FAC	5			
Woody Vine Stratum - % total cover:		**30**	**Tree Stratum - % total cover:**		**0**
Rubus ursinus	FACU	100			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 3 of 5 = 60 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 62D - Vernonia silt loam 3-30% slopes

Drainage Class: Well drained

Taxonomy: Fine-silty, mixed, mesic Ultic Hapludalfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-8"	10 YR 3/2		Silt loam
	8-14"	transition, mixed, 10 YR 3/2 & 3/4		Silt loam
	14-16"	10 YR 3/4	Possibly mottled	Silt loam

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☑ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☑ On hydric soils list

Soil Criterion Met? No

HYDROLOGY

Depth of inundation _____ Depth to water table: _____ Depth to saturation: _____

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Remarks: Entire area possibly drained; in hydric soil.

Hydrology Criterion Met? No

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	JG/DC
Project Name:	City of Vernonia		
WetlandCode:	VR-03	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:		Q1:		Q1:	C	Q1:	A	Q1:	A
Q2:	A	Q2:		Q2:		Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:		Q3:		Q3:	B	Q3:	B	Q3:	C
Q4:	C	Q4:		Q4:		Q4:	B	Q4:	A	Q4:	A
Q5:	B	Q5:		Q5:		Q5:	A	Q5:	A	Q5:	
Q6:	B	Q6:		Q6:		Q6:	C	Q6:	A	Q6:	A
Q7:	A							Q7:	C		
Q8:	C										
Q9a:											
Q9b:	A										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	C	Q1:	A	Q1:	A
Q2:	B	Q2:	A	Q2:	C	Q2:	B
Q3:		Q3:	B	Q3:	C	Q3:	B
Q4:	B	Q4:	B	Q4:	B	Q4:	B
Q5a:		Q5:	A	Q5:	B	Q5:	A
Q5b:	A	Q6:	B	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is intact.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland site is not appropriate for educational use.
Recreation:	The wetland has the potential to provide recreational opportunities.
Aesthetic Quality:	The wetland is considered to be pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-03	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Woody vegetation is dominant vegetation cover. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Groundwater (including seeps and springs) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. Moderate (approx. 60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Waterflow out of wetland is restricted or no outlet. Woody vegetation is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Woody vegetation is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is groundwater, including springs and seeps.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-03	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		Wetland's area is between 0.5 and 5 acres. More than 40% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland site is not appropriate for educational use.	Wetland site is not open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is no existing physical public access to other features, but observation of other features can be made. There is a maintained public access point within 250 feet of the wetland's edge. Access is not available for limited mobility.
Recreation	The wetland has the potential to provide recreational opportunities.	There is a maintained public access point within 250 feet of wetland's edge. Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be pleasing.	More than two Cowardin classes are visible from primary viewing area(s). Between 25 and 50% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors, which can be removed easily. Visual character with surrounding area is landscaped or manipulated by people. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR03

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR03

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland MEETS the criteria for identification as a Local Significant Wetland

B. "IN"

Yes Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **Yes** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99

Wetland Mapping Code: VR-04 a, b, c, d

Investigator(s): JG/ES

Size (acres): 0.9

Data Sheet Numbers: 8, 9

Location

Legal: T4N, R4W, S3

Other: E of Nehalem Hwy. from Birch to Elm Street

Basin: Nehalem River

Soils

Mapped Series: 58 - Treharne silt loam

Hydrology

Hydrologic Source: Surface runoff

Wetland Classification(s):

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Salix lasiandra*		*Cicuta douglasii*
Salix lasiandra			*Glyceria borealis*
			Rorippa curvisiliqua
			Juncus bufonius
			Polygonum persicaria

Comments:

These four segments of remnant wetland are in backyards and empty lots. In winter, the shallow swale fills with water, or soils are saturated. Wetland 4a is a forested swale with a remnant buffer; the rest of the portions are disturbed or mowed grasses. Portions of the wetlands are reduced to a shallow swale.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-04a Plot: 08

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography Flag lot N of Birch Street, E of the Nehalem Rover. Gently loping drainage swale.

Project #: 2995023 Determined by: JG/ES Date: 7/22/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Comments: Site is mainly a drainage swale bordered by ash and willow trees.

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		**Ind. %Cover: 50**
Cicuta douglasii	OBL	30
Glyceria borealis	OBL	20
Rorippa curvisiliqua	OBL	20
Juncus bufonius	FACW	20
Polygonum persicaria	FACW	20

Shrub/Sapling Stratum - % total cover:		**Ind. %Cover: 10**
Salix lasiandra	FACW	70
Salix sp.	FAC	30

Woody Vine Stratum - % total cover: **0**

Tree Stratum - % total cover:		**60**
Salix lasiandra	FACW	50
Fraxinus latifolia	FACW	50

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 9 of 9 = 100 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 58 - Treharne silt loam

Drainage Class: Moderately well-drained

Taxonomy: Fine-silty, mixed, mesic Aquultic Hapludalfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-9"	10 YR 3/2	10 YR 3/6 7.5 YR 5/8 common, medium, distinct	Silt loam
	9-16"	10 YR 4/1	7.5 YR 4/6 common, medium, distinct	Clayey silt

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Mixed material (charcoal) in matrix. Soil very moist to bottom of pit.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☑ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Resident says site remains flooded until May.

Hydrology Criterion Met? No

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-04a Plot: 09

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography Plot is on edge of resident's lawn approx. 30 feet W of plot 7.

Project #: 2995023 Determined by: JG/ES Date: 7/22/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		**Ind. %Cover: 100**
Poa sp.	FACU	30
Holcus lanatus	FAC	20
Trifolium repens	FAC	15
Taraxacum officinale	FACU	10
Agrostis stolonifera	FAC	10
Hypochaeris radicata	FACU	10
Agrostis stolonifera	FAC	5
Plantago major	FACU	5

Shrub/Sapling Stratum - % total cover: **0** Ind. %Cover:

Woody Vine Stratum - % total cover: **0**

Tree Stratum - % total cover: **0**

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 1 of 2 = 50 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 58 - Tregarne silt loam

Drainage Class: Moderately well-drained

Taxonomy: Fine-silty, mixed, mesic Aquultic Hapludalfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-11"	10 YR 3/2		Loam
	11-16"	10 YR 4/1	10 YR 4/4 few, distinct	Silt loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Soil is moist to the surface.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation _____ Depth to water table: _____ Depth to saturation: _____

Primary Indicators:

☐ Inundated
☐ Saturated in upper 12"
☐ Water marks
☐ Drift lines
☐ Sediment deposits
☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data
☐ Water-stained leaves ☐ FAC-Neutral test
☐ Recorded data (aerials, groundwater data)
Explain:
☐ Other
Explain:

Remarks: No positive hydrological indicators

Hydrology Criterion Met? No

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	JG/DC
Project Name:	City of Vernonia		
WetlandCode:	VR-04	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	B	Q1:		Q1:		Q1:	A	Q1:	A	Q1:	A
Q2:	C	Q2:		Q2:		Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:		Q3:		Q3:	A	Q3:	B	Q3:	C
Q4:	C	Q4:		Q4:		Q4:	B	Q4:	C	Q4:	A
Q5:	B	Q5:		Q5:		Q5:	A	Q5:	C	Q5:	A
Q6:	B	Q6:		Q6:		Q6:	C	Q6:	A	Q6:	B
Q7:	A							Q7:	A		
Q8:	C										
Q9a:											
Q9b:	C										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	A	Q1:	C	Q1:	C
Q2:	A	Q2:	B	Q2:	C	Q2:	B
Q3:	A	Q3:	B	Q3:	C	Q3:	C
Q4:	B	Q4:	C	Q4:	B	Q4:	B
Q5a:		Q5:	C	Q5:	B	Q5:	A
Q5b:	C	Q6:	B	Q6:	B	Q6:	C
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is intact.
Hydrologic Control:	The wetland's hydrologic control function is intact.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland has potential for educational use.
Recreation:	The wetland is not appropriate for or does not provide recreational opport
Aesthetic Quality:	The wetland is not pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-04	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with more than 5 plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is intact.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Waterflow out of wetland is unrestricted. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Urban or Urbanizing land use in watershed upstream from area.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Emergent veg. only or wet meadow is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is surface

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-04	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		flow, including streams and ditches. Water flow into wetland is not restricted, but if blocked, obstruction can be removed easily. Wetland's area is between 0.5 and 5 acres. Less than 10% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland has potential for educational use.	Wetland site is open to the public for direct access or observation. One to two visible safety hazards exist at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is no existing physical public access to other features, and observation of other features cannot be made. There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Access is not available for limited mobility.
Recreation	The wetland is not appropriate for or does not provide recreational opportunities.	There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is not pleasing.	One Cowardin class is visible from primary viewing area(s). Between 25 and 50% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors which cannot be removed easily. Visual character with surrounding area is landscaped or manipulated by people. Natural, pleasant odors are present at primary viewing location. Continuous traffic and other intrusive noise and NO natural sounds are audible at primary viewing location.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR04

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR04

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland MEETS the criteria for identification as a Local Significant Wetland

B. "IN"

Yes Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **Yes** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99

Wetland Mapping Code: VR-05 a, b, c, d

Investigator(s): JG/ES

Size (acres): 8.31

Data Sheet Numbers: 10, 11, 12

Location

Legal: T4N, R4W, S3

Other: E of Nehalem Hwy. between Knot Street and Grove Street

Basin: Nehalem River

Soils

Mapped Series: 37 - Natal silty clay loam, 58 - Treharne silt loam, 59 - Udifluvents-Dystrochrepts complex

Hydrology

Hydrologic Source: Precipitation, groundwater, surface flow

Wetland Classification(s): PEM, PSS, PFO

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Spiraea douglasii*		*Phalaris arundinacea*
	Fraxinus latifolia		*Glyceria grandis*
	Salix sitchensis		*Carex exsiccata*
	Rosa pisocarpa		*Epilobium watsonii*
			Veronica serpyllifolia
			Dactylis glomerata
			Carex obnupta

Comments:

This was an off-site determination. This wetland has four elements: a high-quality, forested and scrub/shrub wetland behind houses (5a) that drains into an excavated water feature (5b). This drainage joins a drainage from the southeast and flows through two 18-inch culverts under Heather Lane. Wetland 5c consists of wet meadow/pasture with scattered Fraxinus latifolia. The field is grazed by horses, goats, and geese, and the grasses are kept close-cropped. New homes are on the southern, eastern, and southwestern sides. Wetland 5d is a small, excavated pond that apparently collects groundwater and runoff, and drains into Wetland 5c from the northeast. The ground at the outlet of 5c is saturated with standing water at the lowest point in the southwestern corner. The drainage ditch passes through back yards, eventually draining to the Nehalem River.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-05a Plot: 11

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography 30 feet W of driveway for flag lot. Terrain is flat.

Project #: 2995023 Determined by: JG/ES Date: 7/27/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		Ind. %Cover: 30
Phalaris arundinacea	FACW	60
Glyceria grandis	OBL	20
Carex exsiccata	OBL	20
Epilobium watsonii	FACW	5
Veronica serpyllifolia	FAC	5
Dactylis glomerata	FACU	5
Carex obnupta	OBL	5

Shrub/Sapling Stratum - % total cover:		Ind. %Cover: 40
Spiraea douglasii	FACW	75
Fraxinus latifolia	FACW	20
Salix sitchensis	FACW	10
Rosa pisocarpa	FAC	10

Woody Vine Stratum - % total cover:		0

Tree Stratum - % total cover:		30
Fraxinus latifolia	FACW	100

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 6 of 6 = 100 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-3"	10 YR 3/2		Silt
	3-8"	10 YR 4/1	7.5 YR 4/6 many, medium, prominent	Clayey silt
	8-16"	10 YR 5/1	7.5 YR 4/6 many, medium, prominent	Silty clay

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☑ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Most roots are 0-3 inches. Concretions exist throughout the sample.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: 8"

Primary Indicators:

☐ Inundated

☑ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☑ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Oxidized rhizospheres exist at 0-3 inches below soil surface. Free water on ped faces 8-16"

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-05a Plot: 12

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography 50 feet W of flag lot driveway; backyard of residence.

Project #: 2995023 Determined by: JG/ES Date: 7/27/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Comments: Edge of yard is transitional and the upper part (adjacent to house) is upland.

Do Normal Circumstances exist on the site? No

Are Soils ☐ Vegetation ☑ Hydrology ☐ significantly disturbed? No

Explanation: Mowed lawn.

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:	Ind.	%Cover: 50	Shrub/Sapling Stratum - % total cover:	Ind.	%Cover: 30
Festuca sp.	FACU	50	*Spiraea douglasii*	FACW	20
Lotus corniculatus	FAC	20	*Rhamnus purshiana*	FAC-	10
Equisetum arvense	FAC	15	*Pyrus fusca*	FACW	10
Hypochaeris radicata	FACU	10	*Symphoricarpos albus*	FACU	5
Taraxacum officinale	FACU	5	*Ilex aquifolium*	UPL	5
Polystichum munitum	FACU	5	*Oemleria cerasiformis*	FACU	5
			Corylus cornuta	FACU	5
Woody Vine Stratum - % total cover:		**10**	**Tree Stratum** - % total cover:		**40**
Rubus ursinus	FACU	100	*Fraxinus latifolia*	FACW	40
			Salix sp.	FAC	40
			Tsuga heterophylla	FACU-	20

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 4 of 8 = 50 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Residential back yard. Resident declined to excavate. Lower southern edge adjacent to wetland vegetation probably hydric. Area adjacent to the house is probably disturbed.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >11" Depth to saturation: unk.

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Hydrology Criterion Met? No

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-05b Plot: 10

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography S side of Heather Lane, gently sloping to drainage channel.

Project #: 2995023 Determined by: JG/ES Date: 7/22/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		50	Shrub/Sapling Stratum - % total cover:		5
Phalaris arundinacea	FACW	20	*Symphoricarpos albus*	FACU	100
Agrostis stolonifera	FAC	20			
Geum macrophyllum	FACW	10			
Holcus lanatus	FAC	5			
Equisetum arvense	FAC	5			
Woody Vine Stratum - % total cover:		20	**Tree Stratum** - % total cover:		80
Rubus laciniatus	FACU	40	*Alnus rubra*	FAC	80
Rubus ursinus	FACU	30	*Thuja plicata*	FAC	15
Rubus discolor	FACU	30	*Fraxinus latifolia*	FACW	5

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 3 of 7 = 43 % (50/20 Rule)

Remarks: Vegetation is spotty (with at least 50% bare ground) within 20 feet of stream channel.

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-8"	10 YR 3/3	10 YR 3/6 few, medium, distinct	Loam
	8-16"	10 YR 3/2		Loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Soil is slightly moist 6-8" (transition zone).

Soil Criterion Met? No

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Soil is slightly moist. No other positive hydrological indicators.

Hydrology Criterion Met? No

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	JG/DC
Project Name:	City of Vernonia		
WetlandCode:	VR-05	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:		Q1:		Q1:	C	Q1:	A	Q1:	A
Q2:	C	Q2:		Q2:		Q2:	B	Q2:	B	Q2:	B
Q3:	C	Q3:		Q3:		Q3:	B	Q3:	B	Q3:	C
Q4:	C	Q4:		Q4:		Q4:	B	Q4:	C	Q4:	A
Q5:	B	Q5:		Q5:		Q5:	A	Q5:	C	Q5:	A
Q6:	B	Q6:		Q6:		Q6:	C	Q6:	A	Q6:	B
Q7:	A							Q7:	C		
Q8:	C										
Q9a:											
Q9b:	A										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	A	Q1:	B	Q1:	B
Q2:	B	Q2:	A	Q2:	C	Q2:	B
Q3:	A	Q3:	B	Q3:	C	Q3:	C
Q4:	B	Q4:	A	Q4:	B	Q4:	B
Q5a:		Q5:	B	Q5:	B	Q5:	A
Q5b:	A	Q6:	A	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland has educational uses.
Recreation:	The wetland has the potential to provide recreational opportunities.
Aesthetic Quality:	The wetland is considered to be moderately pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-05	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Groundwater (including seeps and springs) is wetland's primary source of water. Unable to determine evidence of flooding or ponding during the growing season (or unapplicable). Moderate (approx. 60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	All or part of wetland located within 100-year floodplain or enclosed basin. Unable to determine evidence of flooding or ponding during the growing season (or not applicable). Area is between 0.5 and 5 acres. Waterflow out of wetland is unrestricted. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Emergent veg. only or wet meadow is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-05	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		habitat, water quality and hydrologic control. Wetland's primary source of water is groundwater, including springs and seeps. Water flow into wetland is not restricted, but if blocked, obstruction can be removed easily. Wetland's area is between 0.5 and 5 acres. More than 40% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland has educational uses.	Wetland site is open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is existing physical public access to other features or it can be created easily and other habitats can be observed from this site. There is an unmaintained access point within 250 feet of the wetland's edge. Access is available for limited mobility.
Recreation	The wetland has the potential to provide recreational opportunities.	There is an unmaintained public access point within 250 feet of the wetland's edge. Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be moderately pleasing.	Two Cowardin classes are visible from primary viewing area(s). Between 25 and 50% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors which cannot be removed easily. Visual character with surrounding area is landscaped or manipulated by people. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR05

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR05

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland does NOT meet the criteria for identification as a Local Significant Wetland

B. "IN"

No Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **No** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 7/21/99

Wetland Mapping Code: VR-06

Investigator(s): JG

Size (acres): 1.1

Data Sheet Numbers: n/a

Location

Legal: T4N, R4W, S3&4

Other: N end of mobil home park, approximately 100 yards W of Nehalem River

Basin: Nehalem River

Soils

Mapped Series: 32 - McNulty silt loam

Hydrology

Hydrologic Source: Groundwater, surface flow

Wetland Classification(s): POW, PFO

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia			

Comments:

This is an excavated pond with three islands. The banks are steep to vertical. The pond has deep water and little to no emergent wetland vegetation on the banks. Fraxinus latifolia grows on the islands and around the edge. There are two planted pine cultivars on the southern island. The pond may receive surface water from intermittent drainages. It overflows through a culvert to the Nehalem River.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	JG/DC
Project Name:	City of Vernonia		
WetlandCode:	VR-06	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:		Q1:		Q1:	C	Q1:	B	Q1:	A
Q2:	B	Q2:		Q2:		Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:		Q3:		Q3:	B	Q3:	B	Q3:	C
Q4:	C	Q4:		Q4:		Q4:	B	Q4:	A	Q4:	A
Q5:	B	Q5:		Q5:		Q5:	A	Q5:	B	Q5:	A
Q6:	B	Q6:		Q6:		Q6:	C	Q6:	A	Q6:	C
Q7:	A							Q7:	A		
Q8:	C										
Q9a:											
Q9b:	A										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	C	Q1:	C	Q1:	B
Q2:	B	Q2:	B	Q2:	C	Q2:	A
Q3:		Q3:	B	Q3:	C	Q3:	B
Q4:	B	Q4:	B	Q4:	B	Q4:	B
Q5a:		Q5:	C	Q5:	B	Q5:	A
Q5b:	A	Q6:	A	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is intact.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland site is not appropriate for educational use.
Recreation:	The wetland is not appropriate for or does not provide recreational opport
Aesthetic Quality:	The wetland is considered to be pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-06	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Emergent veg. & ponding or open water only. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Groundwater (including seeps and springs) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. Moderate (approx. 60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	No part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Waterflow out of wetland is restricted or no outlet. Emergent veg. and ponding , or open water only is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Urban or Urbanizing land use in watershed upstream from area.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Emergent veg. and ponding,or open water only are the dominant cover types.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-06	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is groundwater, including springs and seeps. Wetland's area is between 0.5 and 5 acres. More than 40% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland site is not appropriate for educational use.	Wetland site is not open to the public for direct access or observation. One to two visible safety hazards exist at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is no existing physical public access to other features, but observation of other features can be made. There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Access is available for limited mobility.
Recreation	The wetland is not appropriate for or does not provide recreational opportunities.	There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be pleasing.	Two Cowardin classes are visible from primary viewing area(s). More than 50% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors, which can be removed easily. Visual character with surrounding area is landscaped or manipulated by people. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR06

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR06

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland MEETS the criteria for identification as a Local Significant Wetland

B. "IN"

Yes Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **Yes** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99 **Wetland Mapping Code:** VR-07

Investigator(s): JG/ES/DC **Size (acres):** 12.3

Data Sheet Numbers: 13, 14, 15, 16, 17, 18

Location

Legal: T5N, R4W, S34

Other: N of E end of Knott Street

Basin: Nehalem River

Soils

Mapped Series: 37 - Natal silty clay loam

Hydrology

Hydrologic Source: Groundwater

Wetland Classification(s):

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Crataegus douglasii*		*Alopecurus pratensis*
Salix sp.	*Cornus stolonifera*		*Juncus effusus*
	Physocarpus capitatus		*Festuca arundinacea*
	Rosa pisocarpa		*Lupinus polyphyllus*
	Symphoricarpos albus		*Agrostis alba*
			Carex obnupta
			Ranunculus repens
			Geum macrophyllum
			Carex deweyana
			Stachys cooleyae

Comments:

This was an on-site assessment. Wetland 7 includes mowed grass agricultural fields, short fence rows, and forested wetlands. The transition zone from upland to wetland in the fields is broad and gradual, with an indistinct boundary. Soil conditions indicate that wetland hydrology may extend beyond the current boundary. The PFO part of the site has good structural and species diversity, with canopy, understory, and ground cover all present.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-07 Plot: 13

T 5N R 4W S 34 City: Vernonia County: Columbia State: OR

Plot Location; Topography 300 feet N of E end of Knott Street slight slope (3%) to North.

Project #: 2995023 Determined by: JG/ES Date: 7/27/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? No

Are Soils ☐ Vegetation ☑ Hydrology ☐ significantly disturbed? No

Explanation: Agricultural field.

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		100
Festuca arundinacea	FAC-	70
Alopecurus pratensis	FACW	20
Agrostis alba	FAC	5
Lotus corniculatus	FAC	5
Lupinus polyphyllus	FAC+	0
Woody Vine Stratum - % total cover:		0

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		0
Tree Stratum - % total cover:		0

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 1 of 2 = 50 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 59 - Udifluvents-Dystrochrepts complex

Drainage Class: Varies

Taxonomy: Udifluvents and Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-6"	10 YR 3/2		Silt loam
	6-12"	10 YR 3/1	7.5 YR 3/4 few, fine, faint	Silt loam
	12-16"	10 YR 4/2	7.5 YR 3/4 common, medium, distinct	Silty clay loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Concretions below 6 inches.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☑ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Soil slightly moist at 4-16". Very hummocky surface. Distinct, matted, stained, dead grass and leaves at 3-6 inches level between hummocks.

Hydrology Criterion Met? No

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-07 Plot: 14

T 5N R 4W S 34 City: Vernonia County: Columbia State: OR

Plot Location; Topography 1000 feet N of E end of Knott Street, slightly sloping to W.

Project #: 2995023 Determined by: JG/ES Date: 7/27/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? No

Are Soils ☐ Vegetation ☑ Hydrology ☐ significantly disturbed? No

Explanation: Agricultural field - grasses.

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		**Ind. %Cover: 100**
Alopecurus pratensis	FACW	40
Juncus effusus	FACW	20
Festuca arundinacea	FAC-	20
Lupinus polyphyllus	FAC+	10
Agrostis alba	FAC	5
Holcus lanatus	FAC	5

Shrub/Sapling Stratum - % total cover: **0** Ind. %Cover:

Woody Vine Stratum - % total cover: **0**

Tree Stratum - % total cover: **0**

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 2 of 3 = 67 % (50/20 Rule)

Remarks: Juncus and Lupinus isolated in approximately 50' x 100' drifts.

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-6"	10 YR 4/2	7.5 YR 4/6 common, fine, distinct	Silt loam
	6-16"	10 YR 5/2	7.5 YR 4/6 common, medium, distinct	Silty clay loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☑ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☑ Oxidized rhizospheres ☐ Local soil survey data

☑ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Remarks: Oxidized rhizospheres exist near the surface. Matted, stained dead grass cover surface in low spots between hummocks. Soil is slightly moist in top 6 inches and more moist below 6 inches.

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-07 Plot: 15

T 5N R 4W S 34 City: Vernonia County: Columbia State: OR

Plot Location; Topography Approximately 1600 feet N of Knott Street, very slightly sloped.

Project #: 2995023 Determined by: JG/ES Date: 7/27/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		**Ind. %Cover: 70**
Ranunculus repens	FACW	20
Geum macrophyllum	FACW	20
Carex obnupta	OBL	20
Carex deweyana	FACU	20
Stachys cooleyae	FACW	15
Viola glabella	FACW	5
Veronica americana	OBL	5

Shrub/Sapling Stratum - % total cover:		**Ind. %Cover: 50**
Crataegus douglasii	FAC	25
Cornus stolonifera	FACW	20
Physocarpus capitatus	FACW	20
Symphoricarpos albus	FACU	20
Rosa pisocarpa	FAC	10
Fraxinus latifolia	FACW	5

Woody Vine Stratum - % total cover: **0**

Tree Stratum - % total cover: **90**

Fraxinus latifolia	FACW	100

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 6 of 9 = 67 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-3"	10 YR 4/1	10 YR 3/4 common, coarse, distinct	Silt loam
	3-12"	10 YR 4/1	10 YR 3/3 common, coarse, distinct	Clayey silt loam
	12-16"	10 YR 5/1	10 YR 4/6 common, coarse, distinct	Silt

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Soil increasingly moist with depth.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☑ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Remarks: Drainage patterns are clearly visible across the surface of the ground.

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-07 Plot: 16

T 5N R 4W S 34 City: Vernonia County: Columbia State: OR

Plot Location; Topography Sloping terrace approximately 150 feet wide, about 30 feet above adjacent area.

Project #: 2995023 Determined by: JG/ES Date: 7/27/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		**Ind. %Cover: 70**
Agrostis tenuis	FAC	25
Agrostis alba	FAC	15
Holcus lanatus	FAC	15
Pteridium aquilinum	FACU	15
Dactylis glomerata	FACU	10
Galium aparine	FACU	5
Vicia sp.	UPL	5

Shrub/Sapling Stratum - % total cover:		**Ind. %Cover: 20**
Corylus cornuta	FACU	85
Rhamnus purshiana	FAC-	15

Woody Vine Stratum - % total cover:		**60**
Rubus laciniatus	FACU	70
Rubus ursinus	FACU	30

Tree Stratum - % total cover:	**0**

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 1 of 4 = 25 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-3"	7.5 YR 3/3		Fine sandy loam
	3-16"	10 YR 4/4	2.5 YR 4/6 few, fine	

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Marbled matrix with color variation (7.5 YR 5/6) but not mottling.

Soil Criterion Met? No

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Hydrology Criterion Met? No

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-07 Plot: 17

T 5N R 4W S 34 City: Vernonia County: Columbia State: OR

Plot Location; Topography In NE corner of flatlands 100 feet S of toe of slope, 300 feet W of sandy area.

Project #: 2995023 Determined by: JG/ES Date: 7/27/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		**25**
Lupinus polyphyllus	FAC+	50
Ranunculus repens	FACW	20
Carex obnupta	OBL	20
Agrostis alba	FAC	10
Holcus lanatus	FAC	10
Juncus effusus	FACW	10
Woody Vine Stratum - % total cover:		**0**

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		**75**
Rosa pisocarpa	FAC	95
Fraxinus latifolia	FACW	5
Tree Stratum - % total cover:		**20**
Fraxinus latifolia	FACW	90
Salix sp.	FAC	5
Crataegus douglasii	FAC	5

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 5 of 5 = 100 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 37 - Natal silty clay loam

Drainage Class: Poorly drained

Taxonomy: Fine, mixed, mesic Umbric Ochraqualfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-6"	10 YR 3/2	Remnant oxidized rhizospheres	Silt loam
	6-10"		Transitional	Silty clay loam
	10-16"	10 YR 4/2	7.5 YR 4/6 common, medium, distinct	

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☑ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation _____ Depth to water table: _____ Depth to saturation: _____

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☑ Oxidized rhizospheres

☐ Water-stained leaves

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

☐ Local soil survey data

☐ FAC-Neutral test

Remarks: Oxidized rhizospheres in top 6 inches on live roots.

