

CITY OF VADER

LEWIS COUNTY

WASHINGTON

SHORELINE INVENTORY AND CHARACTERIZATION REPORT



ECOLOGY GRANT G1200046

G&O #11253

OCTOBER 2014



Gray & Osborne, Inc.

CONSULTING ENGINEERS

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CHAPTER 1

INTRODUCTION

BACKGROUND

The City of Vader (City) obtained a grant (G1200046) from the Washington State Department of Ecology (Ecology) to conduct a comprehensive Shoreline Master Program (SMP) update. The 2003 Washington State legislature established a schedule (see RCW 90.58.080) for all Washington State cities and counties to update their local SMPs consistent with the Shoreline Management Act (SMA), Revised Code of Washington (RCW) 90.58 and the Washington Administrative Code (WAC) 173-26. The State guidelines establish general procedures, goals, and standards that are tailored by each jurisdiction as they amend their individual SMPs. This inventory was conducted in accordance with the Shoreline Master Program Guidelines (Guidelines, Chapter 173-26 WAC) and the project scope of work promulgated by Ecology, and includes all shoreline and associated wetland areas within the current City limits, to include the McMurpy Park property located adjacent to the northwestern quarter of the City. This property is owned by the City and is planned for annexation into the City in the near future. Under these Guidelines the City must identify and assemble the most current, accurate and complete scientific and technical information available that is applicable to the City's shorelines. This shoreline inventory and analysis will describe existing conditions and characterize ecological functions in the shoreline jurisdiction. This will serve as a baseline against which the impacts of future development action within the shoreline jurisdiction will be measured. The Guidelines require that the City demonstrate that its updated SMP yields "no net loss" in shoreline ecological functions relative to the baseline due to its implementation.

The first step in the process was a scoping task that identified relevant inventory data and information and preparing a public participation plan that ensures information, procedures and regulations would be developed through a public process. The second step is this Shoreline Inventory and Characterization Report. The inventory and characterization of the shoreline lead to a better understanding of the relationship between shoreline process and functions of the built environment. The resulting report provides a basis for creating the City's SMP goals, policies and regulations.

Collected information was supplemented with other resources such as City documents, scientific literature, personal communications, aerial photographs, internet data and a physical assessment of the City's shoreline.

SHORELINE JURISDICTION

As defined by the Shoreline Management Act of 1971, shorelines include certain waters of the state plus their associated “shorelands.” At a minimum, the waterbodies designated as shorelines of the state are streams whose mean annual flow is 20 cubic feet per seconds(cfs) or greater, lakes whose area is greater than 20 acres, and all marine waters. Shorelands are defined as:

“those lands extending landward for 200 feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward 200 feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter...Any county or city may determine that portion of a one-hundred-year floodplain to be included in its master program as long as portion includes, as a minimum, the floodway and the adjacent land extending landward two hundred feet therefrom...Any city or county may also include in its master program land necessary for buffers for critical areas (RCW 90.58.030)”

The entirety of Olequa Creek within City limits and the urban growth area (UGA) exceeds the minimal flow requirement of 20 cfs mean annual flow. Stillwater Creek, located in the City’s UGA but outside of City limits, also meets these criteria. The City is only planning for shorelines located within City limits and on the McMurphy Park property which limits this report to Olequa Creek shorelines. Figures 1, 1A and 2 show the method and information used to develop the proposed shoreline area. These figures are located in the front of map folio in appendix B of this report.

Figure 1 illustrates the location of the 200-foot buffer from the ordinary high water (OHW) line, the current effective FEMA floodway (1979) and the preliminary FEMA floodway (2010). Figure 1A illustrates the location of a 200-foot buffer from the 1980 FEMA floodway. The location of the 100-year FEMA floodplain (1979) and adjacent wetlands are also included on Figure 1A.

Figure 2 illustrates the proposed shoreline jurisdiction area which includes properties that intersect the 200-foot floodway buffer, the 200-foot OHW buffer and the 100-year floodplain. These properties will be the basis of evaluation for the proposed shoreline jurisdiction and characterized in Chapter 3 of this report.

No other waterbodies within the City were identified as meeting the definition of a shoreline. The proposed shoreline jurisdiction for this initial characterization is also shown on Map 1 of the map folio in Appendix B.

STUDY AREA

The City of Vader was incorporated in 1906 and lies just west of the Cowlitz River. The City is about 5 miles west of Interstate 5, with Highway 506 running east and west through the City. The City consists of an area of approximately 589 acres and has a current population of 625 residents. Established originally as Little Falls in June of 1874 the town saw its hey day between 1906 and 1912 when the Little Falls Clay Company and Stillwater Logging Company were the main employers. During this time the town had four hotels, an opera house, hospital, many stores and five saloons. Stillwater Logging Company shut down in 1914 and the Little Falls Clay Company burned to the ground shortly after that. The Great Depression added the final blow with the town featured in a book titled Ghost Towns of the West in 1970. Vader has been slowly growing since the 1970s, primarily as a bedroom community to the larger cities to the north and south.

The goals outlined and adopted in the City's 2008 Parks and Recreation Master Plan are consistent with the SMP goals and the Growth Management act goal to: ***“encourage the retention of open space and development of recreational opportunities, conserve fish and wildlife habitat, increase access to natural resource lands and water, and develop parks” {36.70.A.020(9)}.***

CLIMATE AND PRECIPITATION

The Vader area has a mild climate, which is primarily due to the moderating influence of the Pacific Ocean. The climate of the City of Vader is typical of that of the Pacific Northwest region between the Cascade Mountains and the Pacific Ocean. Winters are wet and mild and summers are relatively warm and dry. The mean annual temperatures range from 41 degrees to 61 degrees F, with a minimum day temperature of 1 degrees F and a maximum day temperature of 96° F. From June to September, temperatures typically range from 70 degrees to 80 degrees F. Winter temperatures typically range from 35 degrees to 45 degrees with below freezing temperatures occurring occasionally from late November to early February.

The City receives an average of 81 inches of rain per year, with almost 50 percent occurring in the period of November through January. December is historically the wettest month, and July the driest.

SOILS AND GEOLOGY

The underlying geology of West-Central Lewis County is predominantly sedimentary and igneous rock approximately 10,000-feet deep. The area has also been subject to recent flood deposits of gravel, sand, and silt along Olequa Creek and its tributaries. Older landslide deposits exist east of the City along the slopes that form the eastside of the Grand Prairie. These landslide deposits extend up the Lacamas Creek valley, within Drews Prairie, near the City's water supply source from the Cowlitz River.

There are primarily three soil series in the City of Vader area. These soils include mostly Olequa with smaller areas of Lacamas and Klaber.

OLEQUA SOIL SERIES

Olequa soils are on high stream and river terraces, and were formed in old alluvium of mixed origin. Slopes are generally level or undulating ranging from 0 to 30 percent. Due to its capacity to support Douglas-Fir and Red Alder, this series is used mainly for timber production, wildlife habitat, and watershed recovery. The surface layer of the Olequa series is generally covered by a thick layer of decomposed organic matter about 2-inches thick. The first 10 inches of soil is very dark brown and dark brown silt loam. The subsoil consists of 10 inches of dark brown silt loam, and the lower 31 inches is dark brown silt clay and dark yellowish brown silt loam. The substratum is mottled, dark brown silt loam to 60 inches. Permeability of Olequa soils is moderately slow, with a high level of available water capacity. Runoff is slow and the potential for erosion is slight. The shrink-swell potential and slow permeability is the main limitations for building homesites on this type of soil.

LACAMAS SOIL SERIES

Lacamas soils are very deep and poorly drained and are found on broad plains, terraces, and bottom lands. The soils are generally nearly level or concave and slopes range between 0 to 8 percent. Lacamas soils were formed in a mixed material of glaciofluvial or sedimentary origin. The native vegetation consists of deciduous trees and a few conifers. The upper 7 inches of surface soil is very dark grayish brown silt loam and the lower level is mottled, dark grayish brown and grayish brown silt loam about 10-inches thick. The upper portion of the subsoil consists of approximately 19 inches of mottled olive gray silty clay, with 60 inches of mottled olive gray clay in the lower section. Lacamas soils have very slow permeability and available water capacity is moderately high. Runoff is slow and erosion is slight. The main limitations for homesites are the perched water table and shrink-swell potential.

KLABER SOIL SERIES

Klaber soils are very deep, poorly drained and are found in shallow depressional areas and channels on terraces and bottom lands. The upper soil layer generally consists of about 3-inches mottled very dark grayish brown silt loam over about 5 inches of mottled dark gray silt loam. Permeability is slow and the available water capacity is high. Water is perched above the subsoil in winter and early spring. Similar to the Lacamas series, homesite development is limited by the perched water table and shrink-swell potential.

TOPOGRAPHY

The City of Vader is located on a gently rolling hill that slopes from the northeast to the southwest. Steeper slopes generally vary from 15 to 30 percent and are located in the northeastern part of the City and in the south along Olequa Creek. A small percentage of the slopes in these areas exceed 30 percent. Geologically hazardous areas are shown on map 13 in appendix B of this report and are defined in section 6.044 of the City of Vader Development Regulations, Ordinance No. 97-08, amended by Ordinance No. 2005-06.

The City's wastewater lagoon system is sited above Olequa Creek where the creek flows through a ravine at the south edge of the City. The outfall discharges at a location at the bottom of the ravine.

SURFACE WATERS AND DRAINAGE BASINS

Lakes and streams are considered as sensitive areas due to the variety of plants and animals that they support. The primary surface water features within or near the City of Vader are Olequa Creek, Stillwater Creek, McMurphy Creek, and the Cowlitz River. Olequa Creek flows from the north to the south adjacent to the western City limits and the Cowlitz River flows to the east of the UGA. Stillwater Creek flows from the west and into Olequa Creek along the southwest city limits. McMurphy Creek is a small tributary that flows from the northeast of Vader and enters Olequa Creek in the southwest. Olequa Creek is a tributary to the Cowlitz River.