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-07 Plot: 18

T 5N R 4W S 34 City: Vernonia County: Columbia State: OR

Plot Location; Topography Knott Street, 150 feet S of study area boundary, flat.

Project #: 2995023 Determined by: JG/ES Date: 7/27/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? No

Are Soils ☐ Vegetation ☑ Hydrology ☐ significantly disturbed? No

Explanation: Agricultural field grass

VEGETATION Dominant Plant Species

		Ind.	%Cover:
Herb Stratum - % total cover:			100
Festuca arundinacea		FAC-	80
Agrostis alba		FAC	10
Lupinus polyphyllus		FAC+	5
Vicia americana		FAC	5
Woody Vine Stratum - % total cover:			0

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		0
Tree Stratum - % total cover:		0

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 0 of 1 = 0 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 59 - Unifluvents-Dystrochrepts complex

Drainage Class: Varies

Taxonomy: Udifluvents and Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-12"	10 YR 3/1		Silt loam
	12-16"	10 YR 3/1	10 YR 3/6 few, fine, faint	Silt loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Concretions exist below 12 inches.

Hydrology Criterion Met? No

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	DC/JG
Project Name:	City of Vernonia		
WetlandCode:	VR-07	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:	Q1:	Q1:	C	Q1:	A	Q1:	A
Q2:	A	Q2:	Q2:	Q2:	C	Q2:	C	Q2:	B
Q3:	A	Q3:	Q3:	Q3:	A	Q3:	A	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	A	Q4:	C	Q4:	B
Q5:	B	Q5:	Q5:	Q5:	B	Q5:	A	Q5:	A
Q6:	B	Q6:	Q6:	Q6:	C	Q6:	B	Q6:	A
Q7:	A					Q7:	C		
Q8:	B								
Q9a:									
Q9b:	A								

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	N/A	Q1:	C	Q1:	C	Q1:	A
Q2:	N/A	Q2:	A	Q2:	C	Q2:	A
Q3:	N/A	Q3:	A	Q3:	C	Q3:	A
Q4:	N/A	Q4:	B	Q4:	A	Q4:	A
Q5a:	N/A	Q5:	C	Q5:	B	Q5:	A
Q5b:	N/A	Q6:	B	Q6:	B	Q6:	A
Q6:	N/A						

Wildlife Habitat:	The wetland provides diverse wildlife habitat.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	N/A
Education:	The wetland site is not appropriate for educational use.
Recreation:	The wetland is not appropriate for or does not provide recreational opport
Aesthetic Quality:	The wetland is considered to be pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-07	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides diverse wildlife habitat.	Two or more Cowardin wetland classes. Woody vegetation is dominant vegetation cover. High degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Agricultural land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Groundwater (including seeps and springs) is wetland's primary source of water. No evidence of flooding or ponding during the growing season. High (>60%) degree of wetland vegetation cover. More than 5 acres of wetland area. Agricultural land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	All or part of wetland located within 100-year floodplain or enclosed basin. No evidence of flooding or ponding during the growing season. Area is more than 5 acres. Waterflow out of wetland is unrestricted. Woody vegetation is dominant cover type. Agricultural land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Agricultural land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Woody vegetation is the dominant cover.
Enhancement Potential	N/A	
Education	The wetland site is not appropriate for educational use.	Wetland site is not open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Results of wildlife habitat and fish habitat assessment criteria prove wetland provides diverse Wildlife Habitat, or Fish Habitat

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-07	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		function is intact. There is no existing physical public access to other features, but observation of other features can be made. There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Access is not available for limited mobility.
Recreation	The wetland is not appropriate for or does not provide recreational opportunities.	There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides diverse wildlife habitat. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be pleasing.	More than two Cowardin classes are visible from primary viewing area(s). More than 50% of wetland is visible from viewing area(s). General appearance of wetland has no visual detractors. Visual character with surrounding area is open or naturally landscaped. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR07

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR07

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland does NOT meet the criteria for identification as a Local Significant Wetland

B. "IN"

No Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **No** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99

Wetland Mapping Code: VR-08

Investigator(s): JG, ES

Size (acres): 1.08

Data Sheet Numbers: 19, 20, 21

Location

Legal: T4N, R4W, S4

Other: N of Idaho Ave. and Oklahoma Ave.; inside ballpark

Basin: Nehalem River

Soils

Mapped Series: 26C - Kenusky silty clay loam

Hydrology

Hydrologic Source: Groundwater

Wetland Classification(s): PEM, some PFO

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Symphoricarpos albus*		*Juncus effusus*
	Physocarpus capitatus		*Juncus bufonius*
	Rosa pisocarpa		*Carex obnupta*
	Fraxinus latifolia		*Typha latifolia*
	Cornus stolonifera		*Galium aparine*
			Epilobium watsonii
			Gnaphalium palustre

Comments:

This site is a city ball field. The western end was recently excavated 10 to 15 feet below grade to make more of the field flat. The City Planner said the field had a ditch along the western side to keep water off the field, before excavation. In excavating the field, groundwater was encountered. The flatness of the terrain and the clay soils cause water to pond, and a wetland is forming in the area. The eastern end of the wetland is in the ash trees outside the ball field. An old, excavated ditch runs along the northern edge of the field and drains into the forested wetland portion. The forested portion is quite small and contains Symphoricarpos albus and Carex obnupta in addition to the ash trees.

Juncus bufonius is the dominant wetland plant on the site. Holcus lanatus, Equisetum arvense, Agrostis alba, Gnaphalium palustre, and a small amount of Typha latifolia are also present. Juncus effusus has become established in the larger wet spots (10 feet by 10 feet) that are ponded in the western end.

The western and northern quarters of the site have much bare soil and a cracked and caked surface, indicating that ponding occurs. The field to the north has a small amount of Juncus effusus in the middle and dark soil, indicating wet conditions may extend to the north. Access to that site was not granted.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-08 Plot: 19

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography W edge of excavated field area, top of excavated bank, moderate slope.

Project #: 2995023 Determined by: JG/ES Date: 8/4/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		15
Polystichum munitum	FACU	90
Sambucus cerulea	FACU	10
Corylus cornuta	FACU	5
Hypericum perforatum	UPL	5
Vancouveria hexandra	UPL	5

Shrub/Sapling Stratum - % total cover:		60
Gaultheria shallon	FACU	60
Acer circinatum	FAC-	20
Rosa pisocarpa	FAC	10
Alnus rubra	FAC	10
Vaccinium parvifolium	UPL	5
Corylus cornuta	FACU	5

Woody Vine Stratum - % total cover:		10
Rubus ursinus	FACU	100

Tree Stratum - % total cover:		75
Pseudotsuga menziesii	FACU	80
Alnus rubra	FAC	20

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 1 of 6 = 17 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 26C - Kenusky silty clay loam 0-15% slopes

Drainage Class: Poorly drained

Taxonomy: Clayey, mixed, mesic Typic Umbraquults

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-3"	10 YR 3/3		Loam
	3-16"	10 YR 4/4		Loam

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? No

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Hydrology Criterion Met? No

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-08 Plot: 20

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography Mid parcel area, N side, flat - 2% grade sloping to the E

Project #: 2995023 Determined by: JG/ES Date: 8/4/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		80
Juncus bufonius	FACW	50
Deschampsia cespitosa	FACW	15
Agrostis alba	FAC	15
Holcus lanatus	FAC	10
Hypochaeris radicata	FACU	5
Trifolium repens	FAC	5
Gnaphalium palustre	FAC+	5
Woody Vine Stratum - % total cover:		0

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		0
Tree Stratum - % total cover:		0

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 1 of 1 = 100 % (50/20 Rule)

Remarks: 20% bare ground, 80% vegetation cover.

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 26C - Kenusky silty clay loam 0-15% slopes

Drainage Class: Poorly drained

Taxonomy: Clayey, mixed, mesic Typic Umbraquults

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-12"	10 YR 3/2	Mixed matrix - 10 R 4/3, Mottles 10 YR 5/8 common, fine, prominent	Silty clay loam
	12-16"	2.5 Y 3/1		Silty clay loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation _____ Depth to water table: _____ Depth to saturation: _____

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☑ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Site has been scraped and or plowed in the past 1 to 2 years. There are obvious areas of recent ponding (bare, cracked ground).

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-08 Plot: 21

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography NE corner of City property, in level, undisturbed area.

Project #: 2995023 Determined by: JG/ES Date: 8/4/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		70
Carex obnupta	OBL	50
Holcus lanatus	FAC	20
Galium aparine	FACU	20
Epilobium watsonii	FACW	5
Ranunculus repens	FACW	5
Woody Vine Stratum - % total cover:		**100**
Rubus ursinus	FACU	100

Shrub/Sapling Stratum - % total cover:		40
Symphoricarpos albus	FACU	30
Physocarpus capitatus	FACW	20
Rosa pisocarpa	FAC	20
Fraxinus latifolia	FACW	20
Cornus stolonifera	FACW	10
Tree Stratum - % total cover:		**70**
Fraxinus latifolia	FACW	90
Pseudotsuga menziesii	FACU	10

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 6 of 9 = 67 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 26C - Kenusky silty clay loam 0-15% slopes

Drainage Class: Poorly drained

Taxonomy: Clayey, mixed, mesic Typic Umbraquults

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-4"	10 YR 3/1		Silty clay loam
	4-16"	10 YR 3/1	10 YR 3/6 few, fine, faint	Silty clay loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☑ Sediment deposits

☑ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Soil surface is cracked and caked. Sediment exists on leaves and sticks on the soil surface.

Hydrology Criterion Met? Yes

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	JG/DC
Project Name:	City of Vernonia		
WetlandCode:	VR-08	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	B	Q1:		Q1:		Q1:	C	Q1:	B	Q1:	A
Q2:	C	Q2:		Q2:		Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:		Q3:		Q3:	C	Q3:	B	Q3:	C
Q4:	C	Q4:		Q4:		Q4:	B	Q4:	C	Q4:	A
Q5:	B	Q5:		Q5:		Q5:	A	Q5:	C	Q5:	A
Q6:	B	Q6:		Q6:		Q6:	C	Q6:	A	Q6:	B
Q7:	A							Q7:	A		
Q8:	C										
Q9a:											
Q9b:	C										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	A	Q1:	A	Q1:	C
Q2:	B	Q2:	A	Q2:	C	Q2:	A
Q3:		Q3:	B	Q3:	C	Q3:	B
Q4:	B	Q4:	A	Q4:	B	Q4:	B
Q5a:		Q5:	A	Q5:	B	Q5:	A
Q5b:	C	Q6:	B	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland has educational uses.
Recreation:	The wetland has the potential to provide recreational opportunities.
Aesthetic Quality:	The wetland is considered to be moderately pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-08	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with more than 5 plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Groundwater (including seeps and springs) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. Low (<60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	No part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Waterflow out of wetland is unrestricted. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Urban or Urbanizing land use in watershed upstream from area.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Emergent veg. only or wet meadow is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-08	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		groundwater, including springs and seeps. Wetland's area is between 0.5 and 5 acres. Less than 10% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland has educational uses.	Wetland site is open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is existing physical public access to other features or it can be created easily and other habitats can be observed from this site. There is a maintained public access point within 250 feet of the wetland's edge. Access is not available for limited mobility.
Recreation	The wetland has the potential to provide recreational opportunities.	There is a maintained public access point within 250 feet of wetland's edge. Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be moderately pleasing.	One Cowardin class is visible from primary viewing area(s). More than 50% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors, which can be removed easily. Visual character with surrounding area is landscaped or manipulated by people. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR08

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR08

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland does NOT meet the criteria for identification as a Local Significant Wetland

B. "IN"

No Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **No** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99

Wetland Mapping Code: VR-09

Investigator(s): JG/DC

Size (acres): 37.7

Data Sheet Numbers: 22, 23, 24, 25

Location

Legal: T4N, R4W, S3

Other: Vernonia Lake; former mill pond

Basin: Nehalem River

Soils

Mapped Series: 26C - Kenusky silty clay loam 0-15% slopes

Hydrology

Hydrologic Source: Artificial surface flow

Wetland Classification(s): Lacustrine, PEM, PSS

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Fraxinus latifolia*		*Phalaris arundinacea*
Alnus rubra	*Salix lasiandra*		*Tolmiea menziesii*
	Salix sitchensis		*Equisetum arvense*
	Rubus spectabilis		*Scirpus microcarpus*
			Nuphar luteum
			Elodea canadensis
			Juncus effusus
			Typha latifolia

Comments:

Wetland 9 is Vernonia Lake. The wetland includes a narrow, emergent wetland at the lake's edge, as well as the open water area and a small, forested wetland between the lake and the Nehalem River on the southern side of the lake. A colony of yellow cow-lily (Nyphar lutea) is established in the northwestern quarter of the lake. Emergents on the shoreline include native and introduced species.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-09 Plot: 22

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography Margin of bed.

Project #: 2995023 Determined by: JG/ES Date: 8/4/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		100
Elodea canadensis	OBL	20
Juncus effusus	FACW	20
Phalaris arundinacea	FACW	20
Typha latifolia	OBL	20
Scirpus microcarpus	OBL	10
Nuphar luteum	OBL	10
Woody Vine Stratum - % total cover:		0

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		0
Tree Stratum - % total cover:		0

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 4 of 4 = 100 % (50/20 Rule)

Remarks: Spp. are distributed along shoreline of entire pond.

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 32 - McNulty silt loam

Drainage Class: Well drained

Taxonomy: Coarse-loamy, mixed, mesic Fluventic Umbric Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Sample plot is near the dike and the soil is disturbed. Soil at and slightly above waterline and is continuously saturated or inundated

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 2" Depth to water table: 0" Depth to saturation: 0"

Primary Indicators:

☑ Inundated

☑ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-09 Plot: 23

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography Plot is located on a terrace between the bike path and the slope to the river.

Project #: 2995023 Determined by: JG/ES Date: 8/4/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		**80**
Phalaris arundinacea	FACW	70
Convolvulus sp.	UPL	30
Woody Vine Stratum - % total cover:		**20**
Rubus discolor	FACU	100

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		**0**
Tree Stratum - % total cover:		**0**

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 1 of 3 = 33 % (50/20 Rule)

Remarks: Terrace is a mosaic of Rubus discolor clumps and herbaceous vegetation. Steep slope to the bike path is dominated by Rubus discolor. The opening is bordered by forested community consisting of Alnus rubra and Fraxinus latifolia.

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 32 - McNulty silt loam

Drainage Class: Well drained

Taxonomy: Coarse-loamy, mixed, mesic Fluventic Umbric Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-6"	10 YR 3/3		Silt loam
	6-14"	10 YR 3/4		Sandy loam

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Upper 6 inches contains abundance of Phalaris arundinacea (reedcanary grass) root material. Soils dry throughout profile.

Soil Criterion Met? No

HYDROLOGY

Depth of inundation 0" Depth to water table: >14" Depth to saturation: >14"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Remarks: No positive hydrological indicators.

Hydrology Criterion Met? No

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-09 Plot: 24

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography E of Mill Pond, W of Nehalem River on floodplain approximately 12 feet above bed.

Project #: 2995023 Determined by: JG/ES Date: 8/4/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? No

Are Soils ☑ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		0
Ranunculus repens	FACW	70
Polystichum munitum	FACU	15
Carex obnupta	OBL	15

Shrub/Sapling Stratum - % total cover:		60
Rubus spectabilis	FAC+	20
Fraxinus latifolia	FACW	20
Oemleria cerasiformis	FACU	15
Ribes divaricatum	FAC	15
Acer circinatum	FAC-	10

Woody Vine Stratum - % total cover:		10
Rubus ursinus	FACU	60
Rubus discolor	FACU	40

Tree Stratum - % total cover:		70
Alnus rubra	FAC	60
Populus balsamifera	FAC	30
Acer macrophyllum	FACU	10

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 5 of 7 = 71 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 32 - McNulty silt loam

Drainage Class: Well drained

Taxonomy: Coarse-loamy, mixed, mesic Fluventic Umbric Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-10"	10 YR 2/1		Loam matrix
	10-16"	10 YR 4/3		Loam matrix

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Indistinct boundary. Soil unconsolidated; round gravel, broken mortar, terra cotta tile, brick, woody debris throughout sample.

Soil Criterion Met? No

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: Leaf litter not matted. Soil surface is caked

Hydrology Criterion Met? No

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-09 Plot: 25

T 4N R 4W S 3 City: Vernonia County: Columbia State: OR

Plot Location; Topography On flood plain shelf below the bike path, 300 feet W of plot 23

Project #: 2995023 Determined by: JG/ES Date: 8/4/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		Ind. %Cover: 20	Shrub/Sapling Stratum - % total cover:		Ind. %Cover: 80
Phalaris arundinacea	FACW	80	*Fraxinus latifolia*	FACW	70
Tolmiea menziesii	FAC	10	*Salix lasiandra*	FACW	15
Equisetum arvense	FAC	10	*Salix sitchensis*	FACW	15
			Rubus spectabilis	FAC+	5
Woody Vine Stratum - % total cover:		**10**	**Tree Stratum - % total cover:**		**30**
Rubus discolor	FACU	100	*Fraxinus latifolia*	FACW	70
			Alnus rubra	FAC	30

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 4 of 5 = 80 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 32 - McNulty silt loam

Drainage Class: Well drained

Taxonomy: Coarse-loamy, mixed, mesic Fluventic Umbric Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-4"	10 YR 3/2		Silt loam
	4-14"	10 YR 3/1	10 YR 3/6 few, fine, distinct	Silt loam
	14-16"	G1 Y 3/10		Silt loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☑ Sulfidic odor ☑ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation _____ Depth to water table: _____ Depth to saturation: _____

Primary Indicators:

☐ Inundated

☑ Saturated in upper 12"

☐ Water marks

☑ Drift lines

☐ Sediment deposits

☑ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Hydrology Criterion Met? Yes

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	JG/DC
Project Name:	City of Vernonia		
WetlandCode:	VR-09	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:		Q1:	A	Q1:	A	Q1:	A	Q1:	A
Q2:	B	Q2:		Q2:	C	Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:		Q3:	C	Q3:	C	Q3:	A	Q3:	C
Q4:	A	Q4:		Q4:	A	Q4:	A	Q4:	A	Q4:	C
Q5:	B	Q5:		Q5:	C	Q5:	C	Q5:	B	Q5:	A
Q6:	B	Q6:		Q6:	B	Q6:	C	Q6:	A	Q6:	C
Q7:	A							Q7:	C		
Q8:	A										
Q9a:											
Q9b:	C										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	A	Q1:	A	Q1:	B
Q2:	A	Q2:	A	Q2:	A	Q2:	A
Q3:	B	Q3:	B	Q3:	A	Q3:	A
Q4:	A	Q4:	A	Q4:	B	Q4:	A
Q5a:		Q5:	A	Q5:	A	Q5:	A
Q5b:	C	Q6:	A	Q6:	B	Q6:	B
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	The wetland's fish habitat function is impacted or degraded.
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is intact.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland has educational uses.
Recreation:	The wetland provides recreational opportunities.
Aesthetic Quality:	The wetland is considered to be pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-09	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Emergent veg. & ponding or open water only. Low degree of Cowardin class interspersion. More than 1 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Exclusive Forest use or Open Space within 500 feet of wetland edge.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	The wetland's fish habitat function is impacted or degraded.	More than 75% of stream shaded by riparian vegetation. Physical character of stream channel extensively modified/piped. Stream contains less than 10% of instream structures. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. Non-Salmonid, non-sensitive fish species present sometime during the year.
Water Quality	The wetland's water quality function is impacted or degraded.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. Low (<60%) degree of wetland vegetation cover. More than 5 acres of wetland area. Exclusive Forest use or Open Space within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is more than 5 acres. Waterflow out of wetland is restricted or no outlet. Emergent veg. and ponding , or open water only is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Exclusive Forest use or Open Space within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Emergent

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-09	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		veg. and ponding,or open water only are the dominant cover types.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is surface flow, including streams and ditches. Water flow into wetland is restricted, but may be breached or new flow channel created. Wetland's area is more than 5 acres. Less than 10% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland has educational uses.	Wetland site is open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is existing physical public access to other features or it can be created easily and other habitats can be observed from this site. There is a maintained public access point within 250 feet of the wetland's edge. Access is available for limited mobility.
Recreation	The wetland provides recreational opportunities.	There is a maintained public access point within 250 feet of wetland's edge. Wetland is accessible by boat launch on site or within 0.5 mile. Existing developed and maintained trails and viewing areas to guide user. Wetland provides habitat for some species. Fishing is allowed at wetland or adjacent water body. Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be pleasing.	Two Cowardin classes are visible from primary viewing area(s). More than 50% of wetland is visible from viewing area(s). General appearance of wetland has no visual detractors. Visual character with surrounding area is open or naturally landscaped. Natural, pleasant odors are present at primary viewing location. Continuous traffic and other intrusive noise and natural sounds are audible at primary viewing location.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR09

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR09

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland MEETS the criteria for identification as a Local Significant Wetland

B. "IN"

Yes Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **Yes** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99

Wetland Mapping Code: VR-10

Investigator(s): JG/DC

Size (acres): 2.1

Data Sheet Numbers: 28, 29

Location

Legal: T4N, R4W, S4

Other: SW of wastewater treatment ponds

Basin: Nehalem River

Soils

Mapped Series: 32 - McNulty silt loam

Hydrology

Hydrologic Source: Groundwater

Wetland Classification(s):

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
	Symphoricarpos albus	*Rubus discolor*	*Equisetum arvense*
			Agrostis alba
			Phalaris arundinacea
			Phleum pratense
			Urtica dioica
			Cirsium arvense
			Agropyron sp.

Comments:

Wetland 10 is a PEM wetland that is vegetated primarily by reed canarygrass (Phalaris arundinacea). Douglas spirea and rose species are occasional. The wetland is adjacent to and below the Vernonia wastewater treatment ponds. Groundwater seepage from the ponds, if they are unlined or leaking, may contribute to wetland hydrology in this wetland.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-10 Plot: 28

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography Water treatment facility, 50 yards SE of maintenance shed, flat.

Project #: 2995023 Determined by: JG/ES Date: 8/5/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Comments: Marginal soil and hydric indicators.

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		Ind. %Cover: 95	Shrub/Sapling Stratum - % total cover:		Ind. %Cover: 5
Phalaris arundinacea	FACW	50	*Symphoricarpos albus*	FACU	100
Equisetum arvense	FAC	15			
Agropyron sp.	FACU	10			
Agrostis alba	FAC	10			
Phleum pratense	FAC-	5			
Urtica dioica	FAC+	5			
Cirsium arvense	FACU	5			
Woody Vine Stratum - % total cover:		0	**Tree Stratum** - % total cover:		0

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 1 of 1 = 100 % (50/20 Rule)

Remarks: Symphoricarpos albus represents one patch, 12 feet in diameter in the center of the grass area.

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 32 - McNulty silt loam

Drainage Class: Well drained

Taxonomy: Coarse-loamy, mixed, mesic Fluventic Umbric Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-6"	10 YR 3/3		Loam
	6-16"	7.5 YR 3/7	10 YR 4/4 few, small, faint	Loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Weak/marginal soil indicators.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☑ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Remarks: Sediment on grass stems and leaves exists 2 inches above soil surface in localized areas. Weak indicator.

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-10 Plot: 29

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography W at edge of depressional area. Old fill material, concrete and asphalt piled here.

Project #: 2995023 Determined by: JG/ES Date: 8/5/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		**Ind. %Cover:** 100
Cirsium arvense	FACU	20
Equisetum arvense	FAC	15
Cirsium vulgare	FACU	10
Urtica dioica	FAC+	5
Holcus lanatus	FAC	5
Plantago major	FACU	5
Phalaris arundinacea	FACW	5
Trifolium repens	FAC	5
Epilobium watsonii	FACW	5
Rumex crispus	FAC+	5

Shrub/Sapling Stratum - % total cover: 0 **Ind. %Cover:**

Woody Vine Stratum - % total cover: 0 **Tree Stratum** - % total cover: 0

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 0 of 0 = 0 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 32 - McNulty silt loam

Drainage Class: Well drained

Taxonomy: Coarse-loamy, mixed, mesic Fluventic Umbric Dystrochrepts

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-2"		Gravel & fill material	

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Excavation refusal at 2 inches.

Soil Criterion Met? No

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Remarks: No positive hydrological indicator.

Hydrology Criterion Met? No

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/03/99	**Investigator(s):**	JG
Project Name:	City of Vernonia		
WetlandCode:	VR-10	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	B	Q1:	Q1:	Q1:	C	Q1:	A	Q1:	A
Q2:	C	Q2:	Q2:	Q2:	C	Q2:	C	Q2:	B
Q3:	C	Q3:	Q3:	Q3:	A	Q3:	B	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	B	Q4:	C	Q4:	A
Q5:	B	Q5:	Q5:	Q5:	A	Q5:	C	Q5:	A
Q6:	B	Q6:	Q6:	Q6:	C	Q6:	C	Q6:	B
Q7:	A					Q7:	A		
Q8:	C								
Q9a:									
Q9b:	B								

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	C	Q1:	C	Q1:	C
Q2:	B	Q2:	B	Q2:	C	Q2:	B
Q3:		Q3:	B	Q3:	C	Q3:	C
Q4:	B	Q4:	A	Q4:	B	Q4:	A
Q5a:		Q5:	C	Q5:	B	Q5:	C
Q5b:	B	Q6:	B	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is lost or not present.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland site is not appropriate for educational use.
Recreation:	The wetland is not appropriate for or does not provide recreational opport
Aesthetic Quality:	The wetland is not pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-10	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with more than 5 plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Groundwater (including seeps and springs) is wetland's primary source of water. No evidence of flooding or ponding during the growing season. High (>60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is lost or not present.	All or part of wetland located within 100-year floodplain or enclosed basin. No evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Waterflow out of wetland is unrestricted. Emergent veg. or wet meadow is dominant cover type. Exclusive Forest Use or Open Space within 500 ft of wetland on downstream or down-slope edge of wetland. Urban or Urbanizing land use in watershed upstream from area.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Emergent veg. only or wet meadow is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-10	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		groundwater, including springs and seeps. Wetland's area is between 0.5 and 5 acres. Between 10 and 40 % of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland site is not appropriate for educational use.	Wetland site is not open to the public for direct access or observation. One to two visible safety hazards exist at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is existing physical public access to other features or it can be created easily and other habitats can be observed from this site. There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Access is not available for limited mobility.
Recreation	The wetland is not appropriate for or does not provide recreational opportunities.	There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is not pleasing.	One Cowardin class is visible from primary viewing area(s). Between 25 and 50% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors which cannot be removed easily. Visual character with surrounding area is open or naturally landscaped. Unpleasant odors are distinct and continuously present at the primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR10

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR10

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland does NOT meet the criteria for identification as a Local Significant Wetland

B. "IN"

No Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **No** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99 **Wetland Mapping Code:** VR-11

Investigator(s): JG/ES **Size (acres):** 0.8

Data Sheet Numbers: n/a

Location

Legal: T4N, R4W, S4

Other: East of Louisiana Ave., between E and F Streets

Basin: Nehalem River

Soils

Mapped Series: 21D - Glohm silt loam 3 - 30% slopes

Hydrology

Hydrologic Source: Groundwater, runoff

Wetland Classification(s):

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Salix sp.*		
Alnus rubra			

Comments:

Access to this site was not obtained; therefore, it was observed from Louisiana Avenue. A small, wet area along the northern end of Louisiana Avenue and evidence of ponding on the road indicate hydrology is present in the vicinity. The photo signature of the area at the bottom of the hillside (below Wetland 11) appears to be wet. The emergent part of the wetland is apparently cleared, forested wetland. Draft mapping of this site was modified as a result of data collected during a site visit by DSL.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	JG/DC
Project Name:	City of Vernonia		
WetlandCode:	VR-11	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat - Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:		Q1:		Q1:	C	Q1:	B	Q1:	A
Q2:	A	Q2:		Q2:		Q2:	B	Q2:	B	Q2:	B
Q3:	C	Q3:		Q3:		Q3:	A	Q3:	B	Q3:	C
Q4:	C	Q4:		Q4:		Q4:	B	Q4:	C	Q4:	C
Q5:	B	Q5:		Q5:		Q5:	C	Q5:	A	Q5:	A
Q6:	B	Q6:		Q6:		Q6:	C	Q6:	C	Q6:	A
Q7:	A							Q7:	C		
Q8:	A										
Q9a:											
Q9b:	A										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	C	Q1:	C	Q1:	B
Q2:	B	Q2:	A	Q2:	C	Q2:	B
Q3:		Q3:	B	Q3:	C	Q3:	A
Q4:	B	Q4:	B	Q4:	B	Q4:	A
Q5a:		Q5:	C	Q5:	B	Q5:	A
Q5b:	A	Q6:	B	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland site is not appropriate for educational use.
Recreation:	The wetland is not appropriate for or does not provide recreational opport
Aesthetic Quality:	The wetland is considered to be moderately pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-11	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Woody vegetation is dominant vegetation cover. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Exclusive Forest use or Open Space within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Groundwater (including seeps and springs) is wetland's primary source of water. Unable to determine evidence of flooding or ponding during the growing season (or unapplicable). High (>60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Exclusive Forest use or Open Space within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	No part of wetland located within 100-year floodplain or enclosed basin. Unable to determine evidence of flooding or ponding during the growing season (or not applicable). Area is between 0.5 and 5 acres. Waterflow out of wetland is unrestricted. Woody vegetation is dominant cover type. Exclusive Forest Use or Open Space within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Exclusive Forest use or Open Space within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Woody vegetation is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-11	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		habitat, water quality and hydrologic control. Wetland's primary source of water is groundwater, including springs and seeps. Wetland's area is between 0.5 and 5 acres. More than 40% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland site is not appropriate for educational use.	Wetland site is not open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is no existing physical public access to other features, but observation of other features can be made. There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Access is not available for limited mobility.
Recreation	The wetland is not appropriate for or does not provide recreational opportunities.	There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be moderately pleasing.	Two Cowardin classes are visible from primary viewing area(s). Between 25 and 50% of wetland is visible from viewing area(s). General appearance of wetland has no visual detractors. Visual character with surrounding area is open or naturally landscaped. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR11

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR11

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland does NOT meet the criteria for identification as a Local Significant Wetland

B. "IN"

No Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **No** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99

Wetland Mapping Code: VR-12 a, b

Investigator(s): JG, ES, DC

Size (acres): 1.85

Data Sheet Numbers: 31, 32

Location

Legal: T4N, R4W, S5

Other: W of the intersection of First & Maple Street

Basin: Nehalem River

Soils

Mapped Series: 62D - Vernonia silt loam 3-30% slope, 32 - McNulty silt loam

Hydrology

Hydrologic Source: Surface runoff and groundwater

Wetland Classification(s):

Dominant Vegetation

Trees	Shrubs	Vines	Herbs

Comments:

Access was obtained for a portion of Wetland 12a; an off-site assessment was completed for Wetland 12b. Wetland 12c is accessible at street crossings.

Wetland 12a is a small pond formed by a low dam or old excavation of the stream channel. The pond is shallow (approximately 12 inches), with parts silted in. Wetland trees and shrubs surround the site, which is in a mowed field. The outlet from the pond is through a culvert. The stream below the pond is intermittent. Wetland mapping of Wetland 12a modified from draft maps as a result of data collected during DSL site visit. A small wetland located on a bench north of the stream was removed from the mapping.

Wetland 12b is Bear Creek. The wetland is confined to the bed and banks of the stream. Parts of the streambank are armored with rock. Parts of the stream support wetland vegetation. The stream crosses streets in culverts. This wetland has been highly modified. Access was obtained for Wetland 12a. Wetland 12b is accessible at street crossings.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-12a Plot: 31

T 4N R 4W S 5 City: Vernonia County: Columbia State: OR

Plot Location; Topography 300 feet W of intersection of First and Maple Street.

Project #: 2995023 Determined by: JG/ES Date: 8/5/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Comments: Wetland area is primarily an emergent and open water area surrounded by willow trees and shrubs.

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

Herb Stratum - % total cover:		Ind. %Cover: 70	Shrub/Sapling Stratum - % total cover:		Ind. %Cover: 20
Glyceria grandis	OBL	70	*Salix lasiandra*	FACW	80
Phalaris arundinacea	FACW	20	*Salix sitchensis*	FACW	20
Ludwigia palustris	OBL	10	*Alnus rubra*	FAC	5
Alopecurus geniculatus	OBL	5			
Woody Vine Stratum - % total cover:		0	**Tree Stratum** - % total cover:		30
			Salix lasiandra	FACW	100

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 5 of 5 = 100 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 62D - Vernonia silt loam 3-30% slopes

Drainage Class: Well drained

Taxonomy: Fine-silty, mixed, mesic Ultic Hapludalfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-4"	10 YR 4/1		Silt
	4-14"	10 YR 2/1		Silt
	14-16"	10 YR 2/1		Muck

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☑ Sulfidic odor ☑ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Soil is saturated to surface, very sloppy.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: 10" Depth to saturation: 0"

Primary Indicators:

☐ Inundated

☑ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☑ Drainage patterns

Secondary Indicators (2 or more required):

☑ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)

Explain:

☐ Other

Explain:

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-12a Plot: 32

T 4N R 4W S 5 City: Vernonia County: Columbia State: OR

Plot Location; Topography S of wetland plot in pasture area.

Project #: 2995023 Determined by: JG/ES Date: 8/5/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		**90**
Phalaris arundinacea	FACW	30
Chrysanthemum leucanthemum	UPL	20
Agrostis alba	FAC	20
Fragaria sp.	UPL	10
Lotus corniculatus	FAC	10
Holcus lanatus	FAC	5
Cirsium arvense	FACU	5
Woody Vine Stratum - % total cover:		**5**
Rubus laciniatus	FACU	100

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		**5**
Pteridium aquilinum	FACU	100
Tree Stratum - % total cover:		**0**

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 2 of 5 = 40 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 62D - Vernonia silt loam 3-30% slopes

Drainage Class: Well drained

Taxonomy: Fine-silty, mixed, mesic Ultic Hapludalfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-4"	10 YR 2/2	10 YR 4/3 common, medium, distinct; very loose and fryable	Silt loam
	4-12"	10 YR 3/1-3/2	tight, hard compact	Silt loam
	12-16"	10 YR 3/2	10 YR 3/4 common, medium, distinct; less hard but crumbly	Clayey silt loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Remarks: Field may be tilled for drainage. No signs of wetland hyrology.

Hydrology Criterion Met? No

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/15/99	**Investigator(s):**	JG
Project Name:	City of Vernonia		
WetlandCode:	VR-12 a, b, c	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:	C	Q1:		Q1:	A	Q1:	A	Q1:	B
Q2:	A	Q2:	C	Q2:		Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:	B	Q3:		Q3:	A	Q3:	B	Q3:	C
Q4:	C	Q4:	A	Q4:		Q4:	B	Q4:	C	Q4:	A
Q5:	A	Q5:	C	Q5:		Q5:	A	Q5:	A	Q5:	A
Q6:	A	Q6:	A	Q6:		Q6:	C	Q6:	A	Q6:	A
Q7:	A							Q7:	C		
Q8:	C										
Q9a:											
Q9b:	B										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	A	Q1:	A	Q1:	B
Q2:	A	Q2:	B	Q2:	C	Q2:	C
Q3:	A	Q3:	B	Q3:	C	Q3:	C
Q4:	B	Q4:	A	Q4:	B	Q4:	B
Q5a:		Q5:	A	Q5:	B	Q5:	B
Q5b:	B	Q6:	A	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is impacted or degraded.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is intact.
Hydrologic Control:	The wetland's hydrologic control function is intact.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland has potential for educational use.
Recreation:	The wetland has the potential to provide recreational opportunities.
Aesthetic Quality:	The wetland is not pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-12 a, b, c	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Woody vegetation is dominant vegetation cover. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge.
Fish Habitat - Streams	The wetland's fish habitat function is impacted or degraded.	Less than 50% of stream shaded by riparian vegetation. Physical character of stream channel extensively modified/piped. Stream contains between 10 and 25% of instream structures. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. Salmon, trout, or sensitive species present sometime during the year.
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is intact.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Waterflow out of wetland is unrestricted. Woody vegetation is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has not been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Woody

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-12 a, b, c	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		vegetation is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is surface flow, including streams and ditches. Water flow into wetland is not restricted, but if blocked, obstruction can be removed easily. Wetland's area is between 0.5 and 5 acres. Between 10 and 40 % of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland has potential for educational use.	Wetland site is open to the public for direct access or observation. One to two visible safety hazards exist at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is existing physical public access to other features or it can be created easily and other habitats can be observed from this site. There is a maintained public access point within 250 feet of the wetland's edge. Access is available for limited mobility.
Recreation	The wetland has the potential to provide recreational opportunities.	There is a maintained public access point within 250 feet of wetland's edge. Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is not pleasing.	Two Cowardin classes are visible from primary viewing area(s). Less than 25% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors which cannot be removed easily. Visual character with surrounding area is landscaped or manipulated by people. At certain times, unpleasant odors are present at the primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR12

This is potentially a Wetland of Special Interest for Protection.

Question 1	**A** *List:*
Question 2	**A** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR12

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland MEETS the criteria for identification as a Local Significant Wetland

B. "IN"

Yes Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **Yes** water quality,
- **Yes** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

Yes Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

Yes Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/2/99

Wetland Mapping Code: VR-13

Investigator(s): JG/ES/DC

Size (acres): 2.21

Data Sheet Numbers: n/a

Location

Legal: T5N, R4W, S34

Other: Parallel to Knot Street

Basin: Nehalem River

Soils

Mapped Series: 59 - Udifluvents-Dystrochrepts complex, 58 - Treharne silt loam

Hydrology

Hydrologic Source: Surface runoff

Wetland Classification(s):

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Alnus rubra	*Physocarpus capitatus*	*Rubus laciniatus*	*Oenanthe sarmentosa*
Thuja plicata	*Rubus parviflorus*	*Rubus discolor*	*Phalaris arundinacea*
Salix lasiandra	*Sambucus racemosa*		*Scirpus microcarpus*
Salix sitchensis			
Alnus rubra			

Comments:

Wetland 13 is Knickerson Creek and adjacent wetland. It is divided into two sections by a crossing on Knott Street. Above the crossing, the stream and wetland have fairly natural conditions. The stream has gently sloping banks and deep and shallow areas. Vegetation forms a canopy over the stream.

Below the crossing, the stream has been manipulated. Significant parts of the channel have been excavated. Vegetation (trees and shrubs) have been removed. Himalayan blackberry (Rubus discolor) overgrows part of the channel.

New street construction and associated work included excavating and reshaping the creek bank on the lower section.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	DC/JG
Project Name:	City of Vernonia		
WetlandCode:	VR-13	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:	A	Q1:		Q1:	A	Q1:	A	Q1:	B
Q2:	A	Q2:	A	Q2:		Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:	A	Q3:		Q3:	A	Q3:	B	Q3:	C
Q4:	C	Q4:	A	Q4:		Q4:	B	Q4:	B	Q4:	B
Q5:	A	Q5:	B	Q5:		Q5:	B	Q5:	A	Q5:	A
Q6:	A	Q6:	A	Q6:		Q6:	C	Q6:	B	Q6:	A
Q7:	A							Q7:	C		
Q8:	B										
Q9a:											
Q9b:	A										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	C	Q1:	A	Q1:	A
Q2:	A	Q2:	A	Q2:	C	Q2:	C
Q3:	A	Q3:	B	Q3:	C	Q3:	A
Q4:	B	Q4:	B	Q4:	B	Q4:	A
Q5a:		Q5:	A	Q5:	B	Q5:	A
Q5b:	A	Q6:	B	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is intact.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is intact.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland site is not appropriate for educational use.
Recreation:	The wetland has the potential to provide recreational opportunities.
Aesthetic Quality:	The wetland is considered to be moderately pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode: VR-13 **ProjectNumber:** 2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Woody vegetation is dominant vegetation cover. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. Upstream not listed as water quality limited. Agricultural land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	The wetland's fish habitat function is intact.	More than 75% of stream shaded by riparian vegetation. Stream channel natural/returning to natural physical character. Stream contains more than 25% of instream structures. Upstream not listed as water quality limited. Agricultural land use within 500 ft of wetland edge. Salmon, trout, or sensitive species present sometime during the year.
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is intact.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Agricultural land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Minor restrictions slow down waterflow out of the wetland. Woody vegetation is dominant cover type. Agricultural land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has not been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Agricultural land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Woody vegetation is the dominant cover.
Enhancement Potential		

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-13	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
[illegible]	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is surface flow, including streams and ditches. Water flow into wetland is not restricted, but if blocked, obstruction can be removed easily. Wetland's area is between 0.5 and 5 acres. More than 40% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland site is not appropriate for educational use.	Wetland site is not open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is no existing physical public access to other features, but observation of other features can be made. There is a maintained public access point within 250 feet of the wetland's edge. Access is not available for limited mobility.
Recreation	The wetland has the potential to provide recreational opportunities.	There is a maintained public access point within 250 feet of wetland's edge. Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be moderately pleasing.	More than two Cowardin classes are visible from primary viewing area(s). Less than 25% of wetland is visible from viewing area(s). General appearance of wetland has no visual detractors. Visual character with surrounding area is open or naturally landscaped. Natural, pleasant odors are present at primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR13

This is potentially a Wetland of Special Interest for Protection.

Question 1	**A** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR13

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland MEETS the criteria for identification as a Local Significant Wetland

B. "IN"

Yes Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **Yes** fish habitat,
- **No** water quality,
- **No** hydrologic control.

Yes Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

Yes Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

Yes Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 7/27/99 **Wetland Mapping Code:** VR-14

Investigator(s): JG/ES **Size (acres):** 6.8

Data Sheet Numbers: 26, 27

Location

Legal: T4N, R4W, S4

Other: Former mill site, S of Bridge Street

Basin: Nehalem River

Soils

Mapped Series: 58 - Treharne silt loam, 32 - McNulty silt loam

Hydrology

Hydrologic Source: Precipitation and groundwater

Wetland Classification(s):

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Rosa pisocarpa*		*Carex obnupta*
	Symphoricarpos albus		
	Spiraea douglasii		
	Malus fusca		
	Physocarpus capitatus		
	Fraxinus latifolia		
	Prunus emarginata		

Comments:

This wetland occurs in patches or a mosaic of PFO, PSS, and PEM areas. The site is in a floodplain adjacent to the Nehalem River. It is the site of a historic mill facility. Wetland vegetation on the site is fairly diverse, and interspersion is moderate to high. A small pond behind the elementary school is in poor condition; it is/has been used to dispose of grass cuttings, other trimmings, and trash. The pond and ditch to the east would make a good cleanup/enhancement/outside classroom facility. A wetland delineation of most of Wetland 14 was performed by A.G. Crook Company (DSL #95-0347).

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-14 Plot: 26

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography S of Bridge Street, E of elementary school; 30 feet E of street.

Project #: 2995023 Determined by: JS/EG Date: 8/5/99

DETERMINATION: IS THIS PLOT IN A WETLAND?: Yes

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		50
Carex obnupta	OBL	100
Woody Vine Stratum - % total cover:		0

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		70
Rosa pisocarpa	FAC	35
Prunus emarginata	FACU	15
Malus fusca	FACW	15
Spiraea douglasii	FACW	15
Physocarpus capitatus	FACW	10
Symphoricarpos albus	FACU	10
Fraxinus latifolia	FACW	5
Tree Stratum - % total cover:		80
Fraxinus latifolia	FACW	100

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 3 of 3 = 100 % (50/20 Rule)

Vegetation Criterion Met? Yes

SOILS Mapped Unit Name: 58 - Treharne silt loam

Drainage Class: Moderately well drained

Taxonomy: Fine-silty, mixed, mesic Aquultic Hapludalfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-14"	10 YR 4/1	10 YR 2/2 common, medium, distinct	Loam
	14-16"	10 YR 4/1	10 YR 3/4 common, medium,	Silt loam

☐ Histosol ☐ Prob. Aquic moisture regime ☑ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☑ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: A few small concretions exist in upper 14 inches. Soil moderately moist throughout.

Soil Criterion Met? Yes

HYDROLOGY

Depth of inundation 0" Depth to water table: >16" Depth to saturation: >16"

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☑ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Hydrology Criterion Met? Yes

WETLAND DETERMINATION DATA SHEET - 1987 MANUAL

Client/Applicant: City of Vernonia Site: VR-14 Plot: 27

T 4N R 4W S 4 City: Vernonia County: Columbia State: OR

Plot Location; Topography S. of Bridge Street, E of elementary school, on E shoulder of street

Project #: 2995023 Determined by: JG/ES Date:

DETERMINATION: IS THIS PLOT IN A WETLAND?: No

Do Normal Circumstances exist on the site? Yes

Are Soils ☐ Vegetation ☐ Hydrology ☐ significantly disturbed? No

VEGETATION Dominant Plant Species

	Ind.	%Cover:
Herb Stratum - % total cover:		90
Lolium perenne	FACU	20
Trifolium repens	FAC	20
Matricaria matricarioides	FACU	15
Agrostis stolonifera	FAC	10
Plantago major	FACU	10
Taraxacum officinale	FACU	10
Hypochaeris radicata	FACU	10
Daucus carota	UPL	5
Woody Vine Stratum - % total cover:		0

	Ind.	%Cover:
Shrub/Sapling Stratum - % total cover:		0
Tree Stratum - % total cover:		50
Acer macrophyllum	FACU	100

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC- 1 of 3 = 33 % (50/20 Rule)

Vegetation Criterion Met? No

SOILS Mapped Unit Name: 58 - Treharne silt loam

Drainage Class: Moderately well drained

Taxonomy: Fine-silty, mixed, mesic Aquultic Hapludalfs

FIELD SOIL CHARACTERISTICS:

Horizon	Depth	Matrix Color	Redox Abundance, Size, Color	Texture, Structure, Other
	0-2"			3/4 -min gravel
	2-4"	10 YR 3/2	compact, mixed matrix	Color also: 10 YR 4/6 and 10 YR 3/4

☐ Histosol ☐ Prob. Aquic moisture regime ☐ Redox features ☐ Organic streaking

☐ Histic epipedon ☐ Reducing conditions ☐ Concretions ☐ Organic pan

☐ Sulfidic odor ☐ Gleyed ☐ Highly organic surface layer ☐ On hydric soils list

Remarks: Excavation refusal below 4 inches.

Soil Criterion Met? No

HYDROLOGY

Depth of inundation _____ Depth to water table: _____ Depth to saturation: _____

Primary Indicators:

☐ Inundated

☐ Saturated in upper 12"

☐ Water marks

☐ Drift lines

☐ Sediment deposits

☐ Drainage patterns

Secondary Indicators (2 or more required):

☐ Oxidized rhizospheres ☐ Local soil survey data

☐ Water-stained leaves ☐ FAC-Neutral test

☐ Recorded data (aerials, groundwater data)
Explain:

☐ Other
Explain:

Remarks: No positive hydrological indicators.

Hydrology Criterion Met? No

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/02/99	**Investigator(s):**	JG/DC
Project Name:	City of Vernonia		
WetlandCode:	VR-14	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	A	Q1:		Q1:		Q1:	B	Q1:	A	Q1:	A
Q2:	A	Q2:		Q2:		Q2:	C	Q2:	C	Q2:	B
Q3:	A	Q3:		Q3:		Q3:	A	Q3:		Q3:	C
Q4:	C	Q4:		Q4:		Q4:	B	Q4:	C	Q4:	A
Q5:	B	Q5:		Q5:		Q5:	A	Q5:	A	Q5:	A
Q6:	B	Q6:		Q6:		Q6:	C	Q6:	A	Q6:	A
Q7:	A							Q7:	A		
Q8:	C										
Q9a:											
Q9b:	B										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	A	Q1:	C	Q1:	A
Q2:	C	Q2:	A	Q2:	C	Q2:	B
Q3:		Q3:	B	Q3:	C	Q3:	A
Q4:	B	Q4:	A	Q4:	B	Q4:	A
Q5a:		Q5:	C	Q5:	B	Q5:	C
Q5b:	B	Q6:	B	Q6:	B	Q6:	A
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is intact.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has moderate potential for enhancement.
Education:	The wetland has potential for educational use.
Recreation:	The wetland is not appropriate for or does not provide recreational opport
Aesthetic Quality:	The wetland is considered to be moderately pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-14	**ProjectNumber:**	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Woody vegetation is dominant vegetation cover. High degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. No evidence of flooding or ponding during the growing season. High (>60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	All or part of wetland located within 100-year floodplain or enclosed basin. No evidence of flooding or ponding during the growing season. Waterflow out of wetland is unrestricted. Woody vegetation is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Urban or Urbanizing land use in watershed upstream from area.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Woody vegetation is the dominant cover.
Enhancement Potential	The wetland has moderate potential for enhancement.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is precipitation or sheet flow. Wetland's area is between 0.5 and 5 acres. Between 10 and 40

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-14	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland has potential for educational use.	Wetland site is open to the public for direct access or observation. There are no visible hazards to the public at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is existing physical public access to other features or it can be created easily and other habitats can be observed from this site. There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Access is not available for limited mobility.
Recreation	The wetland is not appropriate for or does not provide recreational opportunities.	There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is considered to be moderately pleasing.	More than two Cowardin classes are visible from primary viewing area(s). Between 25 and 50% of wetland is visible from viewing area(s). General appearance of wetland has no visual detractors. Visual character with surrounding area is open or naturally landscaped. Unpleasant odors are distinct and continuously present at the primary viewing location. Some traffic and other similar sounds and natural sounds are audible at primary viewing locations.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR14

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR14

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland MEETS the criteria for identification as a Local Significant Wetland

B. "IN"

Yes Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **Yes** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/02/99 **Wetland Mapping Code:** VR-15

Investigator(s): JG **Size (acres):** 1.27

Data Sheet Numbers: None

Location

Legal: T4N R4W Sec. 3

Other: South of the intersection of Hwy.47 and Knott St.

Basin: Nehalem River

Soils

Mapped Series: 20 - Elertsen silt loam, 58 - Treharne silt loam

Hydrology

Hydrologic Source: Groundwater, surface flow

Wetland Classification(s): PEM

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
			Phalaris arundinacea

Comments:

OFF-SITE DETERMINATION: Access was denied to this site. VR-15 is an emergent wetland dominated by grasses and emergent vegetation within a fenced pasture. A local contact indicated that the site floods frequently. Draft maps modified as a result of data collected during a site visit by DSL.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	11/03/99	**Investigator(s):**	JG
Project Name:	City of Vernonia		
WetlandCode:	VR-15	**ProjectNumber:**	2995023

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control		Sensitivity to Impact	
Q1:	B	Q1:		Q1:		Q1:	B	Q1:	A	Q1:	A
Q2:	C	Q2:		Q2:		Q2:	A	Q2:	A	Q2:	B
Q3:	C	Q3:		Q3:		Q3:	A	Q3:	B	Q3:	C
Q4:	C	Q4:		Q4:		Q4:	B	Q4:	C	Q4:	A
Q5:	B	Q5:		Q5:		Q5:	A	Q5:	C	Q5:	A
Q6:	B	Q6:		Q6:		Q6:	C	Q6:	A	Q6:	B
Q7:	A							Q7:	A		
Q8:	C										
Q9a:											
Q9b:	C										

Enhancement Potential		Education		Recreation		Aesthetic Quality	
Q1:	B	Q1:	A	Q1:	C	Q1:	C
Q2:	C	Q2:	B	Q2:	C	Q2:	A
Q3:		Q3:	B	Q3:	C	Q3:	C
Q4:	B	Q4:	C	Q4:	B	Q4:	B
Q5a:		Q5:	C	Q5:	B	Q5:	B
Q5b:	C	Q6:	B	Q6:	B	Q6:	C
Q6:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is intact.
Hydrologic Control:	The wetland's hydrologic control function is intact.
Sensitivity to Impact:	The wetland is potentially sensitive to future impacts.
Enhancement Potential:	The wetland has little enhancement potential.
Education:	The wetland has potential for educational use.
Recreation:	The wetland is not appropriate for or does not provide recreational opport
Aesthetic Quality:	The wetland is not pleasing.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-15	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with more than 5 plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is intact.	Precipitation or sheet flow is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Waterflow out of wetland is unrestricted. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Urban or Urbanizing land use in watershed upstream from area.
Sensitivity to Impact	The wetland is potentially sensitive to future impacts	Stream flow or bank has been modified by human activities within 1 mile above wetland. Water is not being taken out of streams through active diking, drainage, or irrigation districts upstream. Upstream not listed as water quality limited in watershed upstream of the or adjacent to the wetland. Residential/industrial (developed) land use within 500 feet of wetland's edge. Dominant Residential/Industrial (developed) land use within 500 feet of wetland's edge. Emergent veg. only or wet meadow is the dominant cover.
Enhancement Potential	The wetland has little enhancement potential.	Wetland has lost one or more functions or one or more functions is not present in assessment results for wildlife habitat, fish habitat, water quality and hydrologic control. Wetland's primary source of water is

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

WetlandCode:	VR-15	ProjectNumber:	2995023

Function	Evaluation Descriptor	Rationale
		precipitation or sheet flow. Wetland's area is between 0.5 and 5 acres. Less than 10% of wetland's edge is bordered by a vegetative buffer 25 or more feet wide. Wetland is potentially sensitive to future impacts.
Education	The wetland has potential for educational use.	Wetland site is open to the public for direct access or observation. One to two visible safety hazards exist at the wetland site. Provides wildlife habitat for some species, or fish habitat is impacted or degraded. There is no existing physical public access to other features, and observation of other features cannot be made. There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Access is not available for limited mobility.
Recreation	The wetland is not appropriate for or does not provide recreational opportunities.	There is not an existing access point within 250 feet of the wetland's edge (if existing-hazardous). Wetland not accessible by boat-no boat launch within 1 mile/ cannot develop. No existing trails and viewing areas to guide user or if created, would disrupt wildlife or plant habitat. Wetland provides habitat for some species. Fishing is not allowed at wetland or adjacent water body (or not applicable). Hunting is not allowed at the wetland.
Aesthetic Quality	The wetland is not pleasing.	One Cowardin class is visible from primary viewing area(s). More than 50% of wetland is visible from viewing area(s). General appearance of wetland has visual detractors which cannot be removed easily. Visual character with surrounding area is landscaped or manipulated by people. At certain times, unpleasant odors are present at the primary viewing location. Continuous traffic and other intrusive noise and NO natural sounds are audible at primary viewing location.