FISH AND WILDLIFE HABITAT

Fish and wildlife habitat is defined as areas essential for maintaining specifically listed species in suitable habitats. This definition was provided in "Fish and Wildlife Habitat Critical Area" section of WAC 365-190-080(5). The City of Vader Development Regulations discusses both Fish and Wildlife Conservation areas and riparian vegetation buffers in section 6 (Special districts). Section 6.045.3 establishes a riparian vegetation buffer 250-foot wide for type 1 and 2 streams and a 200-foot-wide buffer for type 3 streams (5- to 20-foot wide).

VEGETATION

The dominant tree species in the Vader area includes conifers such as Douglas Fir, Western Red Cedar, and Western Hemlock. Pacific Red Alder, Big Leaf Maple, and other deciduous trees make up a significant portion of the second and third growth forests along with native conifer species. Dense brush grows on both unstable and stable areas and consists predominantly of blackberries, huckleberries, salal, and various fern species. The dense forest and brush cover mediates runoff and provides for uptake of water. On individual residential lots, the vegetation varies from dense forest on larger lots to grassed lawns and landscaping with shrubs and ornamental trees on smaller lots.



(Looking north from Annonen Road bridge)

CHAPTER 2

CURRENT REGULATORY OVERVIEW

CITY OF VADER

The Shoreline Management Act of 1971 brought about many changes for local jurisdictions, including the City of Vader. The legislative findings and policy intent of SMA states:

“There is, therefore, a clear and urgent demand for a planned, rational, and concerted effort, jointly performed by federal, state, and local governments, to prevent the inherent harm in an uncoordinated and piecemeal development of the state’s shorelines (RCW 90.58.020).”

While protecting shoreline resources by regulating development, the SMA is also intended to provide balance by encouraging water-dependent or water-oriented uses while also conserving or enhancing shoreline ecological functions and values. The SMP will be based on state guidelines, but tailored to the specific conditions and needs of individual communities.

The Lewis County Shoreline Master Program (SMP) and Shoreline Management Regulations were adopted in 1974 and the City of Vader adopted its SMP on October 1977 under ordinance 226. A revision to the Vader SMP was prepared in June of 2001 and adopted under ordinance 2002-10. Under the 2001 SMP, the Olequa Creek shoreline, 200 feet landward of the OHWM, was divided into four designations, (1) Urban Commercial Environment, (2) Urban Industrial Environment, (3) Urban Mixed Use Environment and the (4) Historic Environment. The first two designations gave priority to water-dependant, water-related and water-enjoyment uses. The third (Urban Mixed Use Environment) designation stated the purpose of this environment is to allow a mix of water-oriented and non-water-oriented uses which would ensure optimum utilization of the shoreline in this area. The forth (Historic Environment) designation stated the purpose of this environment is to ensure optimum utilization of the shorelines while preserving structures of historic significance along the waterfront, allowing as much public access as practical in conjunction with a variety of water-enjoyment uses, and ensuring redevelopment is accomplished in such a way as to minimize any adverse effect on the aquatic and historic environment.

The City’s Comprehensive Plan (latest revision done in 2005) also states: “the floodplain areas along McMurphy Creek and the riparian areas along Olequa Creek and associated tributaries are protected by the City floodplain and Critical Areas Ordinances and serve as open space corridors and habitat areas.”

Most of the uses, developments, and activities regulated under City ordinances are also subject to the International Building Code, and various other provisions of city, county, state and federal laws. Any applicant must comply with all applicable laws prior to commencing any use, development, or activity. The City will ensure consistency between the SMP and the City codes, plans and programs by reviewing each for consistency during periodic updates as required by State statute.

STATE AND FEDERAL REGULATIONS

State and federal regulations most pertinent to development in the City's shorelines include the Federal Endangered Species Act, the Federal Clean Water Act, the state Shoreline Management Act, and the State Hydraulic Code. Other relevant Federal laws include the National Environmental Policy Act, Anadromous Fish Conservation Act, Clean Air Act, and the Migratory Bird Treaty Act. State laws which address shoreline issues include the Growth Management Act, State Environmental Policy Act, tribal agreements and case law, Watershed Planning Act, Water Resources Act, Salmon Recovery Act, and the Water Quality Protection Act.

A variety of agencies (e.g., U.S. Army Corps of Engineers, National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington Department of Ecology, Washington Department of Fish and Wildlife) are involved in implementing these regulations, but review by these agencies of shoreline development in most cases would be triggered by in- or over-water work, discharges of fill or pollutants into the water, or substantial land clearing. Depending on the nature of the proposed development, State and Federal regulations can play an important role in the design and implementation of a shoreline project, ensuring that impacts to shoreline functions and values are avoided, minimized and/or mitigated.

With the comprehensive SMP update, the City will strive to ensure that Vader's SMP regulations are consistent with other state and federal requirements and explore ways to streamline the shoreline permitting process. A summary of some of the key regulations and agency responsibilities follows.

SECTION 404

Section 404 of the Federal Clean Water Act provides the Corps, under the oversight of the U. S. Environmental Protection Agency, with authority to regulate "discharge of dredged or fill material into waters of the United States, including wetlands" (http://www.epa.gov/owow/wetlands/pdf/reg_authority_pr.pdf). The extent of the Corps' authority and the definition of fill have been the subject of considerable legal activity. As applicable to the City of Vader's shoreline jurisdiction, however, it generally means that the Corps must review and approve most activities in streams, rivers or wetlands. These activities may include river, or wetland fill, river and wetland restoration, and culvert installation or replacement, among others. Similar to SEPA requirements, the Corps is interested in avoidance, minimization, restoration, and compensation of impacts.

FEDERAL ENDANGERED SPECIES ACT (ESA)

Section 9 of the ESA prohibits “take” of listed species. Take has been defined in Section 3 as: “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” The take prohibitions of the ESA apply to everyone, so any action of the City that results in a take of listed fish or wildlife would be a violation of the ESA and exposes the City to risk of lawsuit. Per Section 7 of the ESA, activities with potential to affect federally listed or proposed species and that either require Federal approval, receive Federal funding, or occur on Federal land must be reviewed by the National Marine Fisheries Service (NOAA Fisheries) and/or U.S. Fish and Wildlife Service (USFWS) via a process called “consultation.” Currently, Olequa Creek does not have federally listed species, but does have a known presence of species that are listed in the State of Washington Department of Fish and Wildlife Priority Species Habitat Report (PHS). Chinook Salmon (*Oncorhynchus tshawytscha*), Steelhead (*O. mykiss*), Coho Salmon (*O. kisutch*), Chum Salmon (*O. keta*), and Coast Resident Cutthroat Trout (*O. clarki*) are all PHS listed species that are present in Olequa Creek.

SECTION 401 WATER QUALITY CERTIFICATION

Section 401 of the Federal Clean Water Act allows States to review, condition, and approve or deny certain Federal permitted actions that result in discharges to State waters, including wetlands. In Washington, the Department of Ecology is the state agency responsible for conducting that review, with their primary review criteria of ensuring that state water quality standards are met. Actions within streams or wetlands within the shoreline zone that require a Section 404 permit (see above), will also need to be reviewed by Ecology.

HYDRAULIC CODE

Chapter 77.55 RCW (the Hydraulic Code) gives the Washington Department of Fish and Wildlife (WDFW) the authority to review, condition, and approve or deny “any construction activity that will use, divert, obstruct, or change the bed or flow of state waters.” As applicable to the City of Vader’s shoreline jurisdiction, however, it generally means the WDFW must review and approve most activities in or over Olequa Creek. These activities may include creek alteration/bank stabilization, bridge repair/expansion, and culvert installation or replacement, among others. WDFW can condition projects to avoid, minimize, restore, and compensate adverse impacts.



(Looking south from SR 506 bridge)

CHAPTER 3

CITY OF VADER SHORELINE INVENTORY

INTRODUCTION

Development of a shoreline inventory is intended to record the existing or baseline conditions upon which development of shoreline master program provisions will be examined to ensure the adopted regulations provide no net loss of shoreline ecological functions. At a minimum, local jurisdictions shall gather inventory elements listed in the Guidelines, to the extent information is relevant and readily available. Table 3-1 lists those relevant inventory elements in which data is available for the City's shoreline. Areas of data gaps are listed in the following section. The table also describes the information collected for each of the required inventory elements. Figures depicting the various inventory pieces listed in Table 3-1 are provided in Appendix B (Maps 1 – 16).

TABLE 3-1

Shoreline Inventory Elements and Information Sources

Inventory Element	Information Gathered	Data Source	Appendix B Map
Proposed Shoreline	Buffers/boundaries	County/City/FEMA	Map 1
Land Use Patterns	Current Zoning	County GIS	Map 2
Impervious Surfaces	Impervious Surfaces	Ecology	Map 3
Vegetation	Vegetation type and land cover	Ecology	Map 4
Public Access Areas	Parks and open spaces	County	Map 5
Soils	Soil types	USDA NRCS	Map 6
Wetlands	National and County wetland inventories	WDFW	Map 7
Floodplains	Floodplains	County/FEMA	Map 8
Priority Habitats and Species (PHS)	WDFW PHS	WDFW	Map 9
Water Quality Impairment	305(b) waters and regulated sites	Ecology	Map 10
Transportation	Highways, streets	County	Map 11
Utilities	Water and sewer mains	City	Map 12
Critical Areas	Streams, geohazards, wetlands	County/City	Map 13

TABLE 3-1 – (continued)**Shoreline Inventory Elements and Information Sources**

Inventory Element	Information Gathered	Data Source	Appendix B Map
Channel Migration Zones	See text below in Data Gaps section	See text below in Data Gaps section	Not Mapped
Degraded areas/potential restoration sites	Site reconnaissance	Field inventory	Not mapped
Toxic Sites or Cleanup Areas	Permitted Sites	Ecology	Map 14
Arch. & Historical Resources	Historic Register Properties	Washington Information System for Architectural and Archaeological Records Data	Map 15
Overwater Structures	Bridges	County	Map 16

DATA GAPS

Information was not located or incomplete for the following parameters:

- Channel Migration

Based on review of aerial photos and site visits, there are some areas that minor channel migration is likely occurring and other areas where migration is impeded by bedrock in the creek bed, the SR 506 bridge and the railroad bridge. This report assumes channel migration will be minimal through the City's shoreline jurisdiction.