Vernonia
Wetlands of Special Interest for Protection Assessment
Answer Sheet

WetlandCode: VR15

Question 1	**B** *List:*
Question 2	**B** *List:*
Question 3	**B** *List:*
Question 4	**B** *List:*
Question 5	**B**
Question 6	**B**
Question 7	**B** *List:*
Question 8	**B**
Question 9	**B**
Question 10	**B**

Vernonia
Local Wetland Significance Assessment

WetlandCode: VR15

A. "OUT" Test

No Wetlands artificially CREATED ENTIRELY FROM UPLAND that are:

(a) created for the purpose of controlling, storing, or maintaining stormwater;
(b) active surface mining ponds;
(c) ditches without free and open connection to waters of the state AND without fish;
(d) <1 acre and unintentionally created from irrigation leak or construction activity;
(e) of any size and created for the purpose of wastewater treatment, stock watering, settling of sediment, cooling industrial water, or as a golf course hazard.

No Documented as being contaminated by hazardous substances, materials or wastes ("Hazmat sites").

This wetland MEETS the criteria for identification as a Local Significant Wetland

B. "IN"

Yes Wetlands that score the highest rank for ANY of the four ecological functions addressed by OFWAM or equivalent methodology:

- **No** wildlife habitat,
- **No** fish habitat,
- **No** water quality,
- **Yes** hydrologic control.

No Wetlands that (1) are rated in either the highest or second highest category for water quality (in OFWAM or equivalent) AND that (2) the wetland is within one-quarter mile from a water quality-limited stream as listed by DEQ.

No Contains one or more rare wetland plant communities including those listed in the Oregon Natural Heritage Program's CLASSIFICATION AND CATALOG OF NATIVE WETLAND PLANT COMMUNITIES IN OREGON as G1-G3 and S1-S3.

No Inhabited by any species listed by the federal or state government as a sensitive, threatened or endangered species in Oregon (unless consultation with appropriate agency deems the site not important for the maintenance of the species.

No Wetland rates in either the highest or second highest category for Fish Habitat in OFWAM and is located adjacent to a stream segment that is mapped by ODFW as habitat for "Indigenous anadromous salmonids."

No OPTIONAL CRITERION (at discretion of local government): Wetland represents a LOCALLY unique plant community.

No OPTIONAL CRITERION (at discretion of local government): Wetland is publicly owned, rates highest rank for education potential, and there is documented use for educational purposes by a school or organization.

VERNONIA LOCAL WETLANDS INVENTORY

- Wetland Summary Sheet -

Date(s) of Field Verification: 11/02/99 **Wetland Mapping Code:** VR-16

Investigator(s): JG **Size (acres):** 12.3

Data Sheet Numbers: None

Location

Legal: T4N R4W Sec. 4

Other: South of Bridge St., west of Vernonia Lake, and east of Rock Creek

Basin: Nehalem River

Soils

Mapped Series: 32 - McNulty silt loam

Hydrology

Hydrologic Source: Surface flow

Wetland Classification(s): PAB, PEM

Dominant Vegetation

Trees	Shrubs	Vines	Herbs

Comments:

VR-16 consists of sewage water treatment ponds.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Appendix B

Riparian Data and Summary Sheets

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-R1

Riparian Width Determination

Date: 11/17/99 Investigators: JG

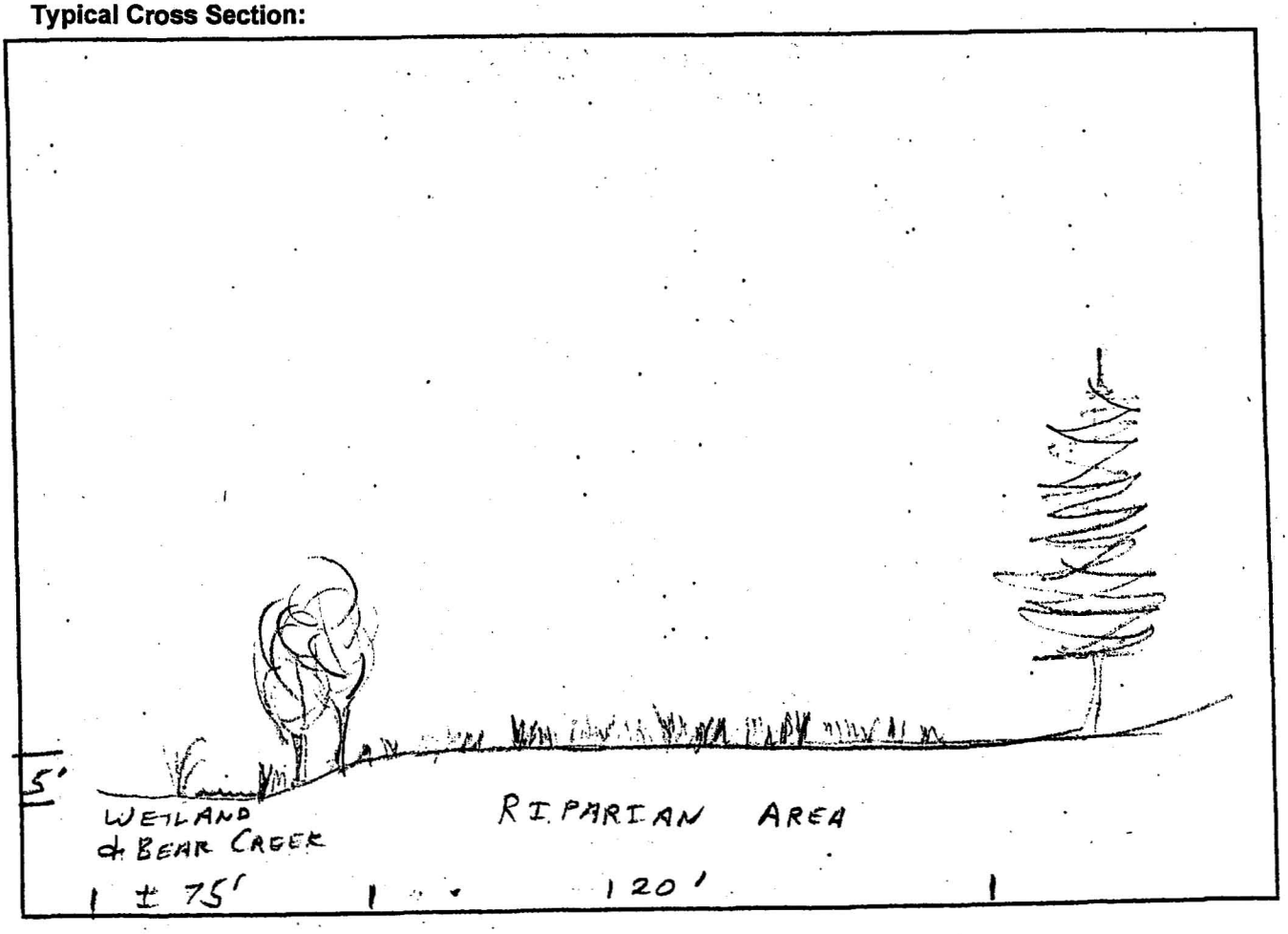
Dominant tree species: Pseudotsuga menziesii

Potential tree height (PTH)/Width of Riparian Area: 120/120
(Width measured horizontally from edge of water resource)

PTH determined by: ☐ On-site vegetation ☑ Reference site Code: Adjacent upland

Comments: The upstream end of this reach is the UGB. The downstream end is the edge of residential development. The reach is in a field that may be mowed for hay.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-R1

Riparian Characterization Form — Part 1

General Information

Date: 11/17/99

On-site ☑ Office ☐ Reach Length: 900

Investigators: JG Hydrologic Basin: Bear Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 3
Lake/Pond ☑ Width: 20
Wetland ☑ Width: 75

LWI Wetland Code: VR-12A

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 62D, Vernonia silt loam, 3-30% slope

Adjacent Land Uses?

Agriculture ☑ Residential ☐ Undeveloped ☐
Commercial ☐ Roads ☐ Forestry ☑

Woody Vegetation	Herbaceous Vegetation
Pseudotsuga menziesii	Phalaris arundinacea
Acer macrophyllum	Berberis aquifolium
Alnus rubra	Polystichum munitum
Saxifraga cernua	Gaultheria shallon
Thuja plicata	Pteridium aquilinum
Tsuga heterophylla	Rubus discolor
Rosa pisocarpa	Rubus laciniatus
Acer circinatum	Cirsium arvense
	Daucus carota
	Festuca

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-R1

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☑ <10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☑ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☐ Woody vegetation ☑ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☐ >40% ☑ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☐ 25% to 75% ☑ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-R1

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	3
Question 2:	2
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	13

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	1
Total Points:	5

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	2
Question 11:	2
Total Points:	7

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	1
Question 13:	2
Question 14:	2
Question 15:	3
Question 16:	2
Question 17:	3
Question 18:	3
Question 19:	1
Total Points:	17

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-R2

Riparian Width Determination

Date: 11/17/99 Investigators: JG

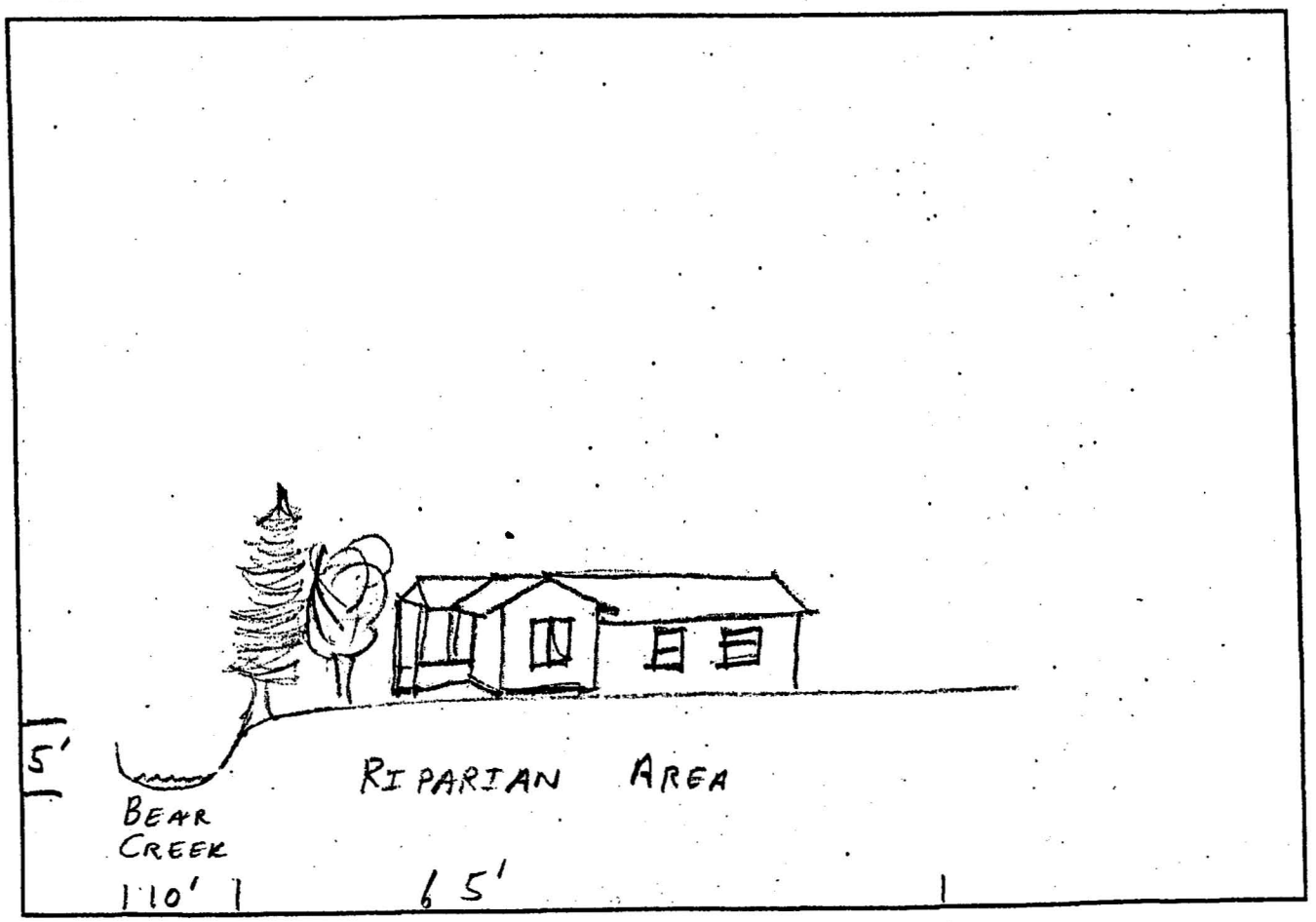
Dominant tree species: Alnus rubra

Potential tree height (PTH)/Width of Riparian Area: 65/65
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: Reach BC-R2 starts at the edge of residential development on the upstream end and ends at the confluence of Bear Creek with Rock Creek. The reach is developed for its entire length. Listed plant species are occasional. Parts of reach are built to top of bank; creek crosses streets in culverts.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-R2

Riparian Characterization Form — Part 1

General Information

Date: 11/17/99

On-site ☑ Office ☐ Reach Length: 3,600

Investigators: JG Hydrologic Basin: Bear Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 5
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-120

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam; 62D, Vernonia silt loam

Adjacent Land Uses?

Agriculture ☐ Residential ☑ Undeveloped ☐
Commercial ☑ Roads ☑ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Alnus rubra	Rubus discolor
Thuja plicata	Phalaris arundinacea
Salix lasiandra	Turf
Acer macrophyllum	
Pseudotsuga menziesii	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-R2

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☑ <10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☐ <10% ☐ 10% to 25% ☑ >25%

☑ **The reach is constricted by man-made features.**

☐ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☐ Woody vegetation ☑ Herbaceous vegetation ☐ Bare ground

☐ **Woody vegetation hangs over the edge of the water.**

☐ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☐ >40% ☐ 10% to 40% ☑ <10%

Degree of development or human cause disturbance:

☐ <25% ☐ 25% to 75% ☑ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-R2

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	3
Question 2:	2
Question 3:	2
Question 4:	1
Question 5:	2
Total Points:	10

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	1
Total Points:	5

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Thermal Regulation

Question 9:	1
Question 10:	2
Question 11:	1
Total Points:	4

Function:
- ☐ High
- ☐ Medium
- ☑ Low

Wildlife Habitat

Question 12:	2
Question 13:	2
Question 14:	1
Question 15:	1
Question 16:	1
Question 17:	3
Question 18:	1
Question 19:	1
Total Points:	12

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-L1

Riparian Width Determination

Date: 11/17/99 Investigators: JG

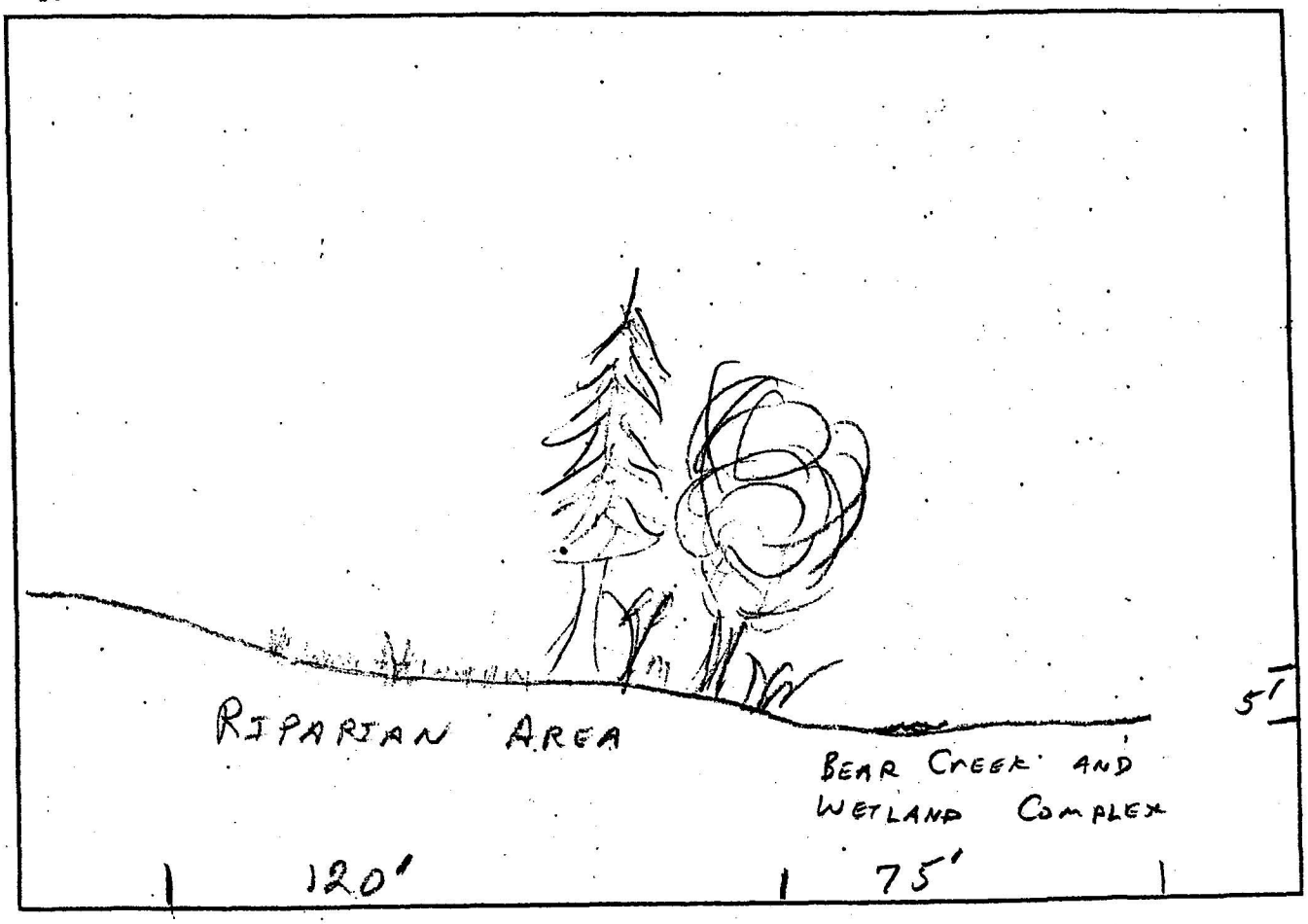
Dominant tree species: Pseudotsuga menziesii

Potential tree height (PTH)/Width of Riparian Area: 120/120
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: This reach starts at the UGB and ends at the edge of residential development. It includes a forested bench and a field that may be mowed occasionally.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-L1

Riparian Characterization Form — Part 1

General Information

Date: 11/17/99

On-site ☑ Office ☐ Reach Length: 800

Investigators: JG Hydrologic Basin: Bear Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 3
Lake/Pond ☑ Width: 20
Wetland ☐ Width: 75

LWI Wetland Code: VR-12A

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: No

Mapped soil series: 62D, Vernonia silt loam, 3-30% slope

Adjacent Land Uses?

Agriculture ☑ Residential ☐ Undeveloped ☐
Commercial ☐ Roads ☐ Forestry ☑

Woody Vegetation	Herbaceous Vegetation
Pseudotsuga menziesii	Phalaris arundinacea
	Berberis aquifolium
	Polystichum munitum
	Gaultheria shallon
	Pteridium aquilinum
	Rubus discolor
	Rubus laciniatus
	Cirsium arvense
	Daucus carota
	Festuca

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-L1

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☑ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☐ Woody vegetation ☑ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☐ >40% ☑ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-L1

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	2
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	1
Question 7:	1
Question 8:	1
Total Points:	3

Function:
- [ ] High
- [ ] Medium
- [x] Low

Thermal Regulation

Question 9:	3
Question 10:	2
Question 11:	2
Total Points:	7

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	2
Question 14:	2
Question 15:	3
Question 16:	2
Question 17:	3
Question 18:	3
Question 19:	2
Total Points:	20

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-L2

Riparian Width Determination

Date: 11/17/99 Investigators: JG

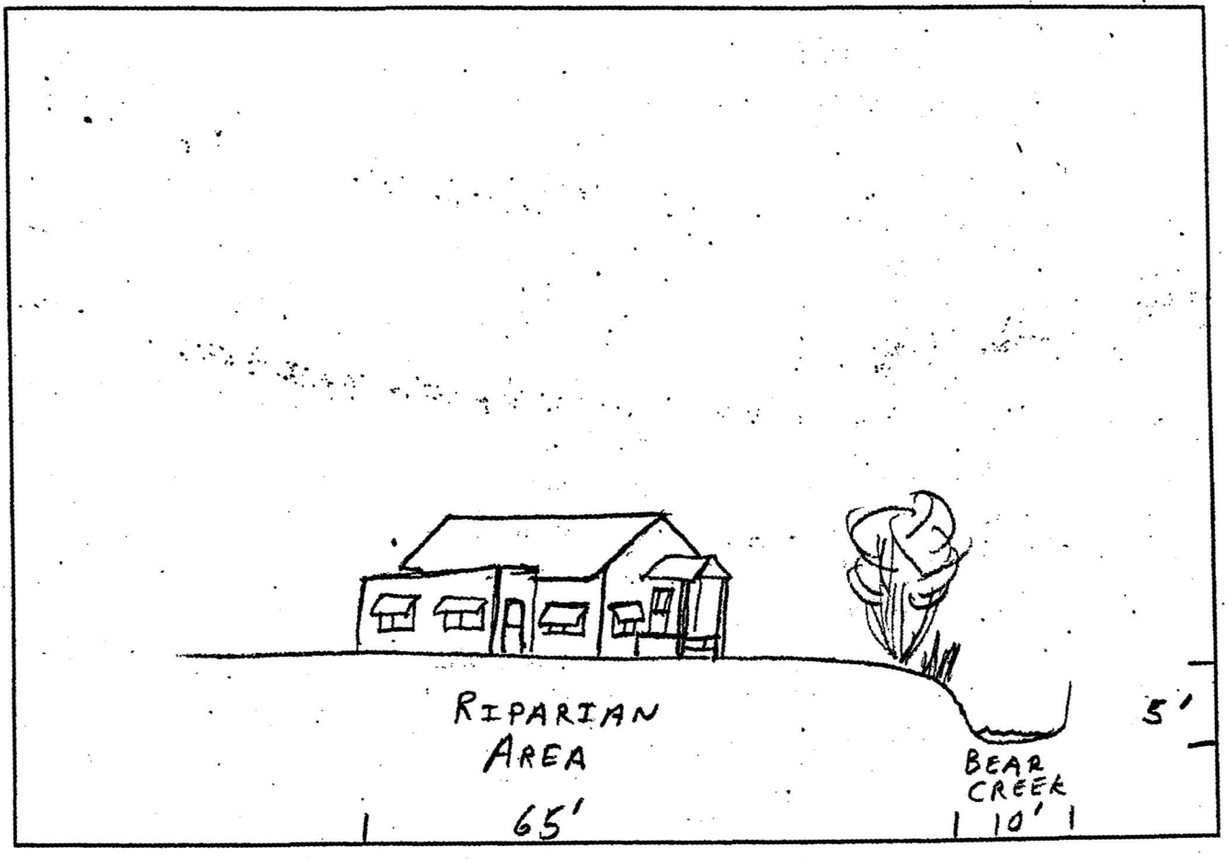
Dominant tree species: Alnus rubra

Potential tree height (PTH)/Width of Riparian Area: 65/0
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: The upstream end of the reach is the edge of residential development. The entire length of the reach is in residential or commercial developed area of Vernonia. The reach ends at the confluence of Bear Creek with Rock Creek. Listed plant species and occasional parts of the reach are built to the top of the bark; stream crosses street in culverts.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-L2

Riparian Characterization Form — Part 1

General Information

Date: 11/17/99

On-site ☑ Office ☐ Reach Length: 3,600

Investigators: JG Hydrologic Basin: Bear Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 5
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-120

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam; 62D, Vernonia silt loam

Adjacent Land Uses?

Agriculture ☐ Residential ☑ Undeveloped ☐
Commercial ☑ Roads ☑ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Alnus rubra	Rubus discolor
Thuja plicata	Phalaris arundinacea
Acer macrophyllum	Turf

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-L2

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☑ <10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☐ <10% ☐ 10% to 25% ☑ >25%

☑ **The reach is constricted by man-made features.**

☐ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☐ Woody vegetation ☑ Herbaceous vegetation ☐ Bare ground

☐ **Woody vegetation hangs over the edge of the water.**

☐ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☐ >40% ☐ 10% to 40% ☑ <10%

Degree of development or human cause disturbance:

☐ <25% ☐ 25% to 75% ☑ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: BC-L2

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	3
Question 2:	2
Question 3:	2
Question 4:	1
Question 5:	2
Total Points:	10

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	1
Total Points:	5

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Thermal Regulation

Question 9:	1
Question 10:	2
Question 11:	1
Total Points:	4

Function:
- ☐ High
- ☐ Medium
- ☑ Low

Wildlife Habitat

Question 12:	2
Question 13:	2
Question 14:	1
Question 15:	1
Question 16:	1
Question 17:	3
Question 18:	1
Question 19:	1
Total Points:	12

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-L1

Riparian Width Determination

Date: 11/17/99 Investigators: JG

Dominant tree species: Pseudotsuga menziesii

Potential tree height (PTH)/Width of Riparian Area: 120/120
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: The upstream end of this reach is the UGB. The downstream end is Knott Street. This reach is adjacent to the UGB on its southern edge. The area south of the reach is forested. The area was logged some time ago, possibly 20 to 30 years or more.

Typical Cross Section:

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-L1

Riparian Characterization Form — Part 1

General Information

Date: 11/17/99

On-site ☑ Office ☐ Reach Length: 900

Investigators: JG Hydrologic Basin: Knickerson Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 5
Lake/Pond ☐ Width: 0
Wetland ☑ Width: 50

LWI Wetland Code: VR-13

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: No

Mapped soil series: Udifluvents-Dystrochrepts complex

Adjacent Land Uses?