SHORELINE CONDITIONS

The City of Vader's shoreline includes the easterly and northerly bank of Olequa Creek as it flows through the west and south corporate limits in a southerly and southeasterly direction. There are 19 properties which contain shoreline area. Eight of these properties have been developed with single family homes with three being originally constructed prior to 1911. The five other developed properties were constructed in the last two decades with the newest listed as a 2007 installation. With the exception of one property with a machine shed listed as an improvement, the remaining six properties are listed as undeveloped.

All single family homes are located north of SR 506 and have a 150 foot or greater separation from the OHW of the creek. There is a mini storage facility, restaurant and convenience store on the north side of SR 506. Some of the mini storage buildings are

within the shoreline area but the restaurant and convenience store are approximately 300 feet from the OHWM. A large machine shed on the south side of SR 506 is located approximately 50 feet from the OHW line.

Table 3-2 contains inventory elements that expand upon those listed in table 3-1 by providing specific detail and data for the shoreline area.

TABLE 3-2**Olequa Creek - Shoreline Inventory Elements**

Inventory Element	
Shoreline Dimensions	6,900 feet of shoreline frontage 43 acres in shoreline jurisdiction (includes public ROW)
Zoning/Parcels	Four parcels zoned Industrial (42% of the 43 acres), two parcels zoned commercial/mixed use (6%), two parcels zoned commercial services (8%, City owned) with remaining 11 parcels in residential (44%)
Potential for Development	Potential for industrial development and a City Park on five parcels south of SR 506 and some additional residential development north of SR 506.
Undeveloped Land	Approximately 18 acres privately owned and 1.5 acres publically owned (excludes public ROW)
Setbacks	200 feet required by the current SMP.
Utilities	Water and sewer provided by City for most properties.
Impervious Surface	4%
Terrestrial Vegetation	Low intensity/developed 8% Grassland 10% Mixed Forest 44% Deciduous Forest 15% Palustrine forested wetland 2% Palustrine emergent wetland 17% Pasture and hay 4%
Overwater Cover	SR 506 bridge, Railroad Bridge
Public Access	McMurphy Park, property for future Park Street Park
Critical Areas	Floodplain 33% Severe aquifer recharge area 66% Moderate aquifer recharge area 20% Slight aquifer recharge area 14% Wetlands 19%
Channel Migration Zones	Minor channel migration zones are present in this unit.

TABLE 3-2 – (continued)**Olequa Creek -Shoreline Inventory Elements**

Inventory Element	
PHS Listed Species	<ul style="list-style-type: none"> • Chinook Salmon • Chum Salmon • Coast Resident Cutthroat • Coho Salmon • Steelhead • Northern spotted Owl
Impaired Waters 303(d)/305(b)	Category 2-Fecal coliform north of SR 506
Ecology Permitted Sites	None
Historic Register Properties	None

OPPORTUNITY AREAS

Ecology's *Shoreline Master Program Guidelines* (173-26 WAC) include the following definition:

“Restore,” “Restoration” or “ecological restoration” means the reestablishment or upgrading of impaired ecological shoreline processes or functions. This may be accomplished through measures including but not limited to re-vegetation, removal of intrusive shoreline structures and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the shoreline area to aboriginal or pre-European settlement conditions.

Consistent with Ecology's definition, use of the word “restore,” or any variations, in this document is not intended to encompass actions that re-establish historic conditions. Instead, it encompasses a suite of strategies that can be approximately delineated into four categories: creation (of a new resource), restoration (of a converted or substantially degraded resource), enhancement (of an existing degraded resource), and protection (of an existing high-quality resource).

There is a critical distinction between restoration and mitigation. Mitigation will require applicants whose shoreline proposals will have adverse impacts to complete actions to mitigate those impacts or provide compensation in other ways for losses of ecological function. Impacted wetland buffers are required to be restored under the City's Wetlands Protection regulations. The City can encourage applicants to implement restoration

actions that will improve ecological functions relative to the applicant's pre-project condition. As stated in WAC 173-26-201(2)(c):

It is intended that local government, through the master program, along with other regulatory and nonregulatory programs, contribute to restoration by planning for and fostering restoration and that such restoration occur through a combination of public and private programs and actions. Local government should identify restoration opportunities through the shoreline inventory process and authorize, coordinate and facilitate appropriate publicly and privately initiated restoration projects within their master programs. The goal of this effort is master programs which include planning elements that, when implemented, serve to improve the overall condition of habitat and resources within the shoreline area of each city and county.”

The City currently owns three parcels adjacent to the bank of Olequa Creek, the wastewater treatment plant property, the McMurphy Park property and the property planned for the future Park Street Park in the southern portion of town. McMurphy Park, located in the northwest corner of town contains over 10 acres of property fronting the east bank of Olequa Creek and is in process of being annexed into the City. Both the McMurphy Park property (13.43 acres) and the wastewater treatment plant property (7.58 acres) could be sites for additional plantings and restoration. The Park Street Park site is undeveloped and provides protection of upland areas, helping to maintain ecological functions.



(Shoreline access at McMurphy Park)

CHAPTER 4

ANALYSIS OF ECOLOGICAL FUNCTIONS

Ecosystem-wide processes are the suite of naturally occurring physical and geologic processes of erosion, transport, and deposition; and specific chemical processes that shape landforms within a specific shoreline ecosystem and determine both the types of habitat and associated ecological functions (WAC 173-26-020). Ecosystem processes are characterized by physical constraints described previously including variables such as precipitation, climate, geology, topography, and soils. Additionally, ecosystem processes are characterized by variables such as land use and land cover including dominant vegetation community, impervious surface, and development or other disturbances. Ecosystem processes are dependent on natural and anthropogenic controlling factors or ecosystem stressors. In a properly functioning ecosystem, the controlling factors occur within the natural range under which the ecosystem evolved, and the ecosystem in turn provides the suite of naturally occurring functions.

Ecosystem processes and associated functions can be influenced or impaired by stressors including the following:

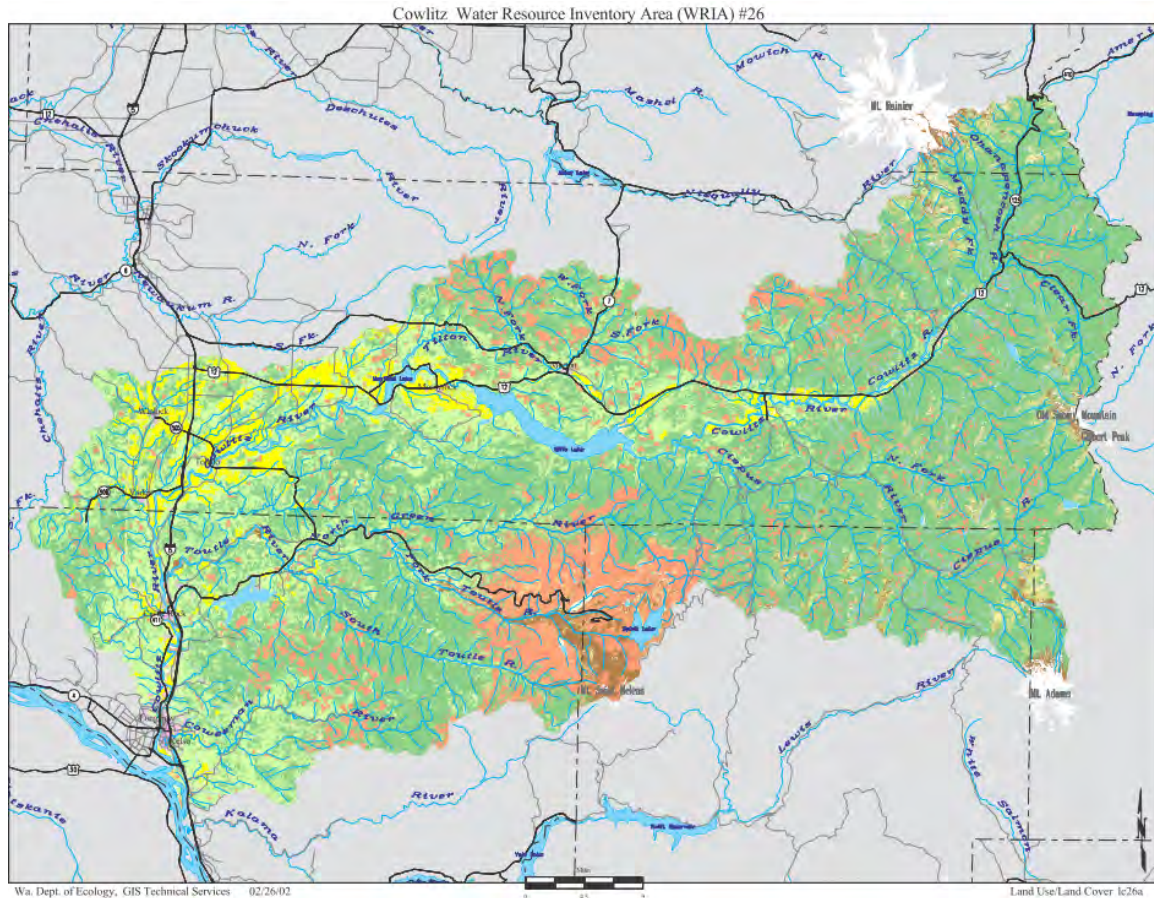
- Ground clearing or excavation
- Shoreline filling
- Channel or bank alteration (e.g., armoring)
- Impervious surfaces
- In-water structures
- Point source pollution
- Non-point source pollution
- Riparian vegetation removal
- Invasive species
- Freshwater sources, withdrawals and flow controls

Ecological functions mean the work performed or role played by physical, chemical, and biological processes that contribute to the maintenance of the aquatic and terrestrial environments that constitute the shoreline's natural ecosystem (WAC 172-26-20).

GEOGRAPHY AND ECOSYSTEM

The City of Vader is located in Lewis County and contains freshwater shorelines associated with Washington State's Water Resource Inventory Area (WRIA) 26-Cowlitz Watershed. The Cowlitz Watershed, includes the Cowlitz River and numerous tributary creeks and streams, several of which originate in the Cascade Mountains and Willapa Hills. The annual precipitation in the Cowlitz Watershed ranges from 40 inches in the lower Cowlitz Valley to over 120 inches in the Cascade Mountains. Most of the

precipitation falls during the winter months when water demands are lowest. During the summer, the snowpack is gone, there is little rain and naturally low stream flows are dependent on groundwater inflow.



This watershed is one of the most intensely farmed basins in western Washington, and much of the water in this watershed is already spoken for. Additionally, Tacoma Power has senior water rights to maintain reservoir levels in Riffe and Mayfield lakes. There is limited water for new uses, especially given that river levels need to be maintained to ensure adequate water quality and fish migration.

The Cowlitz River flows from its origin at Cowlitz Park at the south side of Mount Rainier and converges with Ohanapecoh River southwest of Grant Purcell Falls in the Gifford Pinchot National Forest. From this point the Cowlitz River flows through the Town of Packwood and along Highway 12 in a southwesterly and westerly direction into Riffe Lake, Mayfield Lake and through Mayfield Dam. After flowing by the Cowlitz Salmon and Trout Hatcheries the Cowlitz flows through the City of Toledo then turns south through Longview, to its discharge into the Columbia River. Olequa Creek discharges into the Cowlitz River about 2 miles south of the City of Vader, near the intersection of Olequa Hill Road and the West Side Highway.

The City of Vader's shoreline along Olequa Creek contains approximately 43 acres. The shoreline and adjacent areas support habitat for Elk and Northern Spotted Owl, along with Chinook, Coho and Chum Salmon, Coastal Cutthroat Trout, and Steelhead which are all listed by the State on the WDFW Priority Habitats and Species Report.

LAND USE AND CURRENT SHORELINE CONDITIONS

The primary land use in Vader is single-family residential, with major areas of land within the City limits and the UGA undeveloped. The majority of the existing City and the UGA is zoned single-family residential. The areas zoned as community service consist of the old school (7th and D Streets), the water treatment plant (SR 506 and South Military Road), and the wastewater treatment plant (south end of A street). The remaining portion of the community service areas consists of parks. The commercial district contains nine blocks on both sides of SR 506 between the railroad tracks to the west and C Street to the east. Properties zoned industrial are located between Olequa Creek and the railroad tracks, south of SR 506.

ANALYSIS OF ECOLOGICAL FUNCTIONS

Ecological processes and functions of the City of Vader's shoreline area is summarized in Table 4-1. These tables are organized around Ecology's list of processes and functions for freshwater streams. The list includes evaluation of four major categories for streams: (1) hydrologic; (2) vegetation; (3) hyporheic; and (4) habitat. These are further broken down into the following functions which are in turn used to evaluate performance:

HYDROLOGIC FUNCTIONS

- Storing water and sediment;
- Transport of water and sediment;
- Attenuating flow energy;
- Developing pools, riffles, and gravel bars;
- Removing excess nutrients and toxic compounds; and
- Recruitment of LWD and other organic material.

VEGETATIVE FUNCTIONS

- Temperature regulation;
- Water quality improvement;
- Slowing riverbank erosion; bank stabilization;
- Attenuating of flow energy;
- Sediment removal; and
- Provision of LWD and organic matter.

HYPORHEIC FUNCTIONS

- Removing excess nutrients and toxic compounds;
- Water storage and maintenance of base flows;
- Support of vegetation; and
- Sediment storage.

HABITAT FUNCTIONS

- Physical space and conditions for life history;
- Food production and delivery.

Assessment of each function is based upon both quantitative data results derived from the inventory information described in Chapter 3 and a qualitative assessment based on aerial photography, field inventory; and existing assessment information. In the ensuing table, the shoreline has been given an overall “rating” for ecological functions based on the available and relevant inventory information and the corresponding quantitative and qualitative evaluation. Rating was completed using a “low” to “high” function scale. The level categories are:

- Low;
- Low/Moderate;
- Moderate;
- Moderate/High; and
- High.

CITY OF VADER SHORELINE ASSESSMENT – OLEQUA CREEK

This assessment includes the east and south bank of that portion of Olequa Creek located within the City of Vader corporate limits and the McMurphy Park property. This unit contains over 6,900 feet of shoreline.

Land use is currently residential with a few commercial, industrial and publicly owned parcels. The total shoreline area for this unit is 43 acres with approximately 18 acres of privately owned property that has not been developed.

According to WRIA 26 Salmon and steelhead Habitat limiting Factors final report (2000), the lower few miles of Olequa Creek is incised into mudstone and has some areas of rip rap. Bank stability is good in Olequa Creek from the mouth of Stillwater Creek. Above this reach, bank stability is fair. Banks are high and consist of hardpan, alternating with pockets of gravel. Stream surveys in the 1930s estimate pool habitat in Olequa Creek to be 20 pools per mile. Pool frequency for streams of this size is considered to be good at 26 pools per mile.

The naturally-spawning Cowlitz River winter steelhead are a mixed stock of wild production. The stock is considered depressed based on chronically low returns. Most of the natural spawning takes place in Olequa, Ostrander, Salmon, Arkansas, Delameter, and Monahan creeks. The King Creek watershed (tributary to Olequa Creek) has erosion problems that could be contributing fine sediments to the stream.

One method of measuring flow in streams in Washington State is the toe-width method. The toe width is the distance from the toe of one streambed to the toe of the other streambed across a stream channel. This width of the stream is used in an equation to derive the flow needed for spawning and rearing salmon and steelhead. In comparing optimum toe width flows with spot measurements taken in the late summer and fall of 1998, Olequa Creek had flow levels far below optimal for spawning and rearing conditions. By November, the creek still had too little water to be anywhere near optimal flows for spawning but was approaching optimal levels for juvenile salmonid and steelhead rearing.

Olequa Creek was sampled by the Washington Department of Ecology in 1995 as part of a state-wide, pesticide-sampling program. Several small tributaries flow through or near Christmas-tree farms, which is a the primary commercially grown crop in the area and the most likely source of pesticide contamination. Samples were collected at the bridge on Highway 506 in Vader, upstream of the Stillwater Creek confluence. Atrazine was detected in the April, June, and October samples. The June 0.30 parts per billion level was the highest concentration yet recorded for Atrazine by the Washington State Pesticide Monitoring Program. Six herbicides were detected at low levels in the October samples. Four of these are commonly used for forest management, but Atrazine is the only one registered for use on Christmas trees in Washington. Atrazine was the only pesticide detected more than once.

TABLE 4-1

Function Summary of City of Vader/Olequa Creek Shoreline Assessment

Shoreline Processes and Functions	Alterations and Assessment of Functions
Hydrologic	
Storage of water and sediment	MODERATE/LOW: Well vegetated banks contribute to the creek's ability to store water and sediment but the lack of adjacent wetlands, areas of bedrock and areas of channel incision reduce the ability to store water and sediment during high flow events.
Transport of water and sediment	MODERATE/HIGH: The ability of this unit to transport sediment and water is generally unimpaired.

TABLE 4-1 – (continued)**Function Summary of City of Vader/Olequa Creek Shoreline Assessment**

Shoreline Processes and Functions	Alterations and Assessment of Functions
Attenuating flow energy	MODERATE: Low to medium soft banks in some areas and LWD contribute to the creek's ability to attenuate flow energy.
Developing pools, riffles, and gravel bars	MODERATE/HIGH: The flat topography and forestation of this reach promotes riffle formation and gravel bars, LWD locations have developed some areas containing pools, riffles and gravel point bars.
Removing excess nutrients and toxic compounds	MODERATE/LOW: The vegetation within this reach provides some biofiltration function but the areas of bedrock channel and lack of wetlands reduce these functions in other areas.
Recruitment and transport of LWD and other organic material	MODERATE/HIGH: This area has adequate forestation to provide significant amounts of LWD.
Vegetation	
Temperature regulation	MODERATE/HIGH: There is significant shading provided by the mixed forest sections of this unit.
Water quality improvement	MODERATE: This area has a well-vegetated buffer that promotes water quality improvement but the lack of wetland areas and sections of bedrock creek bed limit effective biofiltration in some areas.
Slowing riverbank erosion; bank stabilization	MODERATE/HIGH: The vegetated buffer, flat topography and areas of mature forest communities helps stabilize soils and slow the rate of bank erosion.
Attenuation of flow energy	MODERATE/HIGH: Riparian vegetation and LWD provide energy attenuation during high flows.
Sediment removal	MODERATE: As stated above this area has a significant amount of riparian vegetation but the lack of adjacent wetlands and sections of bedrock in the creek bed does limit biofiltration and sediment removal.
Provision of LWD and organic matter	MODERATE/HIGH: This area has significant forestation than provides LWD and organic matter.