Agriculture ☐ Residential ☐ Undeveloped ☑
Commercial ☐ Roads ☐ Forestry ☑

Woody Vegetation	Herbaceous Vegetation
Pseudotsuga menziesii	Pteridium aquilinum
Thuja plicata	Rubus discolor
Alnus rubra	
Fraxinus latifolia	
Acer macrophyllum	
Cornus stolonifera	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-L1

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-L1

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	13

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	1
Question 7:	1
Question 8:	3
Total Points:	5

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	3
Question 19:	2
Total Points:	22

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-L2

Riparian Width Determination

Date: 11/17/99 Investigators: JG

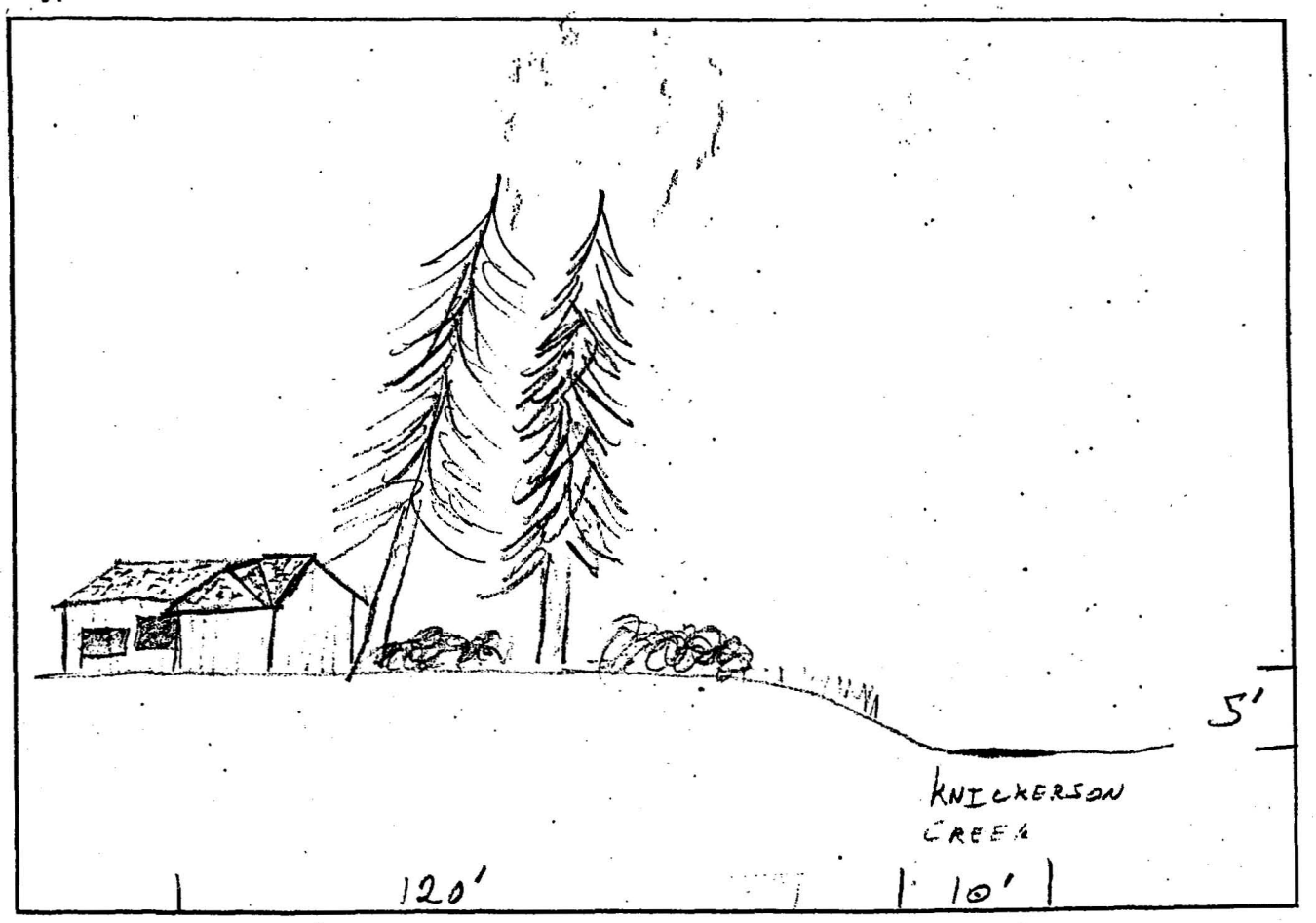
Dominant tree species: Pseudotsuga menziesii

Potential tree height (PTH)/Width of Riparian Area: 120/120
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: The upstream end of this reach is at Knott Street. The downstream end is at the UGB. Part of this reach passes through land that was undergoing development at the time of the assessment. Part of the reach passes through land that is low-density residential/commercial. Trees, shrubs, vines are occasional in this reach.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-L2

Riparian Characterization Form — Part 1

General Information

Date: 11/17/99

On-site ☑ Office ☐ Reach Length: 2,200

Investigators: JG Hydrologic Basin: Knickerson Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 10
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-13

Water present year-round: No

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: No

Mapped soil series: 58, Treharne silt loam; 20, Eilertsen silt loam

Adjacent Land Uses?

Agriculture ☑ Residential ☑ Undeveloped ☐
Commercial ☑ Roads ☐ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Pseudotsuga menziesii	Cirsium arvense
Thuja plicata	Festuca arundinacea
Alnus rubra	Trifolium repens
Rubus discolor	Holcus lanatus
	Agropyron dasystachyum
	Phleum pratense
	Rumex crispus

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-L2

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☑ <10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☑ **The reach is constricted by man-made features.**

☐ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☐ Woody vegetation ☑ Herbaceous vegetation ☐ Bare ground

☐ **Woody vegetation hangs over the edge of the water.**

☐ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☐ >40% ☐ 10% to 40% ☑ <10%

Degree of development or human cause disturbance:

☐ <25% ☐ 25% to 75% ☑ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-L2

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	3
Question 2:	2
Question 3:	2
Question 4:	3
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	1
Total Points:	5

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	1
Question 10:	2
Question 11:	1
Total Points:	4

Function:
- [ ] High
- [ ] Medium
- [x] Low

Wildlife Habitat

Question 12:	1
Question 13:	2
Question 14:	1
Question 15:	1
Question 16:	1
Question 17:	1
Question 18:	1
Question 19:	1
Total Points:	9

Function:
- [ ] High
- [ ] Medium
- [x] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-RI

Riparian Width Determination

Date: 11/17/99 Investigators: JG

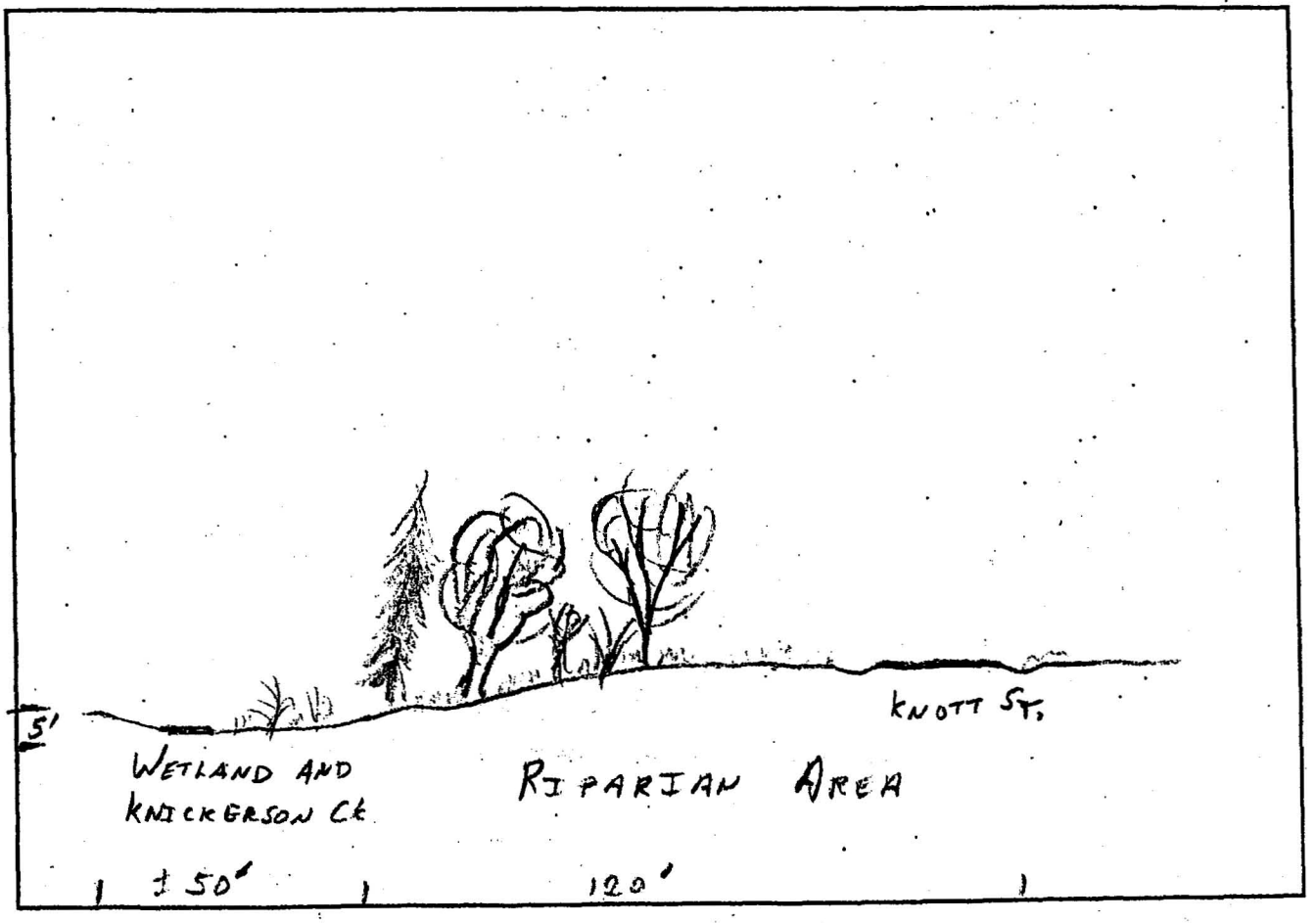
Dominant tree species: Pseudotsuga menziesii

Potential tree height (PTH)/Width of Riparian Area: 120/120
(Width measured horizontally from edge of water resource)

PTH determined by: ☐ On-site vegetation ☑ Reference site Code: KC-L1

Comments: The upstream end of this reach is the UGB. The downstream end is Knott Street. The reach parallels Knott Street, which impinges on the riparian area. Residences and agricultural fields are on the northern side of Knott Street.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-RI

Riparian Characterization Form — Part 1

General Information

Date: 11/17/99

On-site ☑ Office ☐ Reach Length: 800

Investigators: JG Hydrologic Basin: Knickerson Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 5
Lake/Pond ☐ Width: 0
Wetland ☑ Width: 50

LWI Wetland Code: VR-13

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: No

Mapped soil series: Udifluvents-Dystrochrepts complex

Adjacent Land Uses?

Agriculture ☑ Residential ☑ Undeveloped ☐
Commercial ☐ Roads ☑ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Pseudotsuga menziesii	Pteridium aquilinum
Thuja plicata	Festuca arundinacea
Alnus rubra	Rubus laciniatus
Fraxinus latifolia	Phalaris arundinacea
Acer macrophyllum	
Cytisus scoparius	
Oemleria cerasiformis	
Cornus stolonifera	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-RI

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☐ <10% ☑ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-RI

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	2
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	1
Question 7:	1
Question 8:	3
Total Points:	5

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	3
Question 19:	2
Total Points:	22

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023

Project Name: Vernonia LWI

Riparian Code: KC-R2

Riparian Width Determination

Date: 11/17/99 Investigators: JG

Dominant tree species: Pseudotsuga menziesii

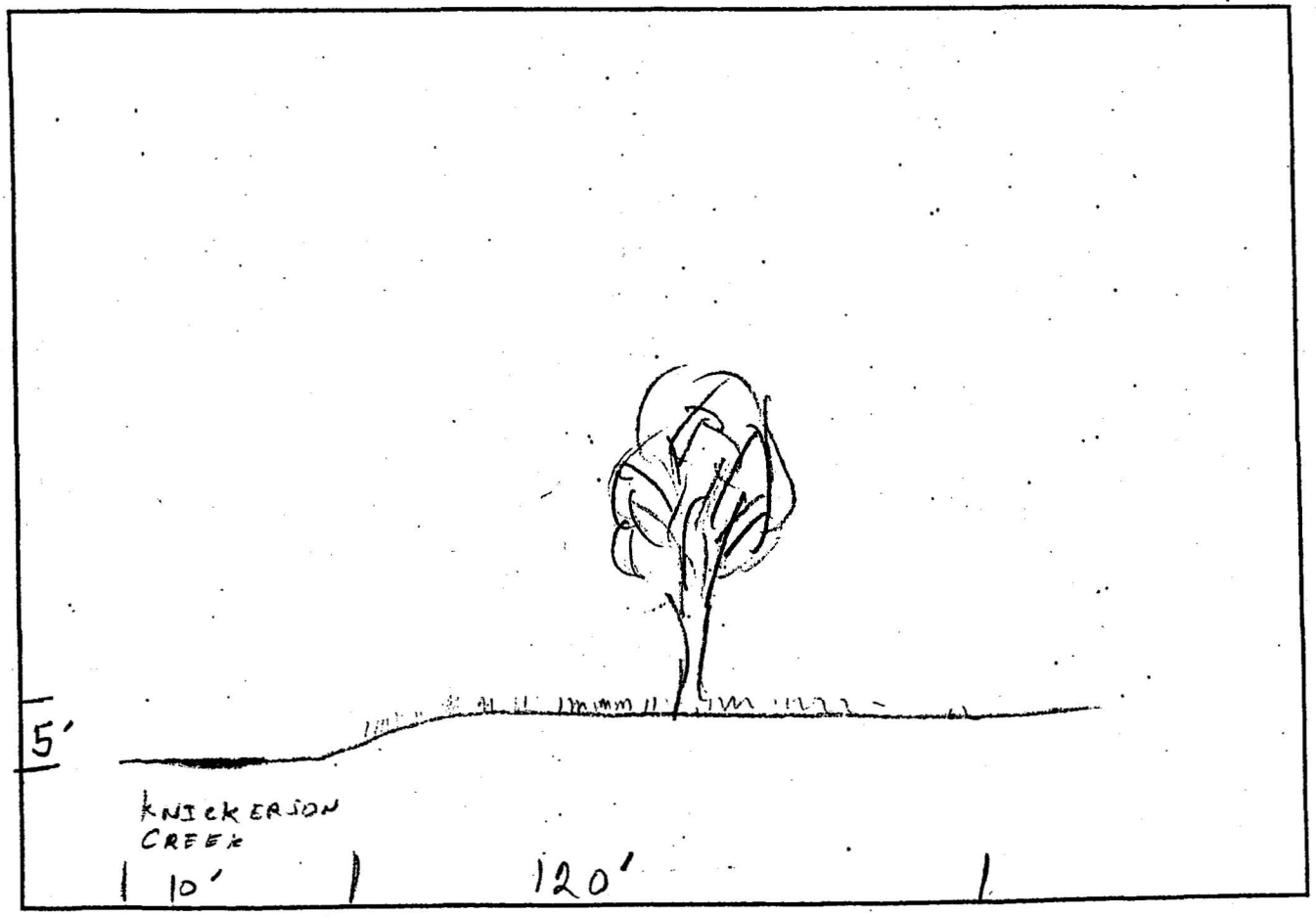
Potential tree height (PTH)/Width of Riparian Area: 120/120

(Width measured horizontally from edge of water resource)

PTH determined by: ☐ On-site vegetation ☑ Reference site Code: KC-L2

Comments: The upstream end of this reach is at Knott Street. The downstream end is at the UGB. This reach primarily borders low-intensity ag land, possibly unused in recent years. Woody vegetation is sparse.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-R2

Riparian Characterization Form — Part 1

General Information

Date: 11/17/99

On-site ☑ Office ☐ Reach Length: 2,200

Investigators: JG Hydrologic Basin: Knickerson Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 10
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: vr-13

Water present year-round: No

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 58, Treharne silt loam; 59, Udifluv.-Dystro. Comp.

Adjacent Land Uses?

Agriculture ☐ Residential ☐ Undeveloped ☐
Commercial ☐ Roads ☐ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Populus balsamifera	Rubus discolor
Alnus rubra	Cirsium arvense
	Festuca arundinacea
	Holcus lanatus
	Trifolium repens
	Agropyron sp.

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-R2

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☑ <10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☑ **The reach is constricted by man-made features.**

☐ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☐ Woody vegetation ☑ Herbaceous vegetation ☐ Bare ground

☐ **Woody vegetation hangs over the edge of the water.**

☐ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☐ >40% ☐ 10% to 40% ☑ <10%

Degree of development or human cause disturbance:

☐ <25% ☐ 25% to 75% ☑ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: KC-R2

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	3
Question 2:	2
Question 3:	2
Question 4:	3
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	1
Total Points:	5

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	1
Question 10:	2
Question 11:	1
Total Points:	4

Function:
- [ ] High
- [ ] Medium
- [x] Low

Wildlife Habitat

Question 12:	1
Question 13:	2
Question 14:	1
Question 15:	1
Question 16:	1
Question 17:	1
Question 18:	1
Question 19:	1
Total Points:	9

Function:
- [ ] High
- [ ] Medium
- [x] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L1

Riparian Width Determination

Date: 8/5/99 Investigators:

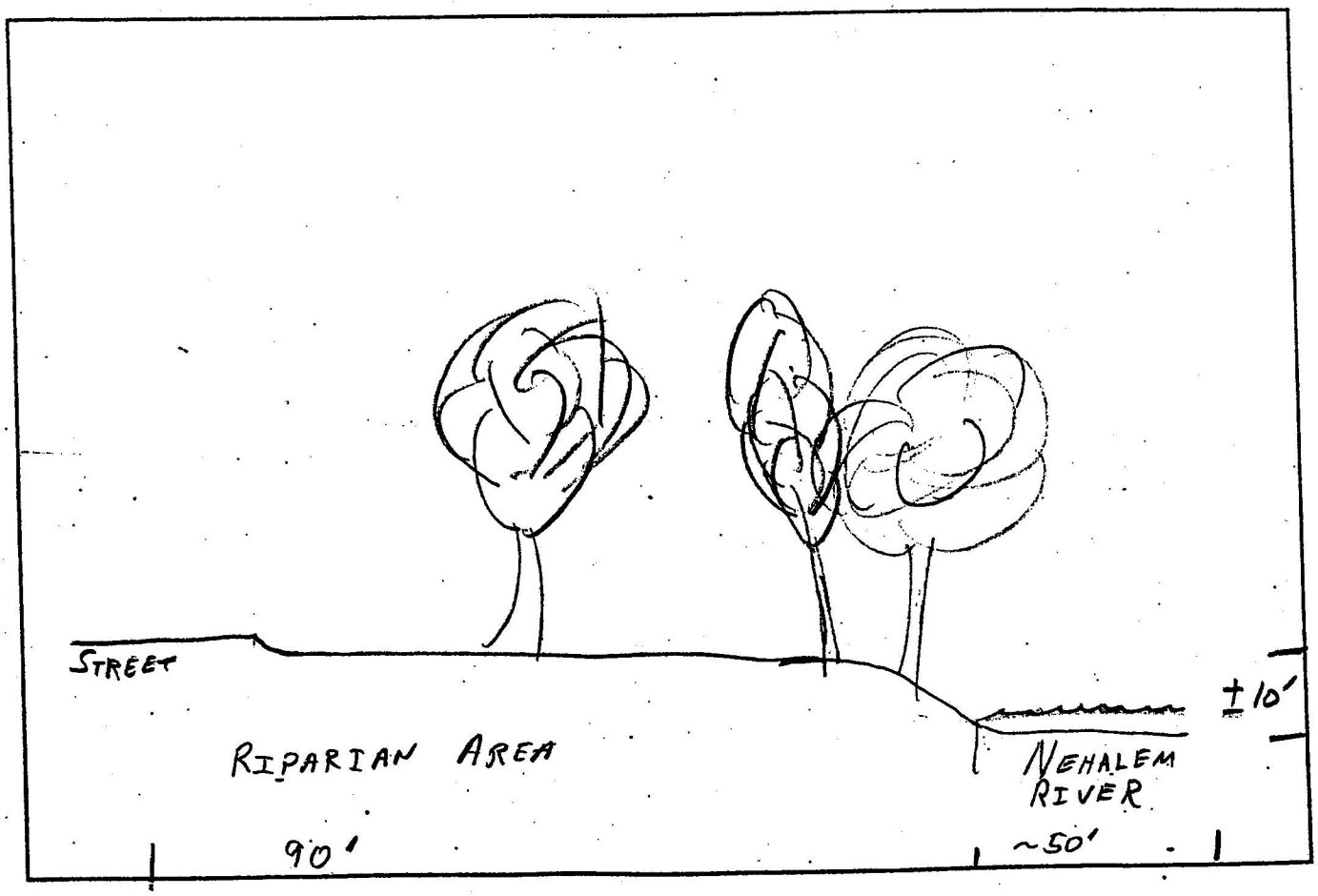
Dominant tree species: Acer macrophyllum

Potential tree height (PTH)/Width of Riparian Area: 90/90
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: NR-L1 borders developed land (residential and commercial) in west Vernonia. The upstream end is the U.G.B.. The downstream end is in _ park. About 2/3 of the reach has trees or shrubs adjacent to the Nehalem River. Streets infringe on the outer edge of the riparian area.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L1

Riparian Characterization Form — Part 1

General Information

Date: 8/5/99

On-site ☐ Office ☐

Reach Length: 1,400

Investigators:

Hydrologic Basin: Nehalem River

Water Resource Information

Water Resource: Stream/River ☑ Width: 50
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-18

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☐ Residential ☑ Undeveloped ☐
Commercial ☑ Roads ☑ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Pseudotsuga menziesii	Rubus laciniatus
Acer macrophyllum	Polystichum munitum
Oemleria cerasiformis	Dactylis glomerata
Cytisus scoparius	Phalaris arundinacea
Cornus stolonifera	Pteridium aquilinum
Alnus rubra	Symphoricarpos albus
	Berberis aquifolium
	Gaultheria shallon

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L1

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L1

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	2
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	3
Total Points:	7

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	2
Total Points:	20

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L2

Riparian Width Determination

Date: 8/5/99 Investigators: JG

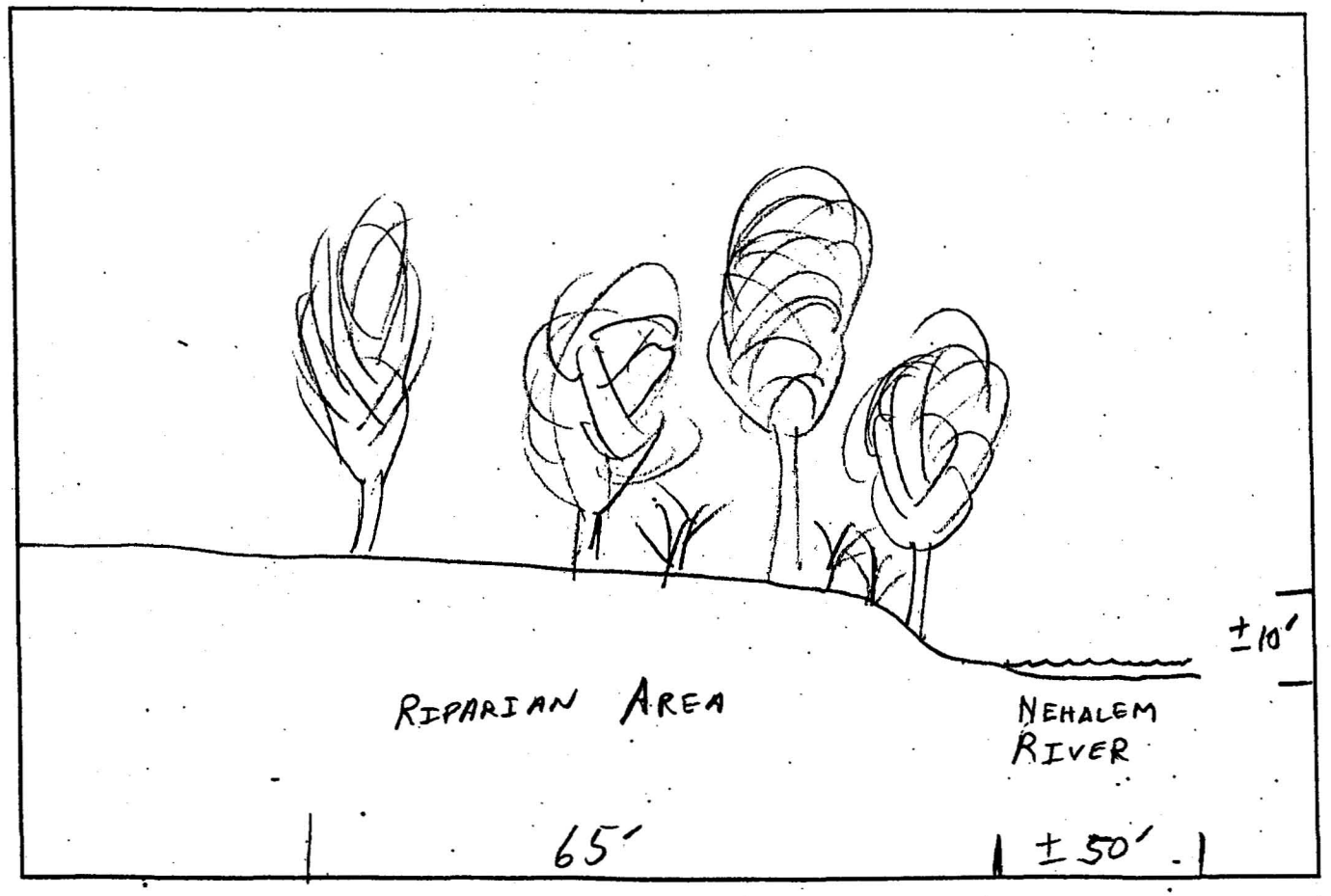
Dominant tree species: Alnus rubra

Potential tree height (PTH)/Width of Riparian Area: 65/0
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: NR-L2 starts in park, borders the Nehalem River on the south edge of the old mill site, and ends just south of Bridge Street. This reach is forested. The riparian area and adjacent land was historically developed, but is returning to undeveloped conditions.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L2

Riparian Characterization Form — Part 1

General Information

Date: 8/5/99

On-site ☑ Office ☐ Reach Length: 7,800

Investigators: JG Hydrologic Basin: Nehalem River

Water Resource Information

Water Resource: Stream/River ☑ Width: 50
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-18

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: Yes

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☐ Residential ☐ Undeveloped ☑
Commercial ☐ Roads ☐ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Fraxinus latifolia	Cirsium arvense
Alnus rubra	Dactylis glomerata
Oemleria cerasiformis	Phalaris arundinacea
Picea sitchensis	Polystichum munitum
Corylus cornuta	Symphoricarpos albus
Sambucus racemosa	Rubus laciniatus
Acer macrophyllum	Pteridium aquilinum
Rubus discolor	
Acer circinatum	
Cornus stolonifera	
Rubus spectabilis	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L2

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☑ <25% ☐ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L2

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	13

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	3
Total Points:	7

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	3
Question 19:	1
Total Points:	21

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L3

Riparian Width Determination

Date: 8/5/99 Investigators: JG

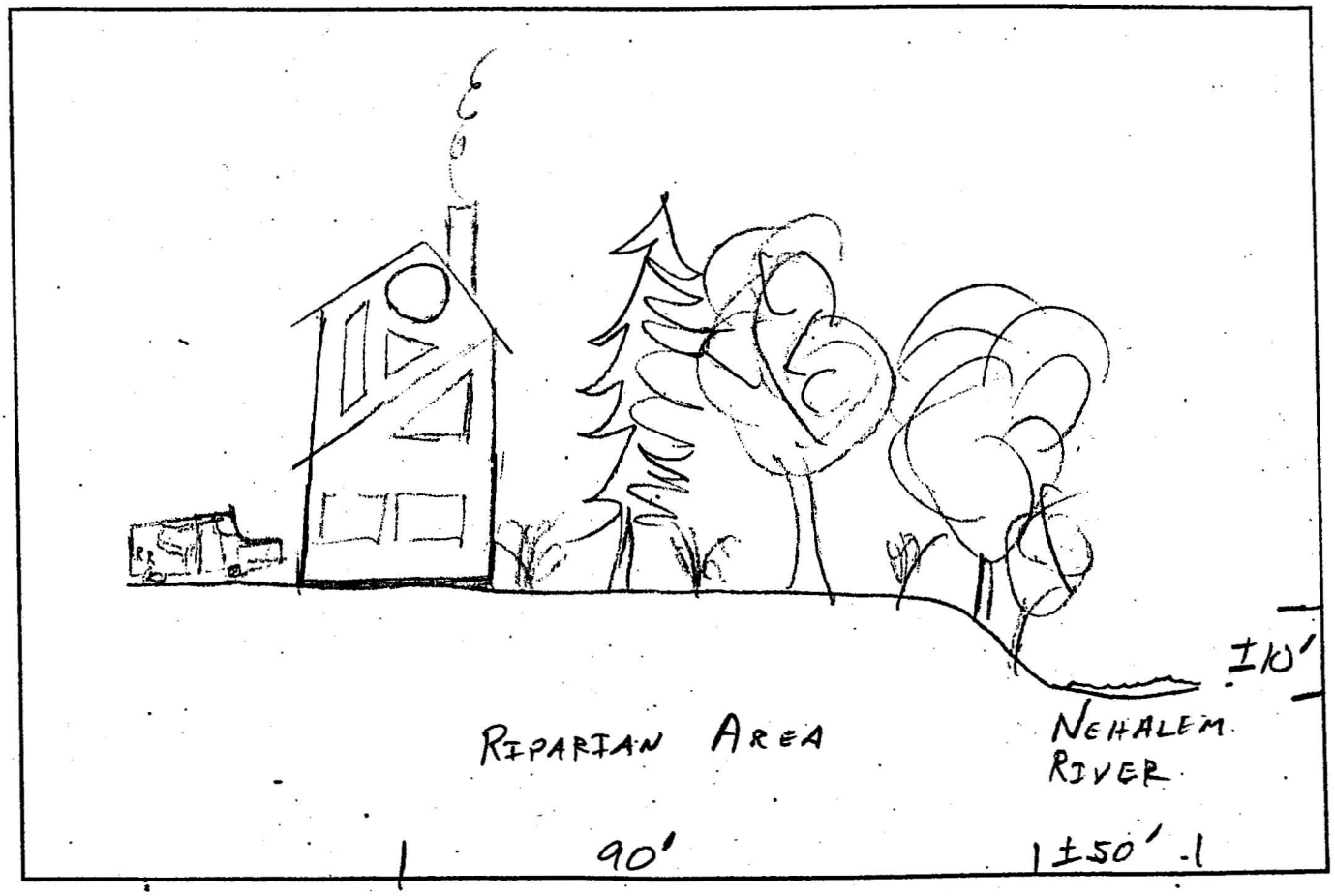
Dominant tree species: Acer macrophyllum