TABLE 4-1 – (continued)**Function Summary of City of Vader/Olequa Creek Shoreline Assessment**

Shoreline Processes and Functions	Alterations and Assessment of Functions
Hyporheic	
Remove excess nutrients and toxic compounds	MODERATE: Although soils in this area are generally fine grained and do not readily promote hyporheic flow; there are areas of gravel deposits. The well-vegetated buffer increases the potential for removal of excess nutrients and toxic compounds.
Water storage and maintenance of base flow	MODERATE: The soils in this unit contain some gravel deposits, creating a creekbed that provides storage in some locations and hyporheic flow.
Support of Vegetation	MODERATE: The hyporheic flows occurring in areas of this reach support riparian vegetation.
Sediment storage	MODERATE/LOW: The soils in this area are generally finer grained soil but do have some gravel deposits, however the lack of adjacent wetlands and some areas of bed rock decrease the potential for sediment storage.
Habitat	
Physical space and conditions for life history	<p>MODERATE: Habitat in this unit has been altered by residential development but still contains forested areas with the vegetative community adjacent to the shoreline largely intact. LWD and downed wood supplied by the wooded areas, together with the dense shoreline vegetation located in most buffer areas provide places for various wildlife species to find cover or suitable nesting and rearing sites.</p> <p>Late summer stream flow levels are below optimal for steelhead and salmon spawning and rearing conditions. By fall, flows are still below those optimal for spawning but approach optimal levels for juvenile salmonid and steelhead rearing.</p>
Food production and delivery	MODERATE/HIGH: Food production from upland areas primarily originates from seed and fruit bearing vegetation in the adjacent pastures and mixed forest areas. These sources provide food directly to terrestrial wildlife and promote insects and organic matter that provide nutrients to fish and other aquatic life.

SUMMARY

Accounting for the existing hydrologic, vegetative, hyporheic, and habitat conditions within this Assessment Unit, the overall shoreline ecological function is considered moderate.



(Looking north from SR 506 bridge)

CHAPTER 5

LAND USE ANALYSIS AND IMPLICATIONS

INTRODUCTION

Land use patterns are an important consideration in shoreline analysis to identify opportunities for “preferred uses,” especially water-dependent, water related and water enjoyment uses. Land uses adjacent to water can also be a determinate in assigning environmental designations to specific sections of the shoreline. An analysis of land use conditions is necessary to determine potential land use changes and their effect on the shorelines with respect to SMA objectives. Development regulations and comprehensive plan elements must be consistent with the SMA environmental designation provisions.

As part of SMA development, the shoreline is to be classified into specific shoreline environmental designations based on existing land use patterns, baseline inventory results, goals stipulated in the City’s Comprehensive Plan, and Ecology criteria. Ecology guidelines include six recommendations for shoreline for shoreline environment designations (listed below). However, each jurisdiction may use alternate or parallel environment designations, as appropriate, as long as they provide equal or better protection than the standard. The five new standard designations which could be applied to the City’s shoreline jurisdiction, and should be considered, have the following titles and characteristics:

ECOLOGY RECOMMENDATIONS

- Natural: “shoreline is ecologically intact...currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity;” “considered to represent ecosystems and geologic types that are of particular scientific and educational interest;” “unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety.”
- Urban Conservancy (UC): “suitable for water-related or water-enjoyment uses;” “open space, flood plain or other sensitive areas that should not be more intensively developed;” “potential for ecological restoration;” “retain important ecological functions, even though partially developed;” “have the potential for development that is compatible with ecological restoration.”
- High Intensity (HI): “shoreline areas within incorporated municipalities, urban growth areas, and industrial or commercial “rural areas of more intense development,” as described by RCW 36.70A.070 if they currently support high-intensity uses related to commerce, transportation or

navigation; or are suitable and planned for high-intensity water-oriented uses.”

- Shoreline Residential (SR): “shoreline areas inside urban growth areas, as defined in RCW 36.70A.110, incorporated municipalities, “rural areas of more intense development,” or “master planned resorts,” as described in RCW 36.70A.360, if they are predominantly single-family or multi-family residential development or are planned and platted for residential development.”
- Aquatic: “lands waterward of the ordinary high-water mark.”

Rural Conservancy is the sixth environment designation, and is not applicable in incorporated municipalities.

SHORELINE CONDITIONS

Vader shoreline areas are largely residential with a small component of commercial, a slightly larger component of industrial and two public parcel designations. This area is located along the westerly and southerly border of the City with some of the residential structures dating back to the early 1900s.

As discussed in Chapter 2, the City’s comprehensive plan states “the floodplains areas along McMurphy Creek and the riparian areas along Olequa Creek and associated tributaries are protected by the City floodplain and Critical Areas Ordinances and serve as open space corridors and habitat areas.” The City’s 2001 SMP defined the shoreline as 200 feet landward of the OHWM and either excludes or requires conditional use permits for development that has potential to impact the shoreline environment. The projected land use for the City of Vader shoreline includes residential, commercial and light industrial. Proceeding forward it will be increasingly more important to maintain current restrictions and provide a more detailed level of shoreline regulation in the SMP to promote SMA goals and minimize potential use conflicts.

Given the current conditions and the anticipated future land use, an environmental designation of Urban Conservancy would appear to be appropriate for the City’s shoreline.

CHAPTER 6

PUBLIC ACCESS ANALYSIS

EXISTING PUBLIC ACCESS

There are currently three publicly owned sites within the City's shoreline jurisdiction beyond the public road right-of-way of SR 506 that passes over the shoreline area. The first site includes two parcels of property totaling over 13 acres. This site, recently acquired by the City and named McMurphy Park, is accessed from Annomen Road and is located in the northwest corner of town. Although the larger of the two parcels that make up McMurphy Park has not yet been formally annexed to the City it is in process and provides over 10 acres of public park and direct access to the east bank of Olequa Creek on three sides of the property. The creek banks within this property are low and accessible and contain the picturesque section of creek that was the town's original namesake of "Little Falls."

The other two sites are located in the southern part of town. One is the City's wastewater treatment facility and contains over 7.5 acres of property, most of which is located on a plateau above Olequa Creek. Although the outfall from this treatment facility discharges to Olequa Creek the hillside between the treatment lagoon site and the outfall is very steep and does not provide easy access to the shoreline. The other southern site has not been developed but has been set aside for the future development of the Park Street Park. This site contains 3.5 acres, including a high bank leading down to Olequa Creek. This future park site will provide some good vantage points of the Creek but will not provide the direct access that the McMurphy Park site does.



(Entrance to McMurphy Park)

PUBLIC ACCESS NEEDS AND OPPORTUNITIES

The City currently has a beautiful public access location to one of the most picturesque stretches of Olequa Creek at McMurphy Park. Additional public access to Olequa Creek may be difficult since most of the shoreline property is privately owned. If a future planned industrial park development south of SR 506 could provide a trail system along the creek with a trailhead adjacent to the SR 506 bridge and a second trailhead at the Park Street Park site, this would increase the potential for southern residents to enjoy access and motorists passing through town on SR 506 to stop, enjoy the trail and spend more time visiting the City's commercial establishments.



(“Little Falls” at McMurphy Park)

CHAPTER 7

SHORELINE MANAGEMENT RECOMMENDATIONS

GENERAL POLICIES AND RECOMMENDATIONS

The following are recommended actions for translating inventory and characterization findings into the draft SMP policies, regulations, environment designations, and restoration strategies for areas within shoreline jurisdiction.

- Recommendations for environment designations for specific shoreline areas are discussed in Chapter 5. These designations should be finalized consistent with the City's critical areas ordinance and land development regulations with specific direction describing what level of analysis and permitting will be required prior to developing properties within these designations.
- Determine how the City's critical areas ordinance will be modified to incorporate SMP goals for accommodating water oriented uses consistent with no net loss of ecological functions.
- Continue to identify and secure easements and acquire or develop property to provide new public access to the shoreline.
- Encourage through policies and regulation the control of invasive or noxious vegetation and the revegetation of certain shoreline areas.
- Include policies or regulations that incorporate recommendations of the City's or County's water quality related studies.
- Consider whether special stormwater management provisions may be necessary beyond the standards adopted by the City.
- Consider prohibiting new overwater structures across Olequa Creek except for public bridge crossings (both vehicular and pedestrian).
- Include policies or regulations to encourage improvements to shoreline habitat, material to anchor LWD placements, and as needed to implement shoreline restoration.
- Efforts to restore water quality in the lower Cowlitz subbasin should be focused on some of the most productive tributaries that have existing water quality problems, including Olequa Creek. Address fecal coliform

contamination by controlling livestock access to streams and identifying and repairing failed septic systems.

- Several small tributaries to Olequa Creek flow through or near Christmas-tree farms, which is the one of the primary commercially grown crops in the area. Water quality samples taken in 1995 found the highest concentrations of Atrazine yet recorded by the Washington state Pesticide Monitoring Program. The City could work with its neighbors and the County on efforts to reduce the use of pesticides in silvaculture applications in areas adjacent to Olequa Creek.
- Olequa Creek has estimated flow levels during the summer and early fall that are far below optimal for spawning and rearing conditions. Look for ways to augment low summer flow and provide additional rearing habitat in these streams.
- Where floodplain habitats have been channelized or incised, look for opportunities to restore natural channel patterns and reconnect historic floodplains where possible.
- Consider prohibiting the placement of groins and weirs except as required to protect currently existing bridges and utilities in the shoreline area.
- Consider prohibiting aquaculture and boating facilities.
- Consider prohibiting agricultural activities.
- Coordinate policies and regulations for commercial, industrial and residential development with the Comprehensive Plan, while ensuring the new development will achieve no net loss of shoreline ecological functions.
- Include a policy to educate landowners about the use of fertilizers and chemicals and encourage natural landscaping and lawn care for properties in and adjacent to shoreline areas.
- Encourage low impact development techniques that reduce impervious surface areas and use ecologically responsible stormwater management.
- Include provisions for public transportation and utilities development in the shoreline jurisdiction. There are river crossings and some roadways in the SMA jurisdiction. Goals, policies and regulations for these activity types should require careful consideration of short term and long term impacts on shoreline functions and processes.