Potential tree height (PTH)/Width of Riparian Area: 90/90
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: The upstream end of NR-L3 is just south of the Bridge Street bridge over the Nehalem River. The downstream end of the reach is west of Juniper Street. The reach is forested. It is bordered by residential development, which infringes on part of the riparian area. Riparian area is developed to top of bank. Listed plants are occasional in riparian area as landscape.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L3

Riparian Characterization Form — Part 1

General Information

Date: 8/5/99

On-site ☑ Office ☐ Reach Length: 2,700

Investigators: JG Hydrologic Basin: Nehalem River

Water Resource Information

Water Resource: Stream/River ☑ Width: 50
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-18

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: Yes

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☐ Residential ☑ Undeveloped ☐
Commercial ☐ Roads ☑ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Acer macrophyllum	Symphoricarpos albus
Thuja plicata	Turf
Alnus rubra	Ornamentals
Pseudotsuga menziesii	
Abies grandis	
Fraxinus latifolia	
Ornamentals	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L3

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☐ <10% ☑ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☑ <25% ☐ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L3

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	2
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	3
Total Points:	7

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	3
Total Points:	21

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L4

Riparian Width Determination

Date: 8/5/99 Investigators: JG

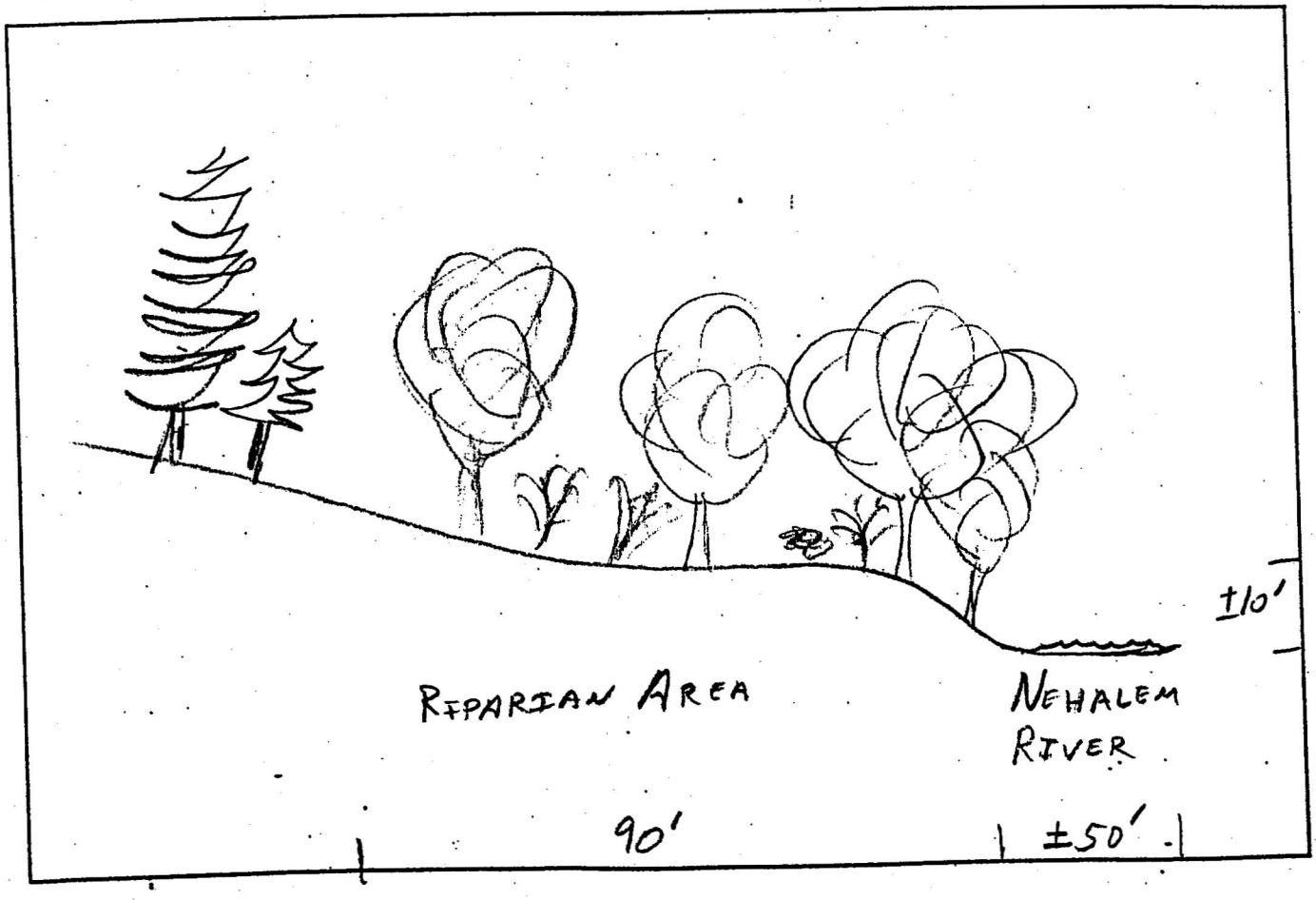
Dominant tree species: Acer macrophyllum

Potential tree height (PTH)/Width of Riparian Area: 90/90
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: The upstream end of NR-L4 is west of Juniper Street. It ends at the U.G.B.. This reach is forested and is adjacent to forested upland. Access to site not available.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L4

Riparian Characterization Form — Part 1

General Information

Date: 8/5/99

On-site ☑ Office ☐ Reach Length: 800

Investigators: JG Hydrologic Basin: Nehalem River

Water Resource Information

Water Resource: Stream/River ☑ Width: 50
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-18

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: Yes

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☐ Residential ☐ Undeveloped ☑
Commercial ☐ Roads ☐ Forestry ☑

Woody Vegetation **Herbaceous Vegetation**

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L4

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☑ <25% ☐ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-L4

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	13

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	3
Question 8:	3
Total Points:	9

Function:
- [x] High
- [ ] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	3
Total Points:	21

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R1

Riparian Width Determination

Date: 8/5/99 Investigators: JG

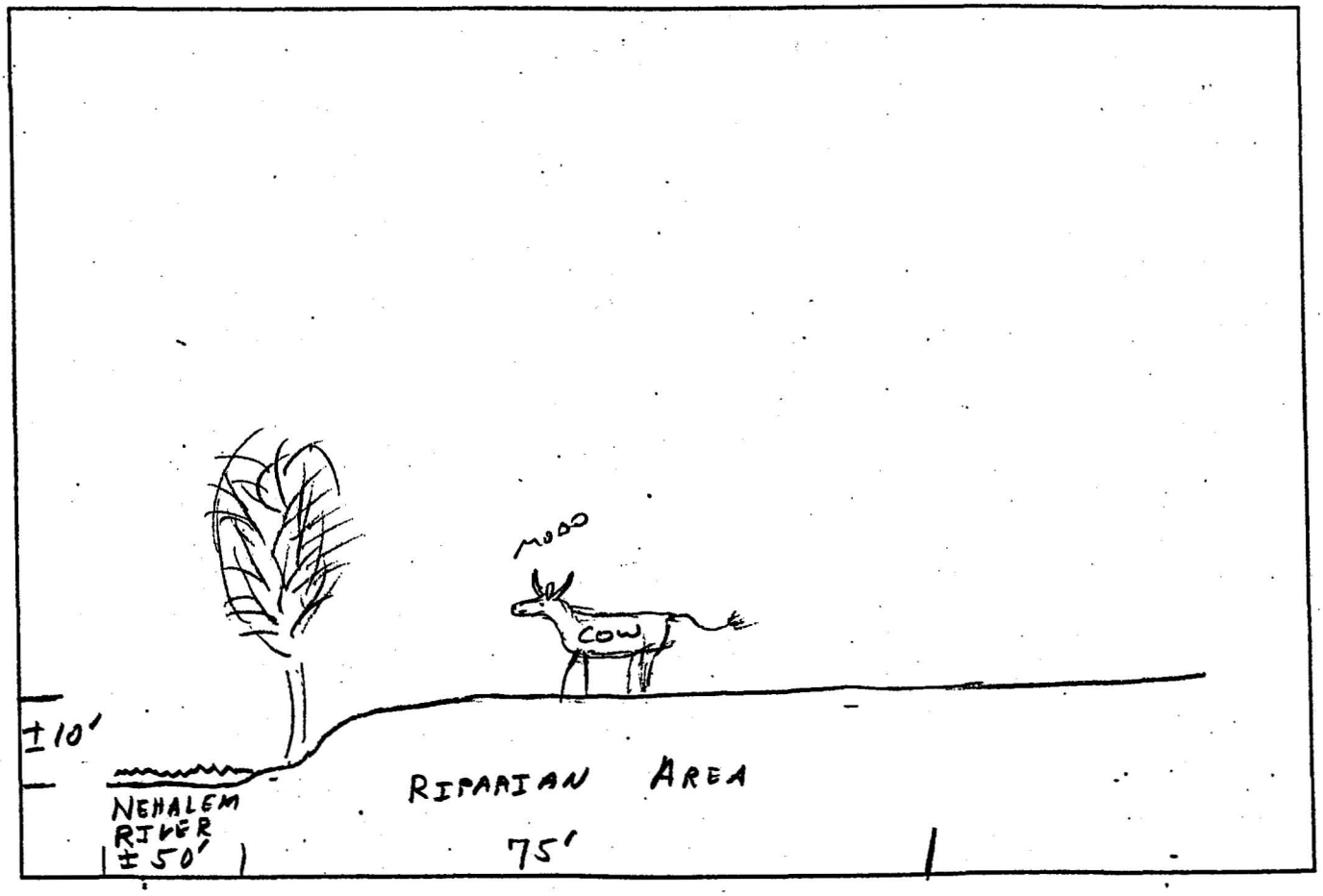
Dominant tree species: Fraxinus latifolia

Potential tree height (PTH)/Width of Riparian Area: 75/75
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: NR-R1 borders the Nehalem River and agricultural land in west Vernonia. The upstream end of the reach is the U.G.B.. The downstream end is at the eastern edge of the farmed land, opposite park.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R1

Riparian Characterization Form — Part 1

General Information

Date: 8/5/99

On-site ☑ Office ☐ Reach Length: 1,600

Investigators: JG Hydrologic Basin: Nehalem River

Water Resource Information

Water Resource: Stream/River ☑ Width: 50
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-18

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☑ Residential ☐ Undeveloped ☐
Commercial ☐ Roads ☐ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Acer macrophyllum	Phalaris arundinacea
Cornus stolonifera	Cirsium vulgare

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R1

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☐ Woody vegetation ☑ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☐ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☐ 25% to 75% ☑ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R1

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	2
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	3
Total Points:	7

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	2
Question 11:	2
Total Points:	7

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	2
Question 14:	2
Question 15:	1
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	1
Total Points:	16

Function:
- [ ] High
- [x] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R2

Riparian Width Determination

Date: 8/5/99 Investigators: JG

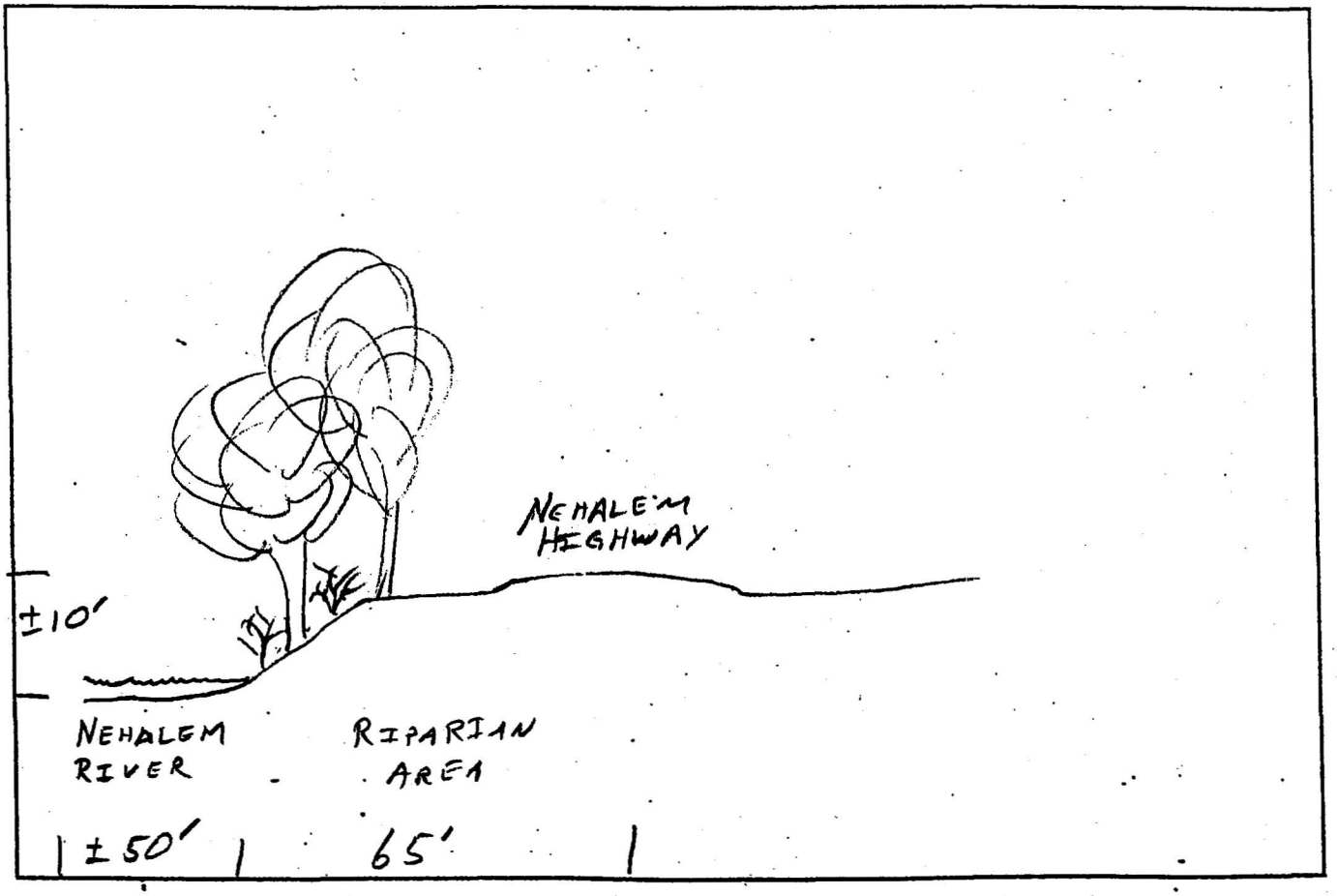
Dominant tree species: Alnus rubra

Potential tree height (PTH)/Width of Riparian Area: 65/65
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: NR-R2 starts at the U.G.B. east of Vernonia Lake, and ends just north of Juniper Street. The upland edge of the reach is along the Nehalem Highway. The downslope edge is forested. The vegetated strip varies from 50 to 100 feet wide. Plants listed are from within banks of the Nehalem River and occur in riparian area as landscape features.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R2

Riparian Characterization Form — Part 1

General Information

Date: 8/5/99

On-site ☑ Office ☐ Reach Length: 4,200

Investigators: JG Hydrologic Basin: Nehalem River

Water Resource Information

Water Resource: Stream/River ☑ Width: 50
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-18

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: Yes

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☐ Residential ☑ Undeveloped ☐
Commercial ☑ Roads ☑ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Acer macrophyllum	Symphoricarpos albus
Fraxinus latifolia	Pteridium aquilinum
Populus balsamifera	Phalaris arundinacea
Alnus rubra	Equisetum arvense
Thuja plicata	Rubus discolor
Rubus spectabilis	
Cornus stolonifera	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R2

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☐ <10% ☑ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R2

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	2
Question 5:	2
Total Points:	12

Function:
- ☑ High
- ☐ Medium
- ☐ Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	3
Total Points:	7

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- ☑ High
- ☐ Medium
- ☐ Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	2
Total Points:	20

Function:
- ☑ High
- ☐ Medium
- ☐ Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R3

Riparian Width Determination

Date: 8/5/99 Investigators: JG/ES

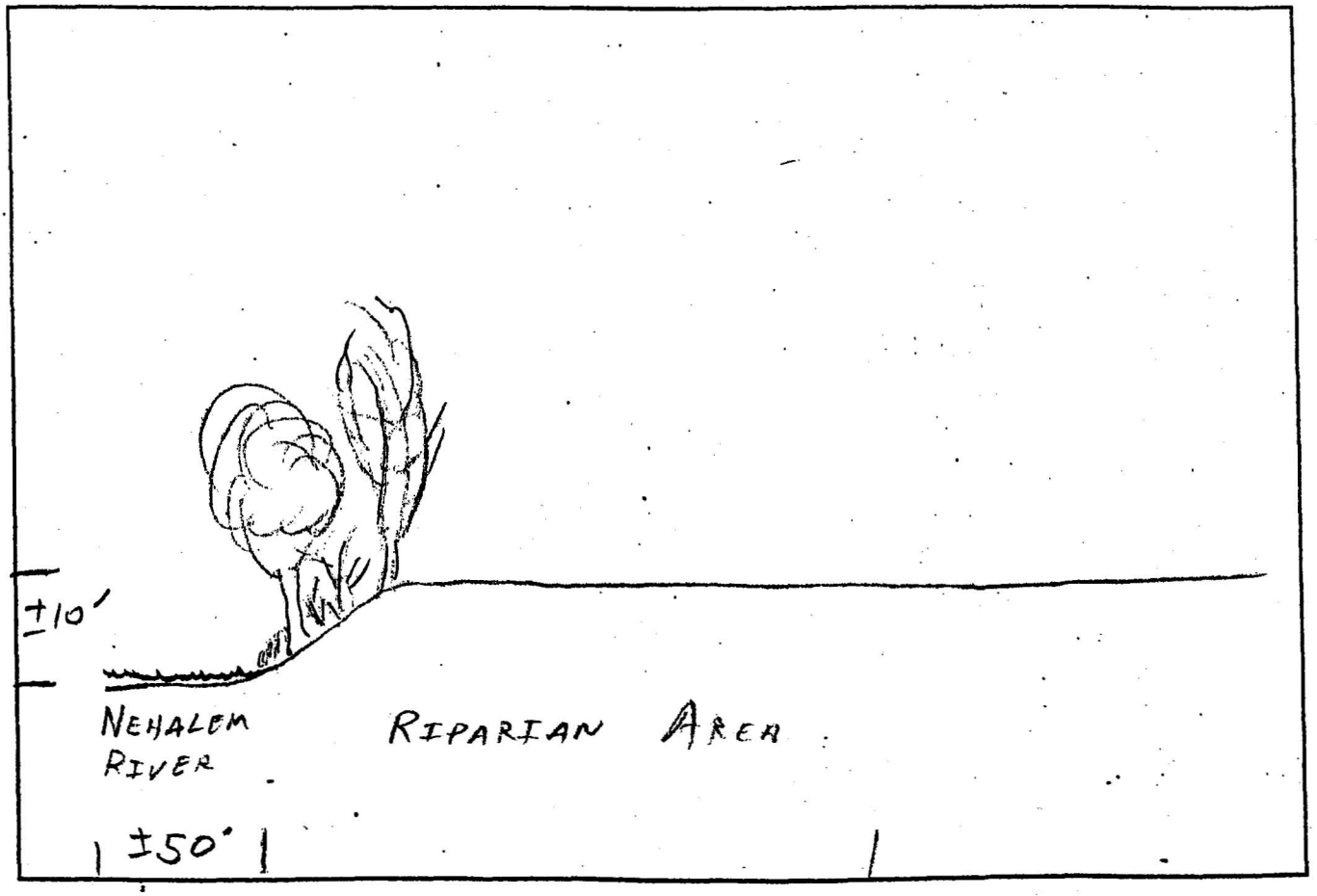
Dominant tree species: Acer Macrophyllum

Potential tree height (PTH)/Width of Riparian Area: 90/90
(Width measured horizontally from edge of water resource)

PTH determined by: ☐ On-site vegetation ☐ Reference site Code:

Comments: The upstream end of NR-R3 is just north of Juniper Street. At this point the river and Nehalem Highway diverge, so the riparian area borders open lots instead of the highway. The downslope edge (along the river) is forested. Access not available so plant list is probable based on adjacent similar conditions.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R3

Riparian Characterization Form — Part 1

General Information

Date: 8/5/99

On-site ☑ Office ☐ Reach Length: 2,400

Investigators: JG/ES Hydrologic Basin: Nehalem River

Water Resource Information

Water Resource: Stream/River ☑ Width: 0
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR-18

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: Yes

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☑ Residential ☑ Undeveloped ☐
Commercial ☑ Roads ☐ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Acer macrophyllum	
Thuja plicata	
Pseudotsuga menziesii	
Fraxinus latifolia	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R3

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: City of Vernonia LWI
Riparian Code: NR-R3

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	13

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	3
Total Points:	7

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	1
Total Points:	19

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-L1

Riparian Width Determination

Date: 11/12/99 Investigators: JG

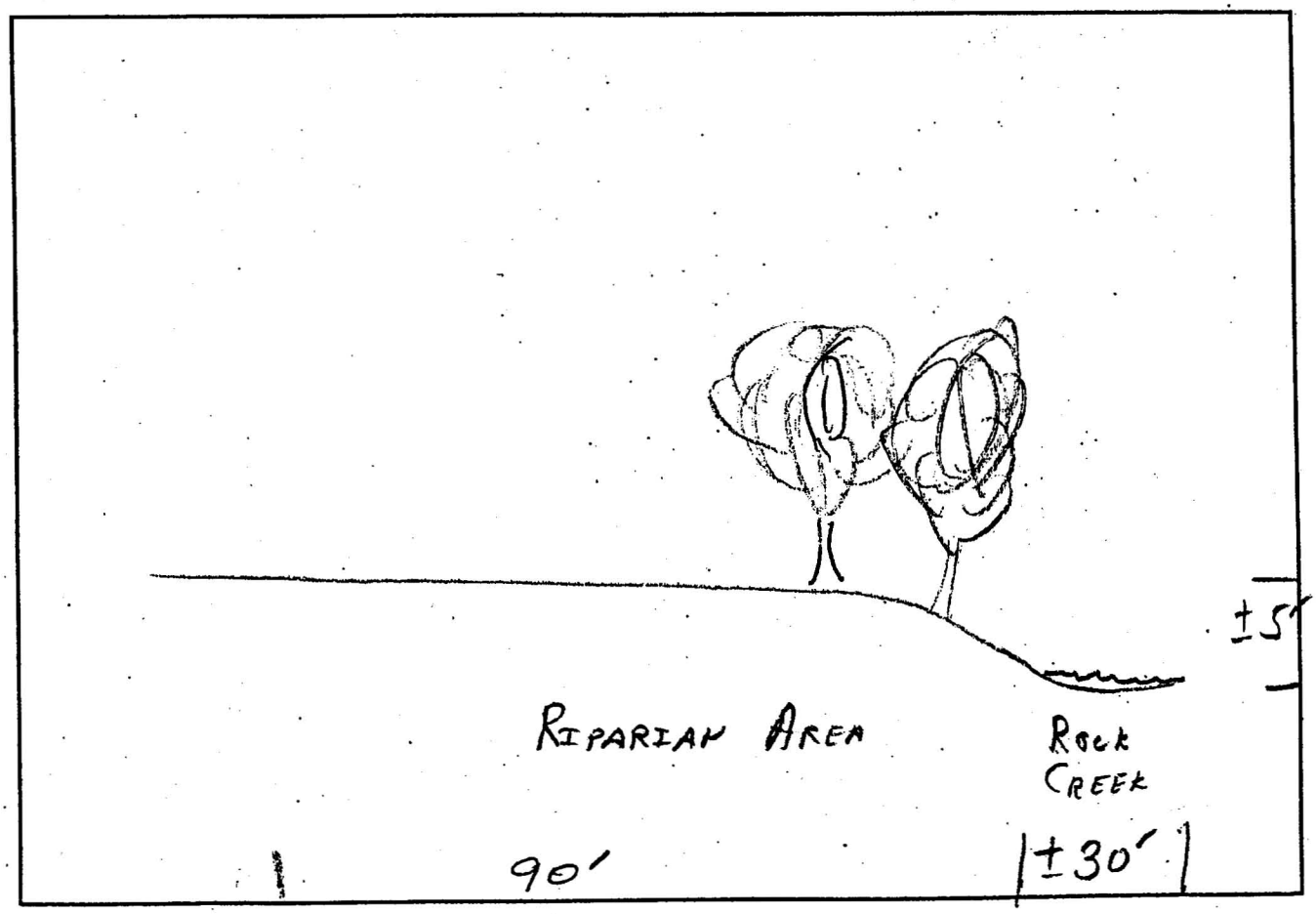
Dominant tree species: Acer macrophyllum

Potential tree height (PTH)/Width of Riparian Area: 90/90
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: The upstream end of RC-L1 is the U.G.B.. The downstream end is at the water treatment facility. The reach borders a pasture. Woody vegetation dominate about 1/2 of the reach, and is limited to a narrow strip adjacent to the stream.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-L1

Riparian Characterization Form — Part 1

General Information

Date: 11/12/99

On-site ☐ Office ☑ Reach Length: 1,200

Investigators: JG Hydrologic Basin: Rock Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 30
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR 17

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☑ Residential ☐ Undeveloped ☐
Commercial ☐ Roads ☐ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Acer macrophyllum	Rubus discolor
Alnus rubra	Turf
Thuja plicata	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-L1

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☐ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☐ Woody vegetation ☑ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☐ 25% to 75% ☑ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-L1

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	2
Question 3:	2
Question 4:	3
Question 5:	2
Total Points:	11

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	3
Total Points:	7

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Thermal Regulation

Question 9:	1
Question 10:	2
Question 11:	2
Total Points:	5

Function:
- ☐ High
- ☑ Medium
- ☐ Low

Wildlife Habitat

Question 12:	3
Question 13:	2
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	1
Total Points:	18

Function:
- ☑ High
- ☐ Medium
- ☐ Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-L2