- At a minimum, maintain a moderate level of ecological function; retain intact habitat by continuing to protect well vegetated shorelines, minimize impervious surfaces, and maintain the ecological processes that create habitat features such as LWD and stream gravel.

RESTORATION PLAN

A Restoration Plan document will be prepared as a later phase of the Shoreline Master Program update process, consistent with WAC 173-26-201(2)(f). The Shoreline Restoration Plan must address the following six subjects (WAC 173-26-201(2)(f)(i-vi)) and incorporated findings from this analysis report:

- (i) Identify degraded areas, impaired ecological functions, and sites with potential for ecological restoration;
- (ii) Establish overall goals and priorities for restoration of degraded areas and impaired ecological functions;
- (iii) Identify existing and ongoing projects and programs that are currently being implemented, or are reasonably assured of being implemented (based on an evaluation of funding likely in the foreseeable future), which are designed to contribute to local restoration goals;
- (iv) Identify additional projects and programs needed to achieve local restoration goals, and implementation strategies including identifying prospective funding sources for those projects and programs;
- (v) Identify timelines and benchmarks for implementing restoration projects and programs and achieving local restoration goals; and
- (vi) Provide for mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to appropriately review the effectiveness of the projects and programs in meeting the overall restoration goals.

The Restoration Plan will “include goals, policies and actions for restoration of impaired shoreline ecological functions. These master program provisions should be designed to achieve overall improvements in shoreline ecological functions over time, when compared to the status upon adoption of the master program.” The Restoration Plan will mesh potential projects identified in this report with additional projects; regional, county or City-wide efforts; and programs of the City, watershed groups, and environmental organizations that contribute or could potentially contribute or could potentially contribute to improved ecological functions of the shoreline.

CHAPTER 8

REFERENCES, ACRONYMS AND ABBREVIATIONS

REFERENCES

Revised Shoreline Master Program, Lewis County, WA Amended June 1998

City of Vader 2009 General Sewer Plan/Wastewater Facility Plan Update

City of Vader 2008 Water System Plan

City of Vader 2008 Parks and Recreation Master Plan

City of Vader 2004 Comprehensive Sewer/Wastewater Facility Plan

City of Vader Comprehensive Plan (1996, 1998, 2005)

Lewis County GIS: http://maps.lewiscountywa.gov/maps/maplib_index.html

Lewis County Shorelines Inventory and Characterization Report:
<http://www.ezview.wa.gov/pr/?alias=1764>

Lewis County Assessors Office: <http://lewiscountywa.gov/assessor>

Washington State Dept. of Natural Resources:
http://fortress.wa.gov/dnr/app1/dataweb/metadata/WA_Hydro_Data_Dic.htm#WBHydro

U.S. Fish & Wildlife Service, National Wetlands Inventory:
<http://www.fws.gov/wetlands/>

FEMA DFIRM Data: <http://www.msc.fema.gov/>

U.S. Dept. of Agriculture, Natural Resources: <http://datagateway.nrcs.usda.gov/>
<http://soildatamart.nrcs.usda.gov>

Puget Sound LIDAR Consortium: <http://pugetsoundlidar.ess.washington.edu/>

Washington State Dept. of Ecology (in cooperation w/ USGS), 2012
<http://www.ecy.wa.gov/services/gis/data/data.htm#m>

Washington State Dept. of Ecology
<http://www.ecy.wa.gov/programs/wq/grndwtr/cara/index.html>
<http://www.ecy.wa.gov/services/gis/data/data.htm>

WRIA 26 Salmon and Steelhead Habitat Limiting Factors Report (2000):

<http://www.scc.wa.gov/directory/>

ACRONYMS AND ABBREVIATIONS

CORPS	U.S. ARMY CORPS OF ENGINEERS
ECOLOGY	WASHINGTON DEPARTMENT OF ECOLOGY
GMA	GROWTH MANAGEMENT ACT
HPA	HYDRAULIC PROJECT APPROVAL
LOMR	FEMA LETTER OF MAP REVISION
LWD	LARGE WOODY DEBRIS
NCAO	NAPAVINE CRITICAL AREAS ORDINANCE
PHS	PRIORITY HABITAT AND SPECIES
RCW	REVISED CODE OF WASHINGTON
SEPA	STATE ENVIRONMENTAL POLICY ACT
SMA	SHORELINE MANAGEMENT ACT
UGA	URBAN GROWTH AREA
USFWS	U.S. FISH AND WILDLIFE SERVICE
WAC	WASHINGTON ADMINISTRATIVE CODE
WDFW	WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

APPENDIX A

**INFORMATION REQUEST LETTER
AND DISTRIBUTION LIST**

March 20, 2012

SUBJECT: REQUEST FOR EXISTING INFORMATION FOR SHORELINE
INVENTORY AND ASSESSMENT; SHORELINE MASTER
PROGRAM UPDATE, CITIES OF TOLEDO & CITY OF VADER,
LEWIS COUNTY, WASHINGTON
G&O #11253.00 & 11254.00

Dear Stakeholders:

The Cities of Toledo and Vader are in the early stages of examining the properties adjacent to the Cowlitz River (for Toledo) and Olequa Creek (for Vader) for the purposes of updating their Shoreline Master Program per requirements of the Washington State Department of Ecology. Toledo and Vader have recently hired Gray & Osborne, Inc. to assist with Shoreline characterization, analysis, and regulatory review. A Shoreline inventory will be the first step. The products of the inventory include a map portfolio and a report characterizing ecological functions and ecosystem-wide processes, among other things.

The Cities of Toledo and Vader are requesting your help in obtaining all existing physical and biological information regarding these shorelines, their associated riparian and wetland areas, and other water relevant watershed or basin information. We are interested in any inventories, assessments, water quality analyses, and/or fish and wildlife distribution and habitat information. Maps identifying these shorelines are attached. We have also attached the mailing list for this request. Please inform us if there are other entities not listed that may be able to provide information in these areas.

We are hoping to assemble our inventory by April 15, 2012 in order to complete the necessary characterization and analysis, and resultant recommendations, in a timely manner. Because we are hoping to reduce redundant data collection at the field level, a response would be appreciated by April 6, 2012. If possible, please provide hard copies or electronic files of any studies instead of a list of citations; contact us if a copy fee is required. If you believe that another individual within your organization would be a more appropriate contact for this solicitation, please forward this letter to that individual, and notify us of the change in contact.

If you have any questions or need additional information, please feel free to telephone me at (360) 292-7481, e-mail me at jhinton@g-o.com.

Very truly yours,

GRAY & OSBORNE, INC.

Jon Hinton, P.E.

JH/sp
Encl.

City of Toledo & City of Vader – Shoreline Management Plan Mailing List

Yakama Nation
Attn: Jerry Meninick
P.O. Box 151
Toppenish, WA 98948-0151

Confederated Tribes of the
Chehalis Reservation
Attn: David Burnett
P.O. Box 536
Oakville, WA 98568

Confederated Tribes of the
Chehalis Reservation
Attn: Elaine Sutterliet
P.O. Box 536
Oakville, WA 98568

Confederated Tribes of the Colville
Reservation
Attn: Michael Finley
P.O. Box 150
Nespelem, WA 99155

Confederated Tribes of the Colville
Reservation
History/Archaeology Program
Attn: Jacqueline Cook
P.O. Box 150
Nespelem, WA 99155-0150

Cowlitz Indian Tribe
Attn: William Iyall
P.O. Box 2547
Longview, WA 98632

Nez Perce Tribe
Attn: McCoy Oatman
P.O. Box 305
Lapwai, ID 83540-0305

Nisqually Indian Tribe
Attn: Cynthia Iyall
4820 She-Nah-Num Drive SE
Olympia, WA 98513

Trout Unlimited – Washington
Council
P.O. Box 2652
Issaquah, WA 98027

Department of Ecology
Environmental Review
P.O. Box 47703
Olympia, WA 98504-7703

SEPA Center
Department of Natural Resources
Aquatic Resources Division
P.O. Box 47027
Olympia, WA 98504-7027

U.S. Fish and Wildlife Service
Attn: Roger Tabor
510 Desmond Drive, Suite 102
Lacey, WA 98503-1263

Department of Fish and Wildlife
2108 Grand Blvd.
Vancouver, WA 98661

Adopt-A-Stream
600 128th Street SE
Everett, WA 98208

Forterra
615 Second Avenue, Suite 600
Seattle, WA 98104

National Marine Fisheries Service
Attn: Tom Sibley
7600 Sand Point Way NE
Seattle, WA 98115

U.S. Army Corps of Engineers
Seattle District
Attn: Jerry Gregory
P.O. Box 3755
Seattle, WA 98124-3755

University of Washington
School of Aquatic and Fishery
Sciences
Attn: Si Simenstad
Box 357980
Seattle, WA 98195

Lewis County Public Health
360 NW North Street
Chehalis, WA 98532

Lewis County Community
Development
2025 NE Kresky Ave
Chehalis, WA 98532

Lewis County Conservation
District
1554 Bishop Road
Chehalis, WA 98532

American Rivers
4005 20th Avenue West, Suite 221
Seattle, WA 98199

U.S. EPA, Region 10
1200 6th Avenue
Seattle, WA 98101

University of Washington
Center for Water and Watershed
Studies
P.O. Box 352100
Seattle, WA 98195

Washington Department of
Transportation
Attn: David Harjo
P.O. Box 1709
Vancouver, WA 98668-1709

Lower Columbia Fisheries Task
Force
12404 SE Evergreen Highway
Vancouver, WA 98683