Riparian Width Determination

Date: 11/12/99 Investigators: JG

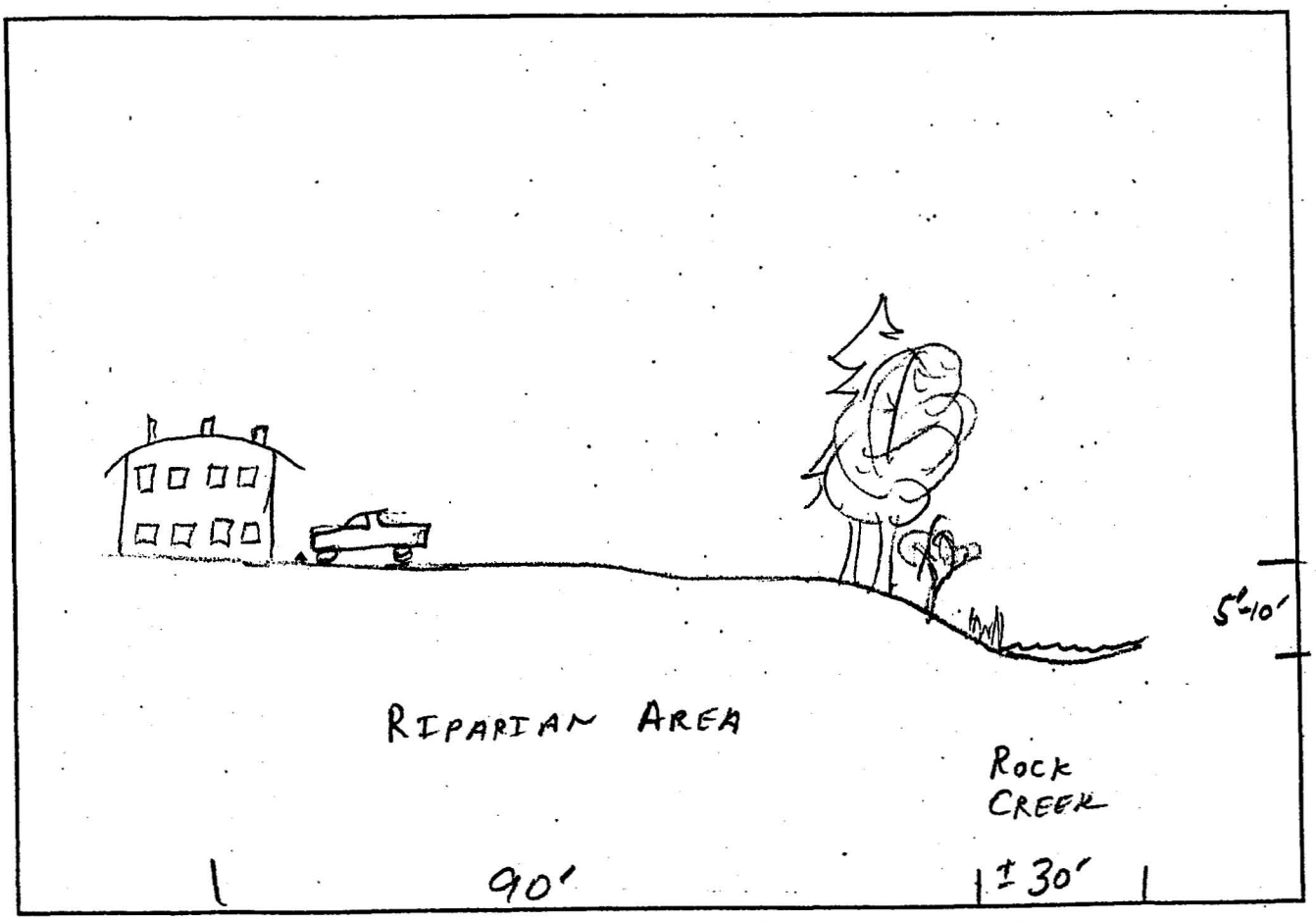
Dominant tree species: Acer macrophyllum

Potential tree height (PTH)/Width of Riparian Area: 90/90
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: The upstream end of RC-L2 is at the water treatment facility. The downstream end is the confluence with the Nehalem River. An old dam in park constricts the reach. The riparian area includes a narrow strip of trees. It borders developed land.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-L2

Riparian Characterization Form — Part 1

General Information

Date: 11/12/99

On-site ☑ Office ☑ Reach Length: 4,400

Investigators: JG Hydrologic Basin: Rock Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 30
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: VR 17

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☐ Residential ☑ Undeveloped ☐
Commercial ☑ Roads ☑ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Alnus rubra	Rubus discolor
Acer macrophyllum	Phalaris arundinacea
Fraxinus latifolia	Rubus spectabilis
Corallorrhiza striata	Tellima grandiflora
Pseudotsuga menziesii	Dactylis glomerata
Populus balsamifera	
Thuja plicata	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-L2

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☐ <10% ☑ 10% to 25% ☐ >25%

☑ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-L2

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	2
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	1
Total Points:	5

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	2
Total Points:	20

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-R1

Riparian Width Determination

Date: 1/12/99 Investigators: JG

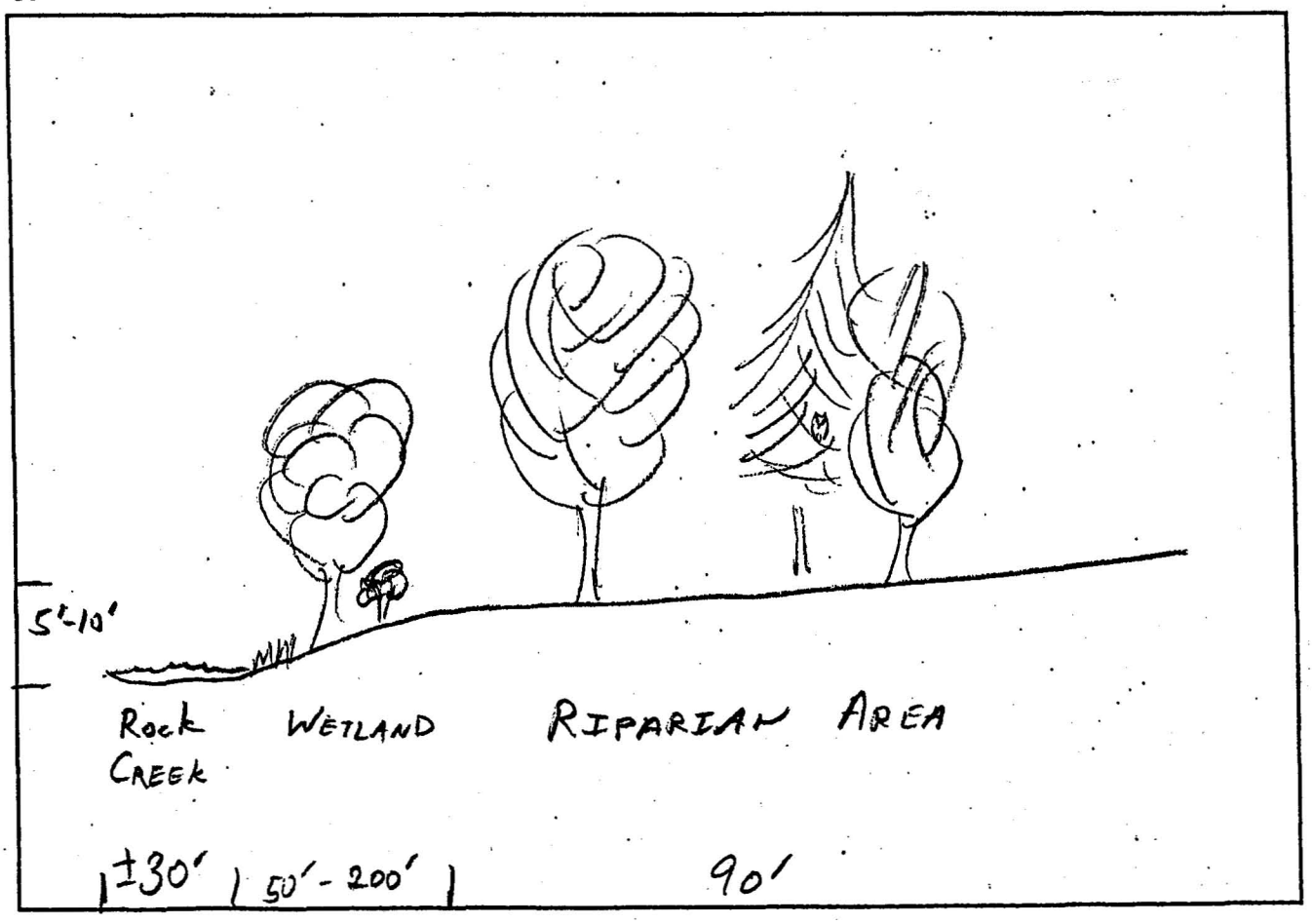
Dominant tree species: Alnus rubra

Potential tree height (PTH)/Width of Riparian Area: 65/65
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: RC-R1 starts at the northern U.G.B. and continues south to North Street, ending in the park. It borders forested pastures.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-R1

Riparian Characterization Form — Part 1

General Information

Date: 1/12/99

On-site ☑ Office ☑ Reach Length: 3,600

Investigators: JG Hydrologic Basin: Rock Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 30
Lake/Pond ☐ Width: 0
Wetland ☑ Width: 125

LWI Wetland Code: VR2, VR17

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☑ Residential ☑ Undeveloped ☐
Commercial ☐ Roads ☐ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Acer macrophyllum	Festuca arundinacea
Alnus rubra	Dactylis glomerata
Pseudotsuga menziesii	Phalaris arundinacea
Thuja plicata	Polystichum munitum
Corylus cornuta	Rubus ursinus
Acer circinatum	Rubus laciniatus
Rubus parviflorus	
Sambucus racemosa	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-R1

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☑ <10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-R1

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	3
Question 2:	3
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	14

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	3
Question 8:	3
Total Points:	9

Function:
- [x] High
- [ ] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	3
Question 19:	2
Total Points:	22

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-R2

Riparian Width Determination

Date: 11/12/99 Investigators: JG

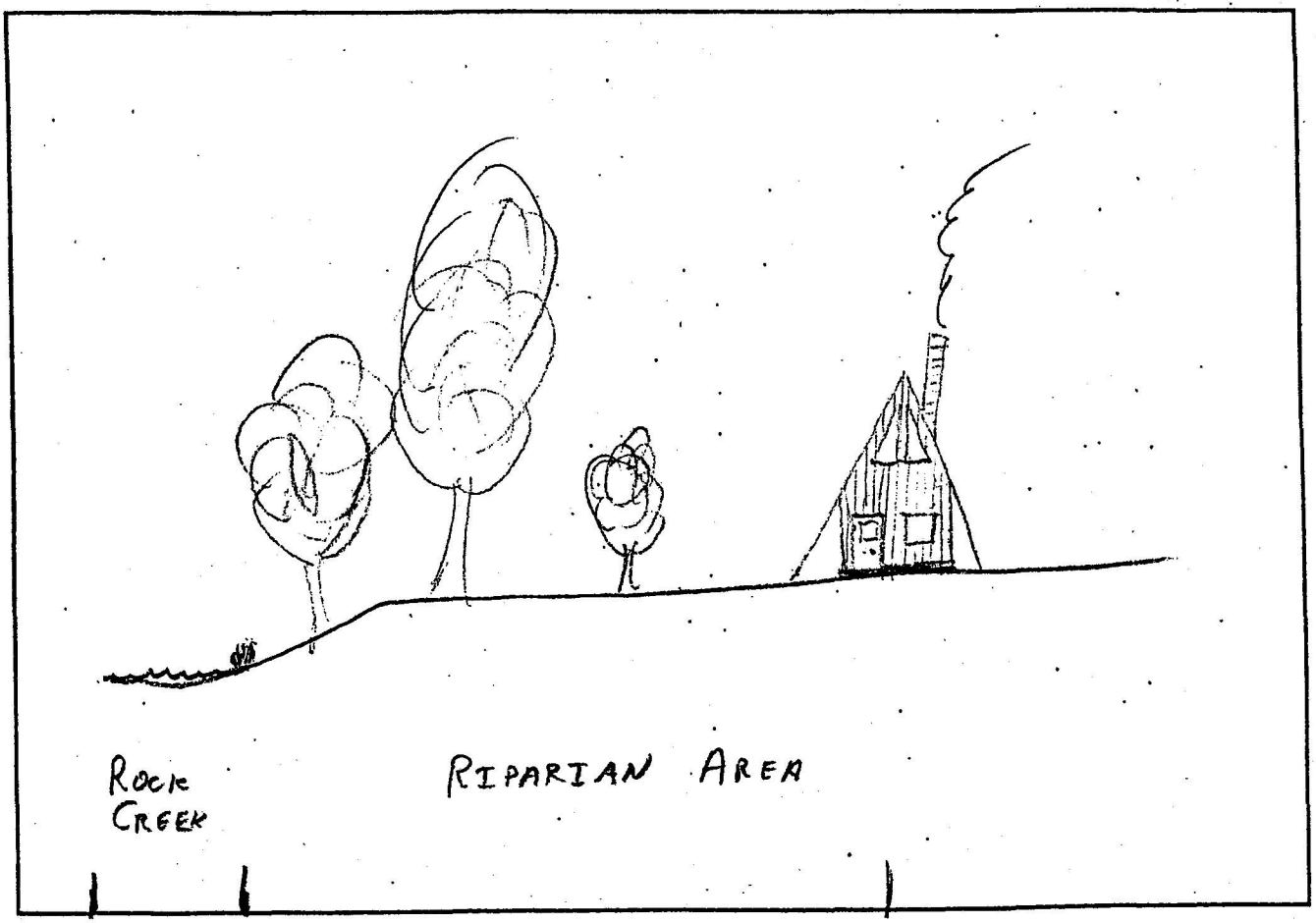
Dominant tree species: Acer macrophyllum

Potential tree height (PTH)/Width of Riparian Area: 90/90
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: This reach starts at North Street and ends at the confluence of Rock Creek with the Nehalem River. The reach includes a strip of forested riparian adjacent to the stream and borders developed residential / commercial / park land. This reach includes the confluence of Bear Creek. An old dam in park constricts the reach.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-R2

Riparian Characterization Form — Part 1

General Information

Date: 11/12/99

On-site ☐ Office ☑ Reach Length: 1,800

Investigators: JG Hydrologic Basin: Rock Creek

Water Resource Information

Water Resource: Stream/River ☑ Width: 30
Lake/Pond ☐ Width: 0
Wetland ☐ Width: 0

LWI Wetland Code: 17

Water present year-round: Yes

Are salmonids present in the adjacent water resource: Yes

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam

Adjacent Land Uses?

Agriculture ☐ Residential ☑ Undeveloped ☐
Commercial ☑ Roads ☑ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Alnus rubra	Rubus discolor
Acer macrophyllum	Phalaris arundinacea
Fraxinus latifolia	Symphoricarpos albus
Cornus stolonifera	Pteridium aquilinum
	Rubus sp.

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-R2

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☐ <10% ☑ 10% to 25% ☐ >25%

☑ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: RC-R2

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	2
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	1
Total Points:	5

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	3
Question 11:	2
Total Points:	8

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	2
Total Points:	20

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: VL-1

Riparian Width Determination

Date: 11/17/99 Investigators: JG

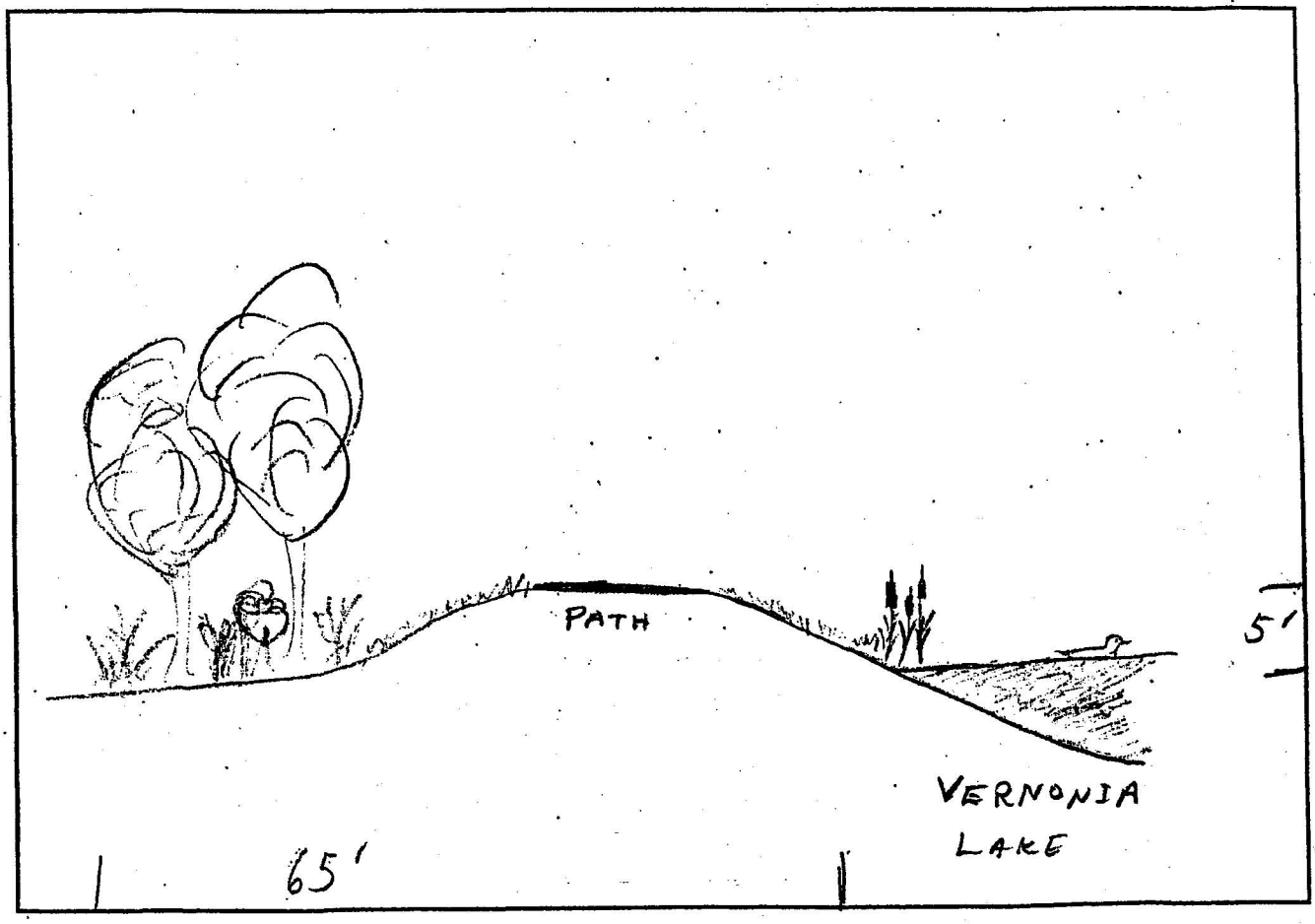
Dominant tree species: Alnus rubra

Potential tree height (PTH)/Width of Riparian Area: 65/65
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: VL-1 is the riparian area around Vernonia Lake. The riparian area includes a dike that surrounds the lake, and a paved path on the top of the dike. This reach is on land that was included in a mill site, but is returning to "natural" conditions.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: VL-1

Riparian Characterization Form — Part 1

General Information

Date: 11/17/99

On-site ☑ Office ☐ Reach Length: 4,800

Investigators: JG Hydrologic Basin: Nehalem River

Water Resource Information

Water Resource: Stream/River ☐ Width: 0
Lake/Pond ☑ Width: 1200
Wetland ☐ Width: 0

LWI Wetland Code: VR-09

Water present year-round: Yes

Are salmonids present in the adjacent water resource: No

Is the water resource listed for temperature on DEQ's 303(d) list: No

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 32, McNulty silt loam; 20, Eilertsen slit loam

Adjacent Land Uses?

Agriculture ☐ Residential ☑ Undeveloped ☑
Commercial ☑ Roads ☑ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Fraxinus latifolia	Cirsium arvense
Alnus rubra	Dactylis glomerata
Oemleria cerasiformis	Phalaris arundinacea
Picea sitchensis	Polystichum munitum
Corylus cornuta	Symphoricarpos albus
Sambucus racemosa	Rubus laciniatus
Acer macrophyllum	Pteridium aquilinum
Rubus discolor	
Acer circinatum	
Cornus stolonifera	
Rubus spectabilis	

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: VL-1

Riparian Characterization Form — Part 2

Average slope in the riparian area: (Question 1)

☑ <10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☑ **The reach is constricted by man-made features.**

☐ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☐ Woody vegetation ☑ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☐ >40% ☑ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☐ 25% to 75% ☑ >75%

Urban Riparian Inventory and Assessment

Project Number: 2995023
Project Name: Vernonia LWI
Riparian Code: VL-1

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	3
Question 2:	2
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	13

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	1
Question 8:	1
Total Points:	5

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	3
Question 10:	2
Question 11:	2
Total Points:	7

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	1
Question 13:	2
Question 14:	2
Question 15:	3
Question 16:	2
Question 17:	3
Question 18:	3
Question 19:	1
Total Points:	17

Function:
- [x] High
- [ ] Medium
- [ ] Low

Appendix C

DSL OFWAM Manual

APPENDIX C

SUMMARY OF OFWAM ASSESSMENT CATEGORIES

Wetland functions and characteristics assessed by the Oregon Freshwater Assessment Methodology (OFWAM) are summarized below. The results of the assessment are used to determine the significance of each wetland. For complete assessment information, consult the OFWAM document.

Wetland Functions

WILDLIFE HABITAT: Wetlands provide habitat for many wildlife species. A single wetland often cannot satisfy all requirements for wildlife use, so its proximity to other bodies of water or upland areas is important. Buffers and corridors are also essential for this reason, and they reduce human disturbance. Many species also have special habitat requirements. Good water quality is necessary for amphibians and mammals; structural diversity is important for birds; and a combination of open water and grazing areas is important for waterfowl.

OFWAM 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 have a wildlife habitat function that is lost or not present.

FISH HABITAT: Wetlands that contribute to habitat for fish include areas with dense overhanging vegetation. This vegetation provides shade, cover, and food sources to related waterways and lakes. Wetlands also provide spawning, rearing, and resting opportunities for fish. However, a wetland need not actually contain fish to contribute to fish habitat, because wetlands may perform important functions for fish-bearing waters downstream.

OFWAM 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 have a fish habitat function that is intact, impacted or degraded, or lost or not present.

WATER QUALITY (pollutant removal):

Sediment Trapping: During periods of heavy rainfall, water runoff may cause erosion and increase solids suspended in receiving surface waters. The excess sediment entering water systems can damage aquatic ecosystems. Sediment accumulation in stream bottoms can smother spawning areas and kill aquatic insect larvae. It also can reduce the storage capacity of downstream water supply reservoirs.

Wetlands perform an important function by trapping sediment from waters that pass through them. As water flows through the wetlands, it is slowed by vegetation, and

sediment settles to the bottom before the water moves farther downstream. As much as 90% of the solids suspended in the water may be removed as the water moves through the wetland, resulting in cleaner water entering rivers, lakes, and estuaries.

Nutrient Attenuation: Nitrogen and phosphorus are the two nutrients most often associated with water pollution. They are also main ingredients of fertilizers used on agricultural fields and lawns, and both are found in high concentrations in discharges from sewage treatment plants and livestock operations. Excessive amounts of nitrogen and phosphorus in lakes and slow-moving streams can cause algal blooms and subsequent oxygen deficiencies, which may kill fish and reduce water quality. The processes that occur as a result of excess nutrients are combined under the term "eutrophication." Within limits, wetlands can reduce nutrient levels so the effects of eutrophication on downstream areas are prevented or reduced.

OFWAM evaluates the potential of a wetland to reduce the impacts of excess nutrients in stormwater runoff on downstream waters. A wetland assessed by OFWAM can have a water quality function that is intact, impacted or degraded, or lost or not present.

HYDROLOGIC CONTROL (flood control and water supply): Wetlands function as natural water storage areas during periods of high runoff and stream flooding. At times, they act as flood regulators by holding floodwaters, then slowly releasing them downstream. This temporary storage reduces the amount of water downstream during floods, thereby reducing peak flows. Through this flood storage mechanism, wetlands associated with tributaries of streams or rivers can prevent water from all tributaries reaching the stream or river at the same time (this is called desynchronization). Wetlands also can act as floodwater "brakes." For example, water flowing through riverine wetlands during floods is slowed by trees, shrubs, rushes, and other wetland vegetation. Wetlands acting as brakes can reduce flood peaks, thereby reducing flood damage, bank and bed erosion, and other adverse effects caused by fast-moving water.

Wetlands also have long-term water holding abilities. Wetlands may store water for longer periods, sometimes for months. The slow draining of these wetlands to surface water or groundwater as the water level in the wetland recedes may contribute to the maintenance of base flows in streams connected hydrologically to the wetland.

OFWAM evaluates the effectiveness of a wetland to reduce downstream flood peaks and store floodwaters. A wetland assessed by OFWAM can have a hydrologic control function that is intact, impacted or degraded, or lost or not present.

EDUCATION: Field trips to wetlands are an important part of the educational experience, providing students opportunities to learn about ecological principles. OFWAM bases the educational assessment on the accessibility and diversity of the wetlands. Wetlands that provide fish and wildlife habitat and permit access to other natural features allow a broader course of study.

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

RECREATION: Many recreational activities take place in and around wetlands. Wetlands associated with open bodies of water also may support boating and fishing. Many people simply enjoy the beauty and sounds of nature and spend time walking in or near wetlands observing plant and animal life.

OFWAM evaluates the suitability of a wetland and associated watercourses for non-powered boating, fishing, and similar recreational activities. A wetland assessed by OFWAM can provide, have the potential to provide, not provide, or not be appropriate for recreational opportunities.

Wetland Characteristics

ENHANCEMENT POTENTIAL: Enhancement potential represents how well a wetland might respond to the mitigation of past environmental impacts. The recovery of a wetland, and in particular its wetland function, depends on the site's hydrology, its soils and substrate, and the presence of environmental buffers surrounding the wetland.

OFWAM evaluates the suitability of a degraded wetland for enhancement. A wetland fulfilling 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 such features as wildlife or fish habitat. A wetland assessed by OFWAM can have high, moderate, or little enhancement potential.

AESTHETIC QUALITY: Although this is a subjective index, it is included to assess the open space and overall pleasing qualities of wetlands to local residents and users. The assessment assumes the user will be visiting the wetland, not just driving by in a car, bus, or on a bicycle. Wetlands can be areas of scenic beauty. Most often they are viewed from along a stream, from a canoe, along a nature trail, or from an overlook. The assessment area may include the entire wetland or only a portion, such as an area clearly visible from a road or stream. Thus, this assessment can be based on an average of several viewpoints or on one outstanding viewpoint.

OFWAM evaluates the visual and aesthetic quality of the wetland. Wetlands can be considered pleasing, moderately pleasing, or not pleasing.

SENSITIVITY TO IMPACT: The wetland's ability to provide ecological function depends on its condition. If past environmental impacts have affected its ability to sustain itself, its ability to recover from future impacts is diminished. Various factors, such as vegetation type, contribute to a wetland's sensitivity. Forested wetland types, for example, are considered particularly sensitive, because their vegetation structure is complex and slow to recover once disturbed. Also, a wetland is considered sensitive to impact if the quantity and quality of its water supply has been altered or degraded, and if

the intensity of adjacent land use suggests the impairment is permanent. Under such circumstances, the wetland will have lost some of its natural capacity to recover form impacts. Small, incremental impacts on sensitive wetlands can cause broader, secondary effects throughout the wetland system. A wetland's resilience depends on whether adverse effects caused by future impacts will be localized or spread throughout the wetland and beyond into other ecosystems. The sensitivity to impact index is an indication of risk to the wetland from future changes in the watershed and land surrounding it.

This index evaluates whether an affected or lost wetland function can be restored at a degraded wetland site. It does **not** evaluate the enhancement potential of changing the vegetation through exotic weed removal, which is considered to be a management issue. Wetland enhancement provides opportunities to connect wetlands and adjacent natural areas, thus creating larger natural systems that provide corridors for animal movement.