Vancouver Audubon Society
PO Box 1966
Vancouver, WA 98668

Cowlitz County PUD
961 12th Avenue
Longview, WA 98632

Lewis County PUD#1
240 7th Street
P.O. Box 580
Morton, WA 98356

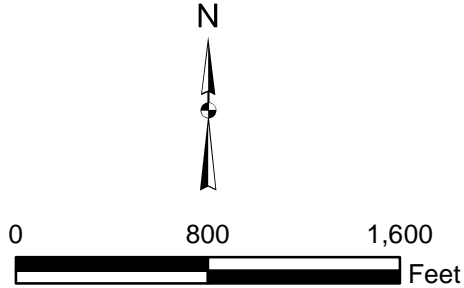
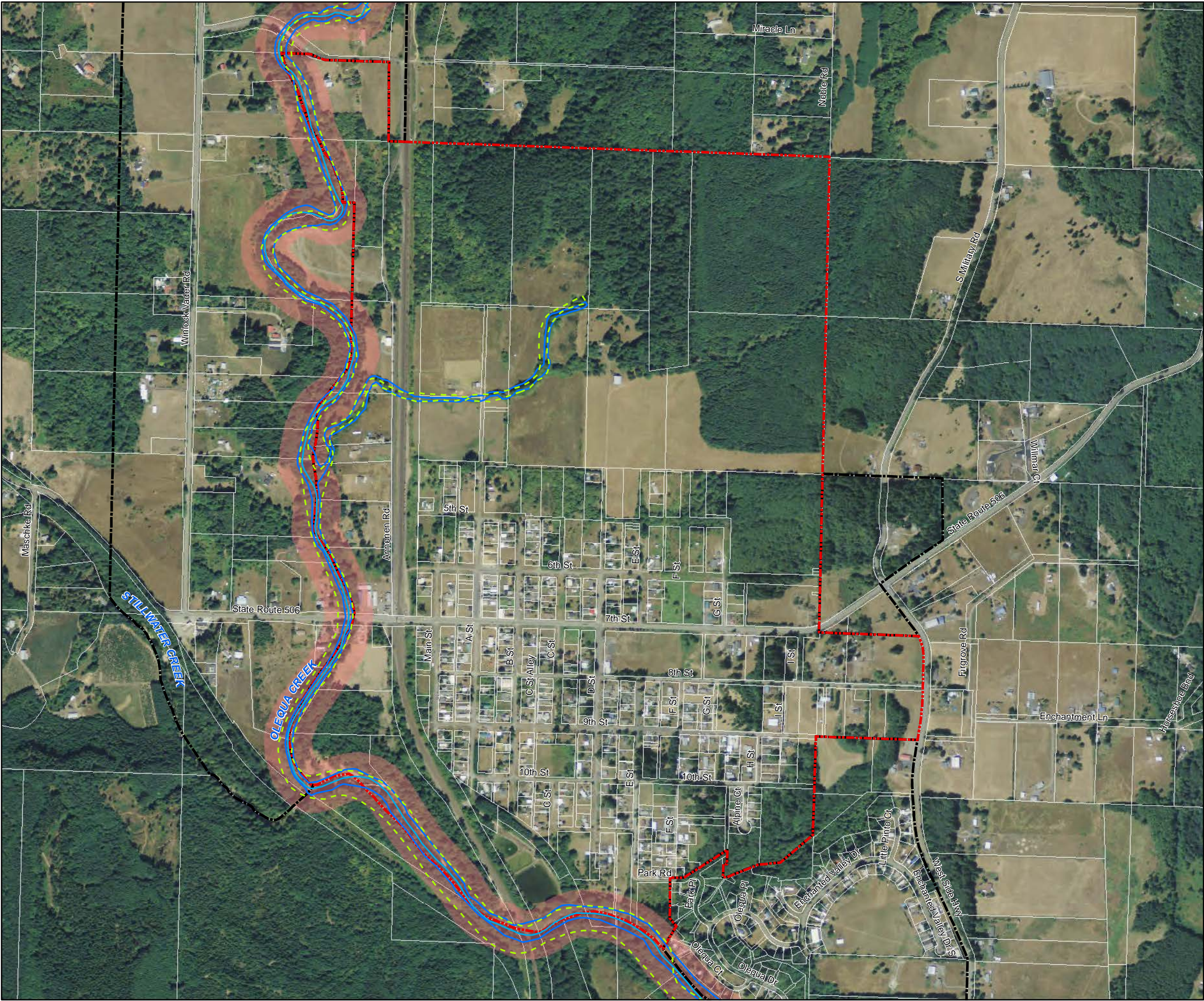
City of Toledo
130 North Second Street
P.O. Box 236
Toledo, WA 98591

City of Vader
317 8th Street
P.O. Box 189
Vader, WA 98593

Friends of the Cowlitz
P.O. Box 248
Salkum, WA 98582

APPENDIX B

MAP PORTFOLIO



Legend

- CURRENT EFFECTIVE FLOODWAY (FEMA 1979)*
- PRELIMINARY FLOODWAY (FEMA 2010)*
- 200' OHW BUFFER
- CITY LIMITS
- UGA LIMITS

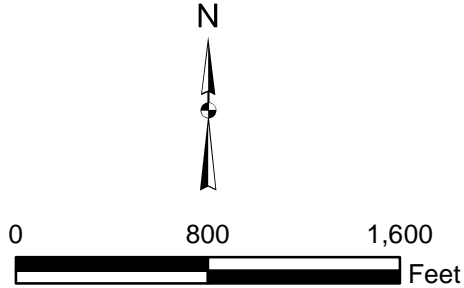
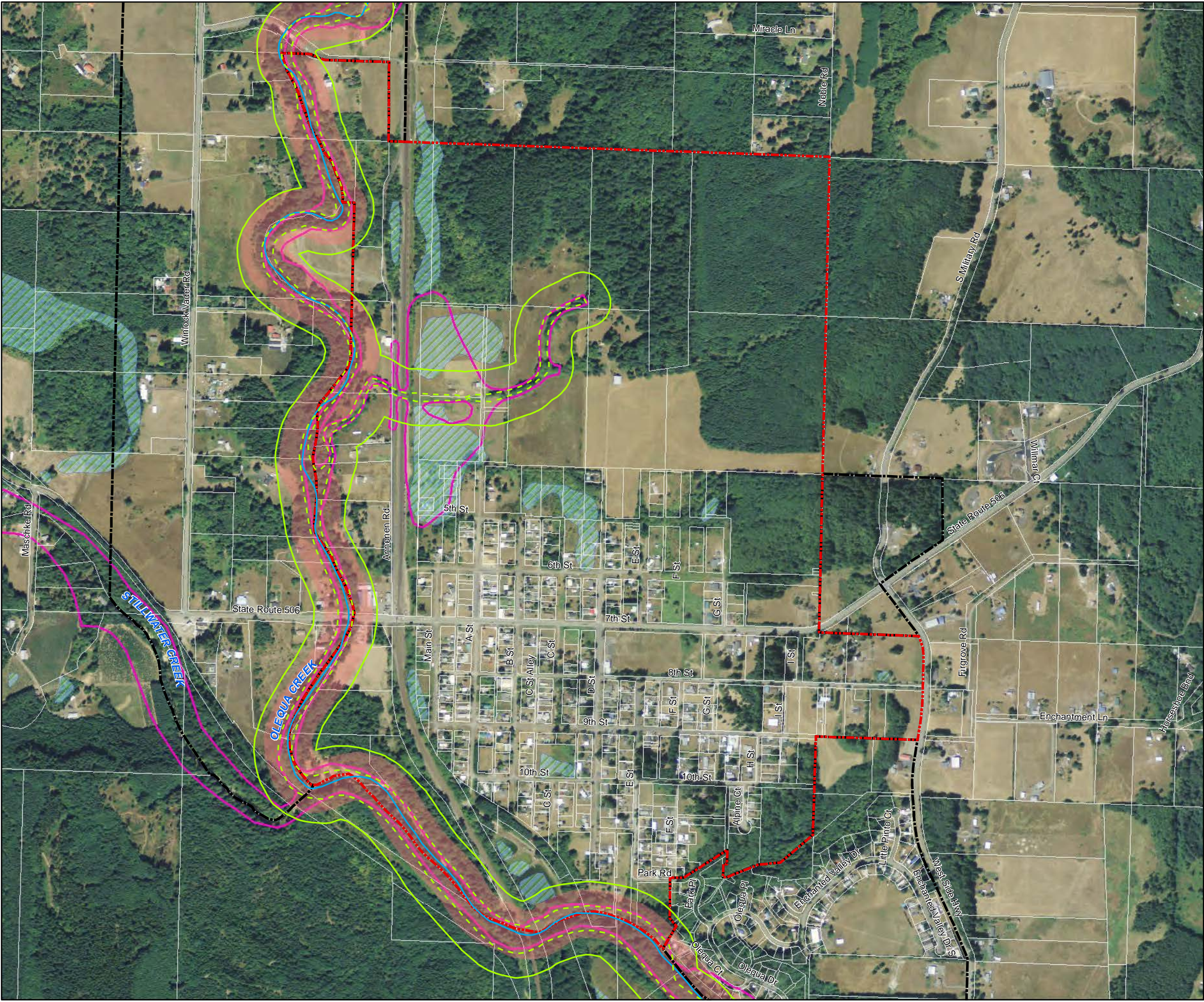
*BASED ON LEWIS COUNTY GIS - DIGITIZED FROM FEMA FLOODWAY MAPS

ALL FEATURES DEPICTED ON THIS MAP ARE APPROXIMATE. THEY HAVE NOT BEEN FORMALLY DELINEATED OR SURVEYED AND ARE INTENDED FOR PLANNING PURPOSES ONLY. ADDITIONAL SITE-SPECIFIC EVALUATION MAY BE NEEDED TO CONFIRM/VERIFY INFORMATION SHOWN ON THIS MAP.