Appendix D

DSL Riparian Guide

APPENDIX D

SUMMARY OF RIPARIAN GUIDE ASSESSMENT CATEGORIES

Riparian characteristics and functions assessed by the Urban Riparian Inventory and Assessment Guide (Riparian Guide) are summarized below. For complete assessment information, consult the Riparian Guide document.

Riparian Functions

WATER QUALITY: Erosion risk is directly related to slope: The steeper the slope, the greater the risk of erosion. Vegetation reduces erosion by stabilizing soil and banks through the binding action of roots. Woody vegetation provides the most effective stabilization because of its root mass. Declines in urban water quality can be linked directly to an increase in impervious surfaces. Impervious surfaces increase the frequency and quantity of runoff, contribute pollutants, and reduce natural infiltration provided by soil and vegetation.

FLOOD MANAGEMENT: The ability of the riparian area to provide a flood management function depends on its potential to store or detain floodwaters temporarily. Floodwaters detained in the riparian area infiltrate into the soil and are slowly released downstream. Woody vegetation reduces the velocity of floodwaters by providing resistance, which increases detention time in the riparian area, allowing the water to infiltrate into the soil. Both of these factors reduce downstream flooding. Channelization of streams and armoring of banks (e.g., riprap, walls, concrete) increase the velocity of floodwaters. Although channelization and armoring may reduce local flooding by separating the water resource from its floodplain, these measures often increase the risk of flooding downstream.

THERMAL REGULATION: In Oregon, vegetation on the southern side of an east-west-oriented water resource has the highest potential of providing shade in the summer. The ability of vegetation to provide shade is directly related to the height of the vegetation. In general, tall, woody vegetation provides more shade than herbaceous vegetation. Vegetation overhanging a water resource provides shade, creating microclimates.

WILDLIFE HABITAT: A vegetated riparian area increases the quality of wildlife habitat by providing food, cover, and nesting opportunities. Vertical complexity of vegetation increases the variety of niches available to wildlife. In general, tall, woody vegetation provides more food, cover, and nesting habitat for a variety of wildlife than herbaceous vegetation. Overhanging woody vegetation contributes leaves, woody debris, and insects to the water resource. It also shades the water resource and creates microclimates. Large woody debris in the riparian area provides cover for a variety of small mammals, birds, amphibians, and insects. It can also be transported to the aquatic system in flood events, where it can enhance in-stream fish habitat. More than one type of water resource within or immediately adjacent to the riparian reach increases the

complexity and quality of wildlife habitat. Human-caused disturbance/development within the riparian area directly affects wildlife use. The proximity of human activities may negatively affect sensitive wildlife species that cannot tolerate noise, light, or traffic.

DIVISION OF STATE LANDS
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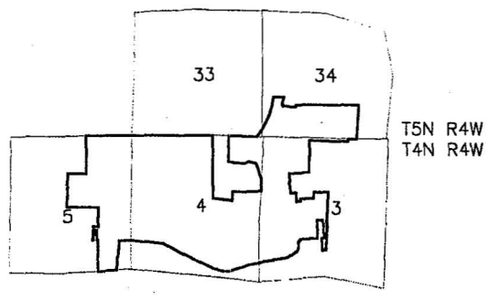
CITY OF VERNONIA
LOCAL
WETLAND INVENTORY

ATTACHMENT
SECTION MAPS



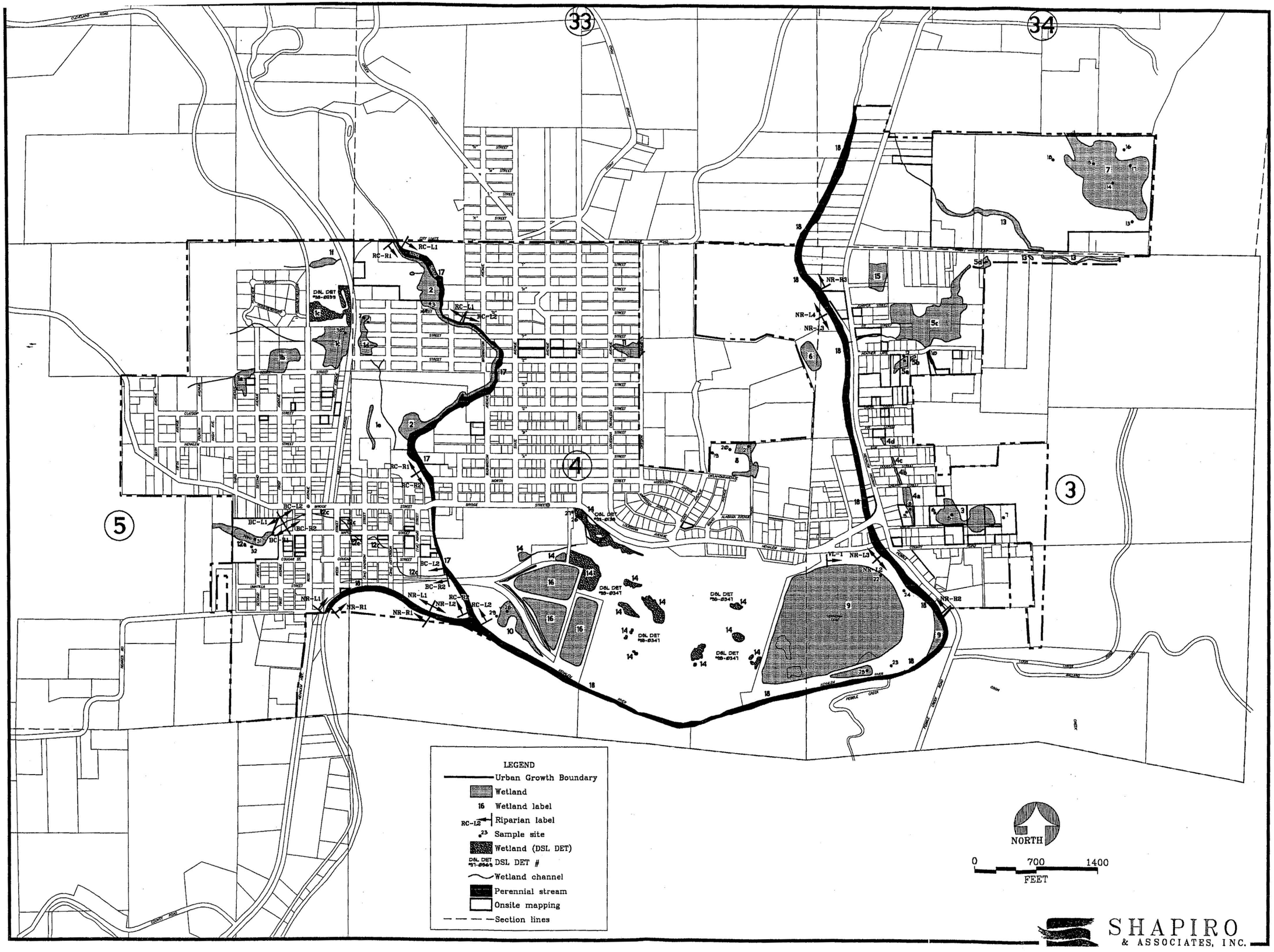
JUNE
2000

City of Vernonia
919 Bridge Street
Vernonia, Oregon 97064

APPROVED WETLANDS INVENTORY
Oregon Division of State Lands
Meets LWI standards
Date 9/28/00 Approved by A. LaIka

PROJECT #2995023

SHAPIRO & ASSOCIATES, INC.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RC-L1
RC-L2
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NR-R2
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NR-L3
NR-L4
BC-R1
BC-L1
BC-R2
BC-L2
VL-1
DSL DET #98-0341
DSL DET #98-0340
DSL DET #98-0342
DSL DET #98-0343
DSL DET #98-0344
DSL DET #98-0345
DSL DET #98-0346
DSL DET #98-0347
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DSL DET #98-0356
DSL DET #98-0357
DSL DET #98-0358
DSL DET #98-0359
LEGEND
Urban Growth Boundary
Wetland
16 Wetland label
RC-L2 Riparian label
23 Sample site
Wetland (DSL DET)
DSL DET #98-0000 DSL DET #
Wetland channel
Perennial stream
Onsite mapping
Section lines
NORTH
0
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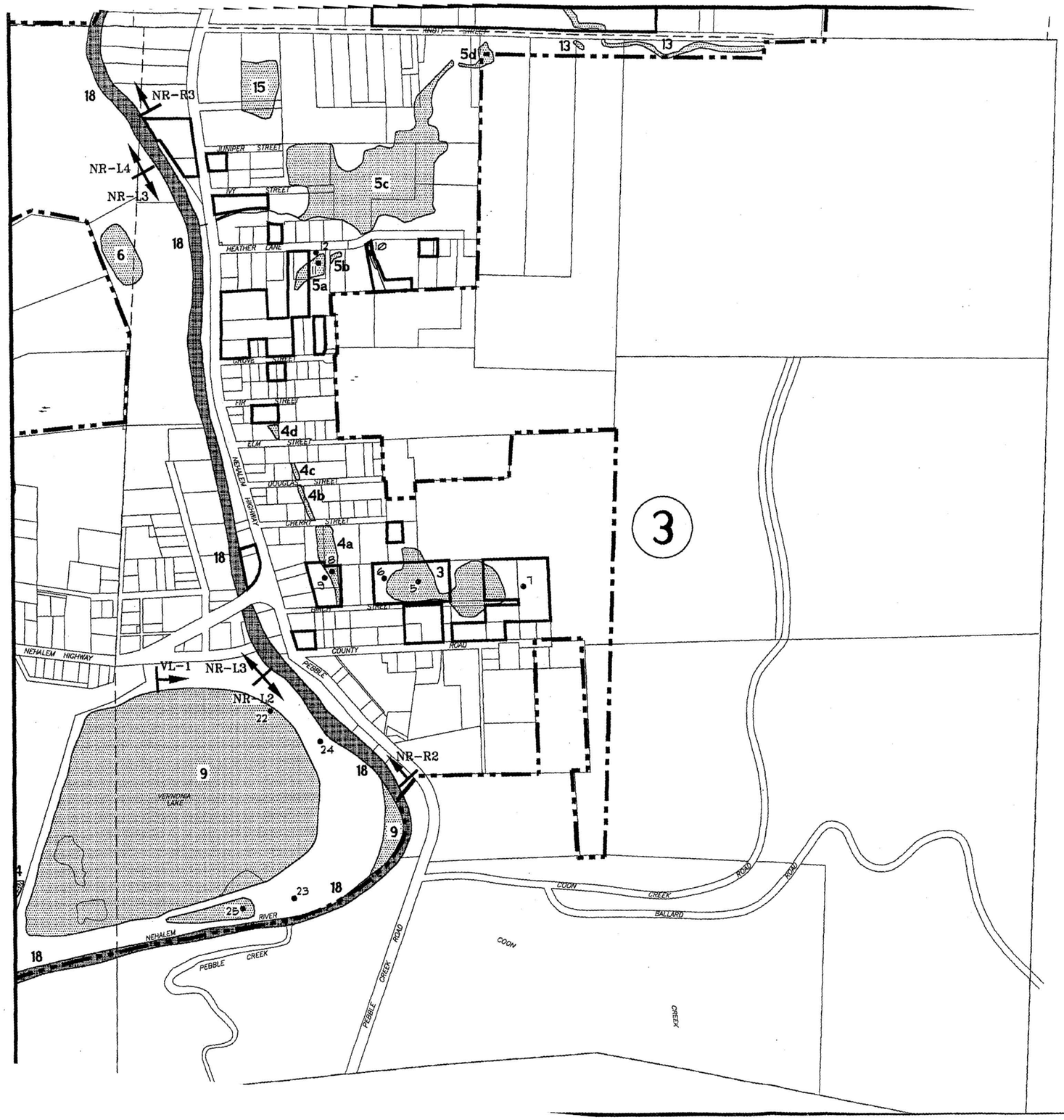
1400
FEET
SHAPIRO
& ASSOCIATES, INC.

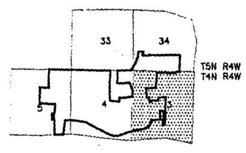


T 4N R 4W Section 03

CITY OF VERNONIA LOCAL WETLAND INVENTORY

LEGEND

- Urban Growth Boundary
- Wetland
- 16 Wetland label
- RC-L2 Riparian label
- 23 Sample site
- Wetland (DSL DET)
- DSL DET #97-0569 DSL DET #
- Wetland channel
- Perennial stream
- Onsite mapping
- Section lines



Wetland acreage

1 acre
1/2 acre
1/10th acre

NORTH

0 400 800
FEET

JUNE 2000

WETLAND INFORMATION IS SUBJECT TO CHANGE

This map is for planning purposes only. Mapped wetland boundaries and riparian study areas were not flagged or surveyed (unless noted as a delineation study.) There may be exceptions or unmapped wetlands subject to regulation. In all cases, actual field conditions determined wetland boundaries. All wetland boundaries were mapped in the field on aerial photographs at a scale of 1"=400'. On-site verified (site access granted) wetland boundaries were mapped accurately to within 25' on the aerial photographs. If site alteration work is proposed, you area advised to contact the Oregon Division of State Lands or the U.S. Army Corps of Engineers with regulatory questions. This study was funded by a wetlands planning assistance grant from the U.S. Environmental Protection Agency Region X, administered by the Oregon Division of State Lands.

City of Vernonia
919 Bridge Street
Vernonia, Oregon 97064

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T 4N R 4W Section 04

CITY OF VERNONIA LOCAL WETLAND INVENTORY

LEGEND

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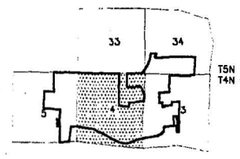
- DSL DET #97-0569 DSL DET #
- Wetland channel
- Perennial stream
- Onsite mapping
- Section lines



Wetland acreage

1 acre
1/2 acre
1/10th acre

NORTH

0 400 800
FEET

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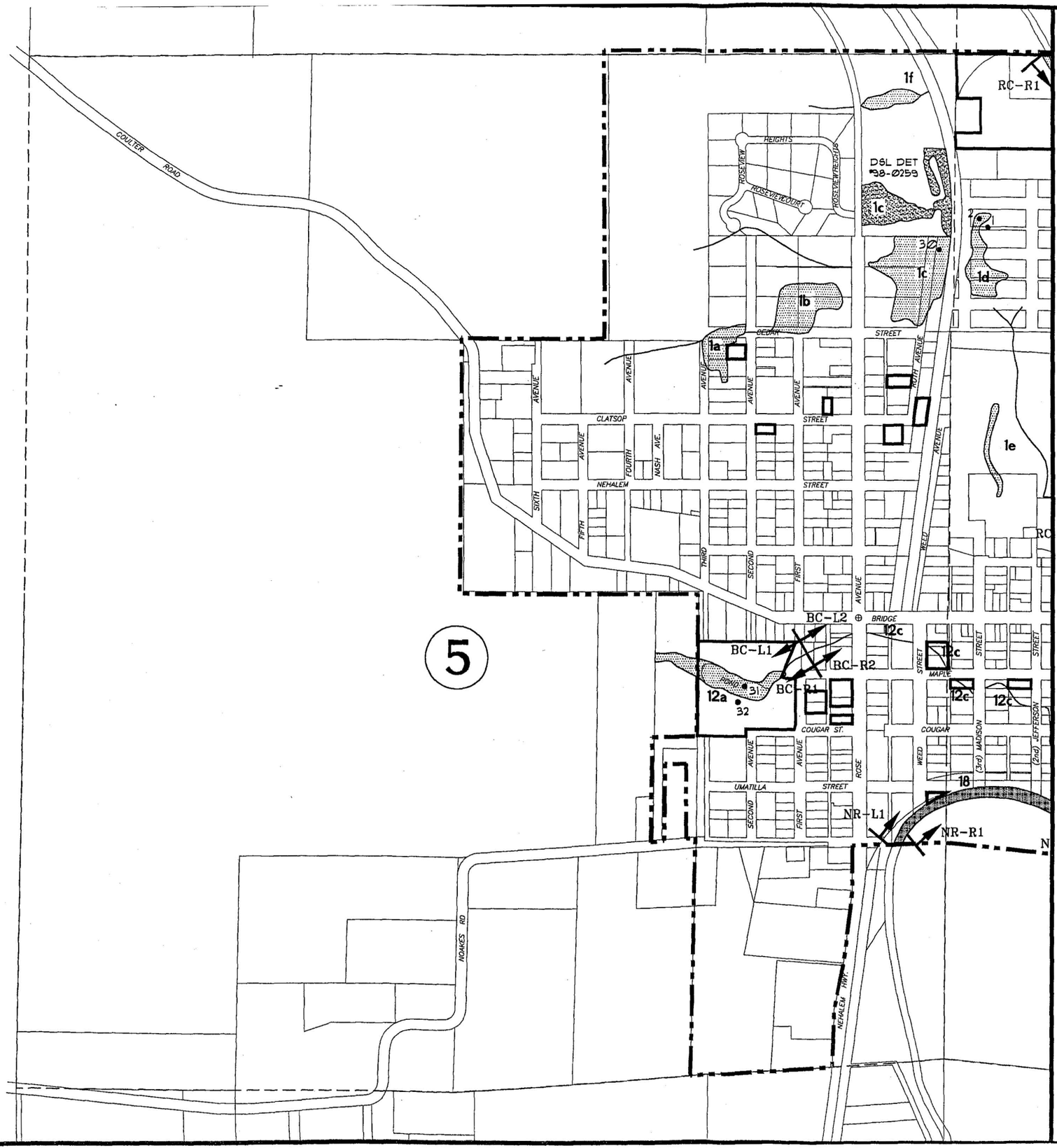
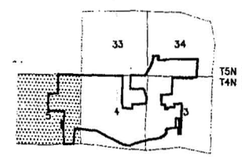


T 4N R 4W Section 05

CITY OF VERNONIA LOCAL WETLAND INVENTORY

LEGEND

- Urban Growth Boundary
- Wetland
- 16 Wetland label
- RC-L2 Riparian label
- Sample site
- Wetland (DSL DET)
- DSL DET #97-0569 DSL DET #
- Wetland channel
- Perennial stream
- Onsite mapping
- Section lines



Wetland acreage

1 acre
1/2 acre
1/10th acre

NORTH

0 400 800
FEET

JUNE 2000

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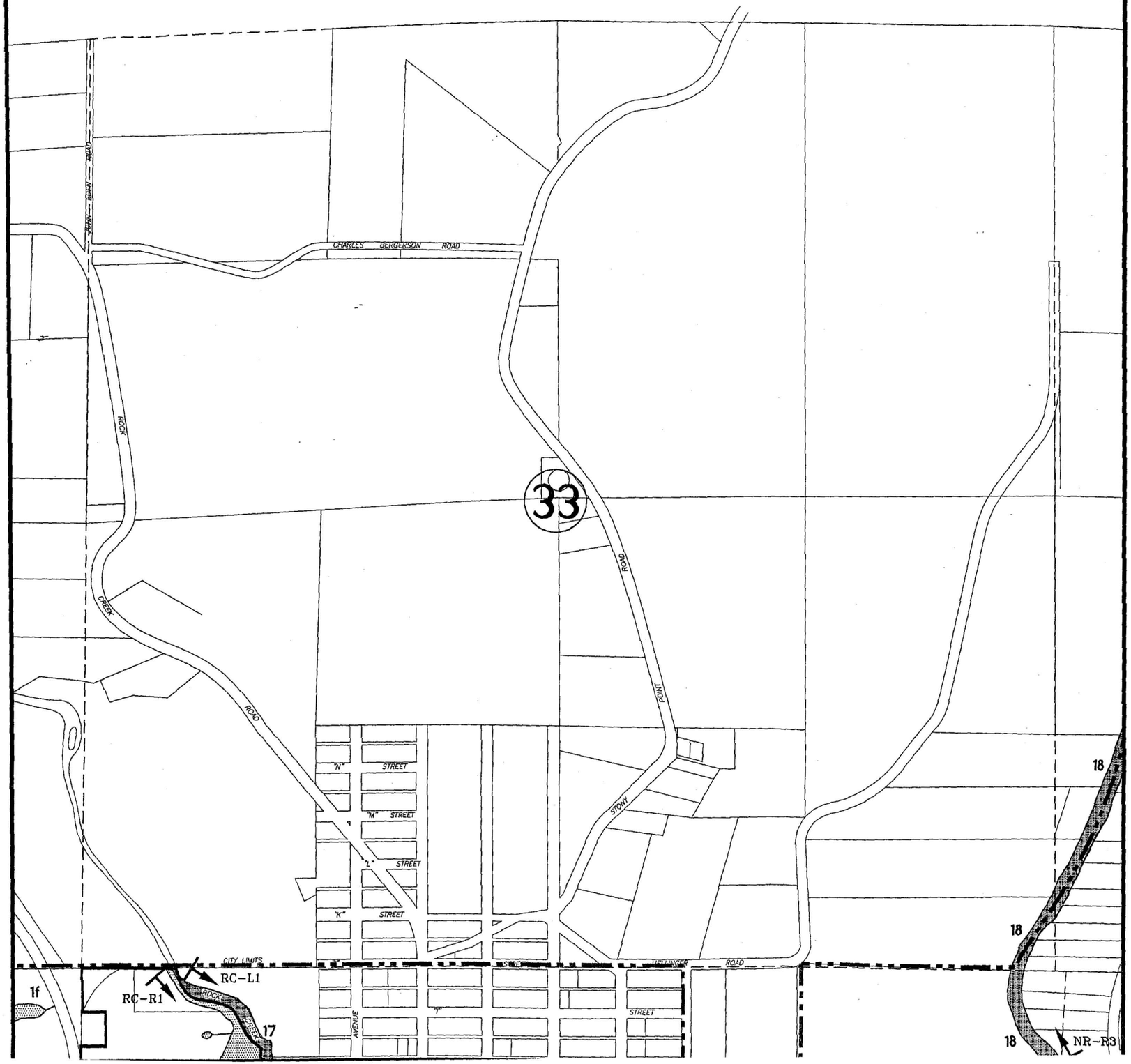
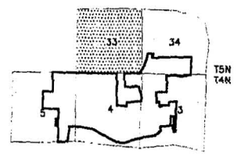


T 5N R 4W Section 33

CITY OF VERNONIA LOCAL WETLAND INVENTORY

LEGEND

- Urban Growth Boundary
- Wetland
- 16 Wetland label
- RC-L2 Riparian label
- 23 Sample site
- Wetland (DSL DET)
- DSL DET #97-0569 DSL DET #
- Wetland channel
- Perennial stream
- Onsite mapping
- Section lines



Wetland acreage

1 acre
1/2 acre
1/10th acre

NORTH

0 400 800
FEET

JUNE 2000

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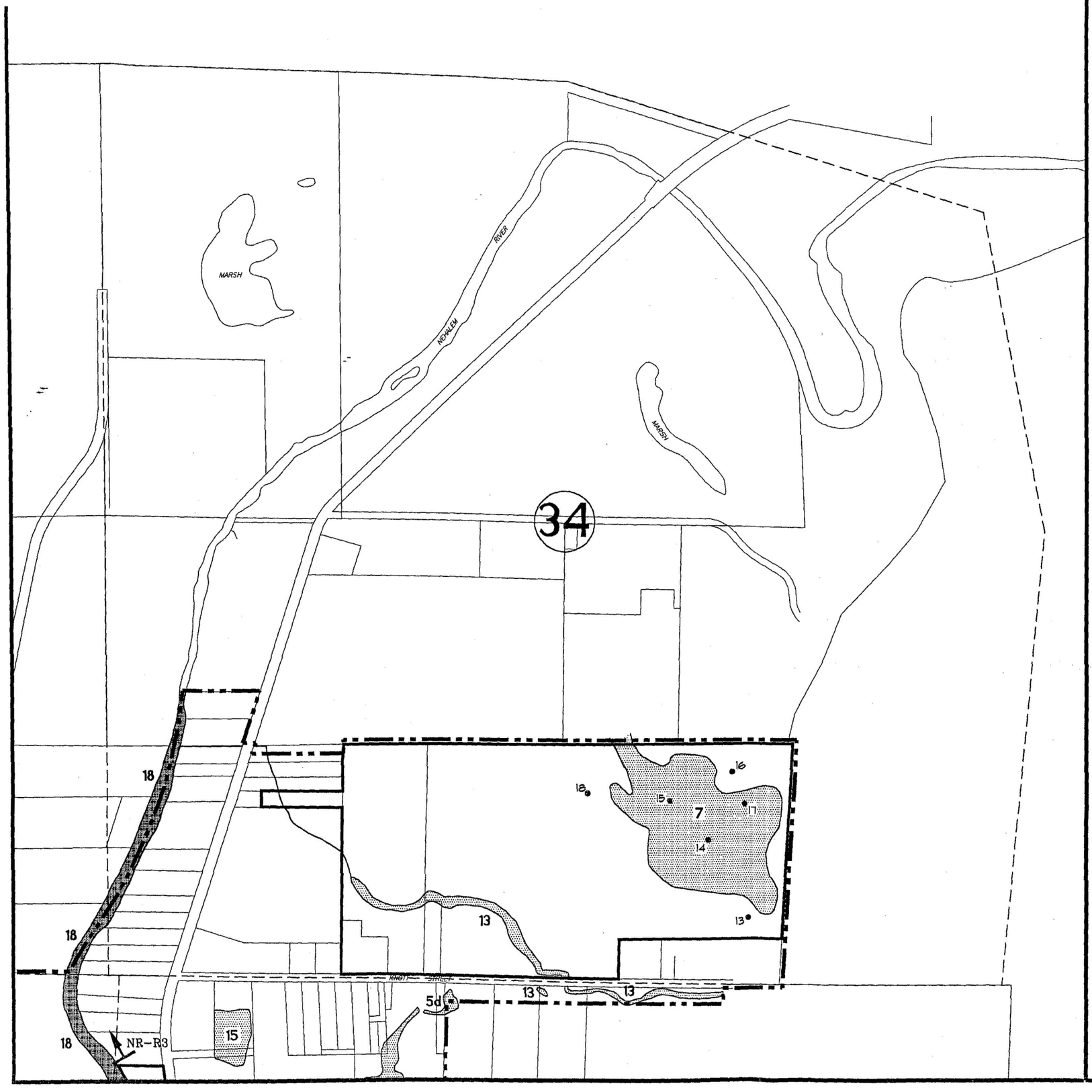
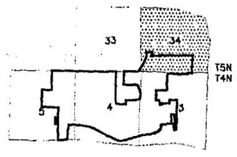


T 5N R 4W Section 34

CITY OF VERNONIA LOCAL WETLAND INVENTORY

LEGEND

- Urban Growth Boundary
- Wetland
- 16 Wetland label
- RC-L2 Riparian label
- 23 Sample site
- Wetland (DSL DET)
- DSL DET #97-0569 DSL DET #
- Wetland channel
- Perennial stream
- Onsite mapping
- Section lines



Wetland acreage

1 acre
1/2 acre
1/10th acre

NORTH

0 400 800
FEET

JUNE 2000

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LEGEND

LI	Light Industrial
GC	General Commercial
GR	General Residential
LDR	Low Density Residential
R	Residential
R-10	Residential
RR-5	Rural Residential
PR	Public Recreation
CS-U	County Services - Utility
CS-I	Cemetery
FA-19	Farm-Forest
PA-38	Primary Agriculture
PF-76	Primary Forest

Urban Growth Boundary

Urban Growth Boundary

Urban Growth Boundary

Base map from Tetra Tech / KCM, Inc., 1999

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NORTH

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Urban Growth Boundary, zoning, and comprehensive plan designations of Vernonia, Oregon.

FIGURE 1

SHAPIRO & ASSOCIATES, INC.