CITY OF VADER

FIGURE 1
SHORELINE MANAGEMENT PLAN
FLOODWAYS AND 200' OHW BUFFER





Legend

- CURRENT EFFECTIVE FLOODWAY (FEMA 1979)*
- 200' FLOODWAY BUFFER
- 200' OHW BUFFER
- 100 YEAR FLOODPLAIN (FEMA 1979)*
- - - CITY LIMITS
- WETLANDS
- - - UGA LIMITS

*BASED ON LEWIS COUNTY GIS - DIGITIZED FROM FEMA FLOODWAY MAPS

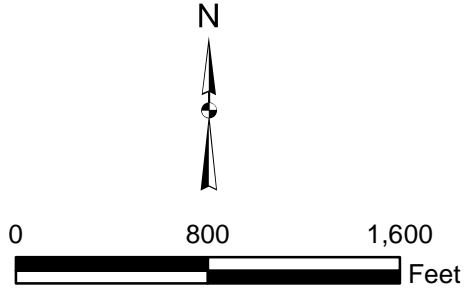
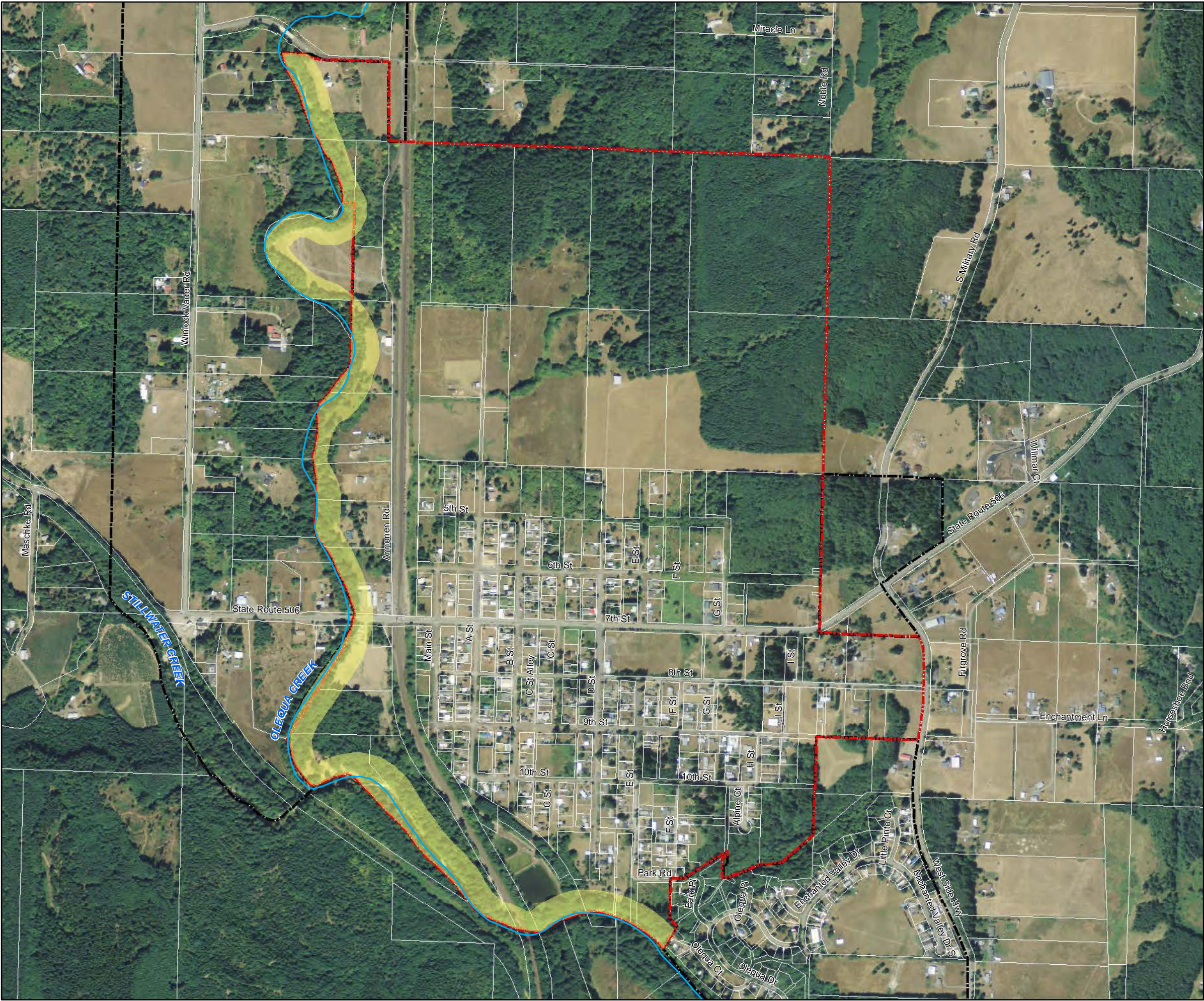
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CITY OF VADER

FIGURE 1A

SHORELINE MANAGEMENT PLAN
FLOODWAY, 100 YEAR FLOODPLAIN
AND 200' OHW BUFFER





Legend

- PROPOSED SMP JURISDICTION*
- CITY LIMITS
- UGA LIMITS

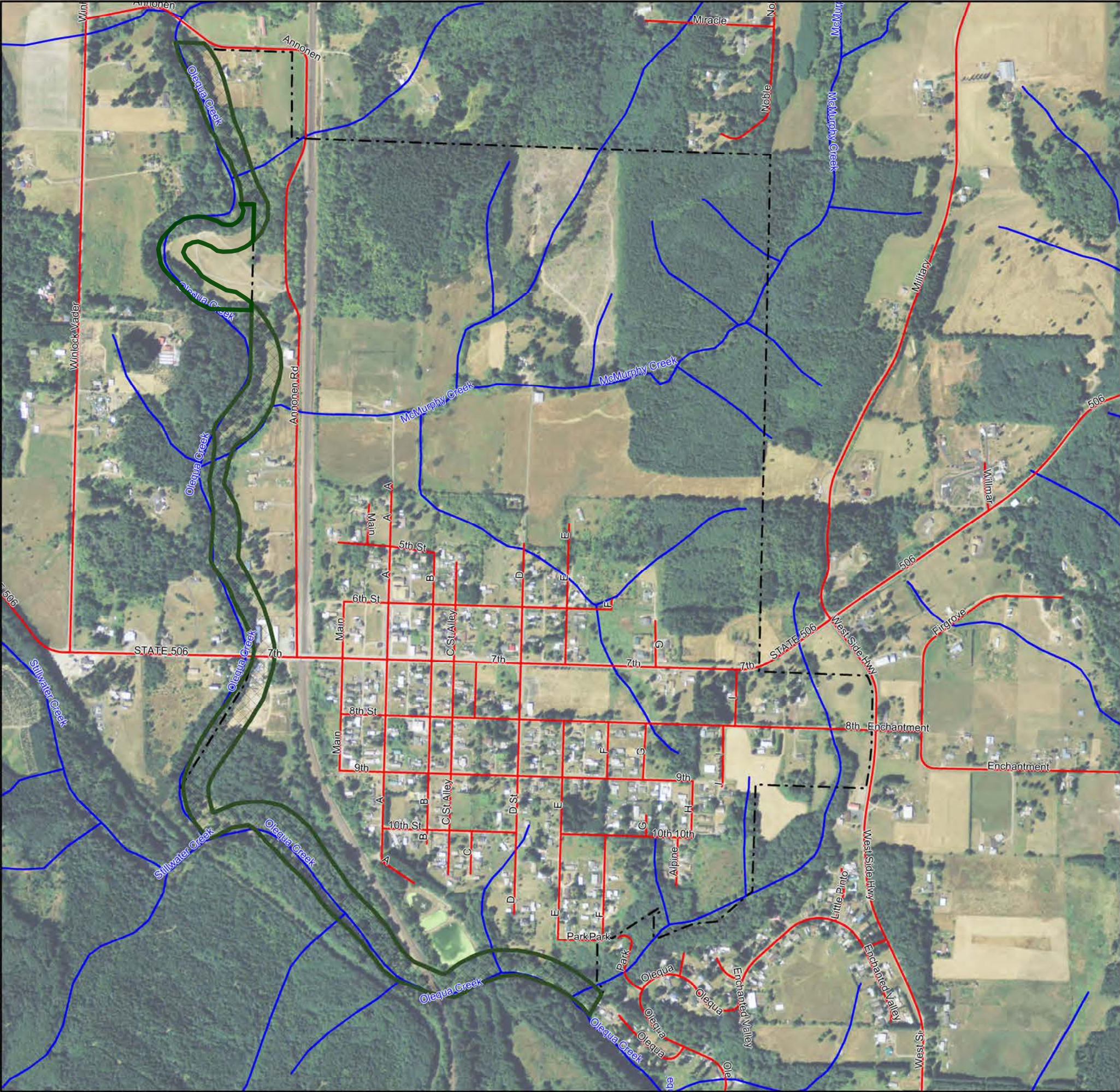
*INCLUDES PROPERTIES THAT INTERSECT THE 200' FLOODWAY BUFFER, THE 100 YEAR FLOODPLAIN AND THE 200' OHW BUFFER.

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CITY OF VADER

FIGURE 2
PROPOSED SMP JURISDICTION





SCALE: 1" = 800'

- LEGEND
- PROPOSED SHORELINE JURISDICTION**
 - CITY LIMITS*
 - RIVER & STREAMS*
 - ROADS*


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CITY OF VADER

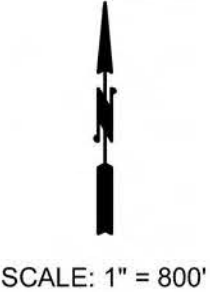
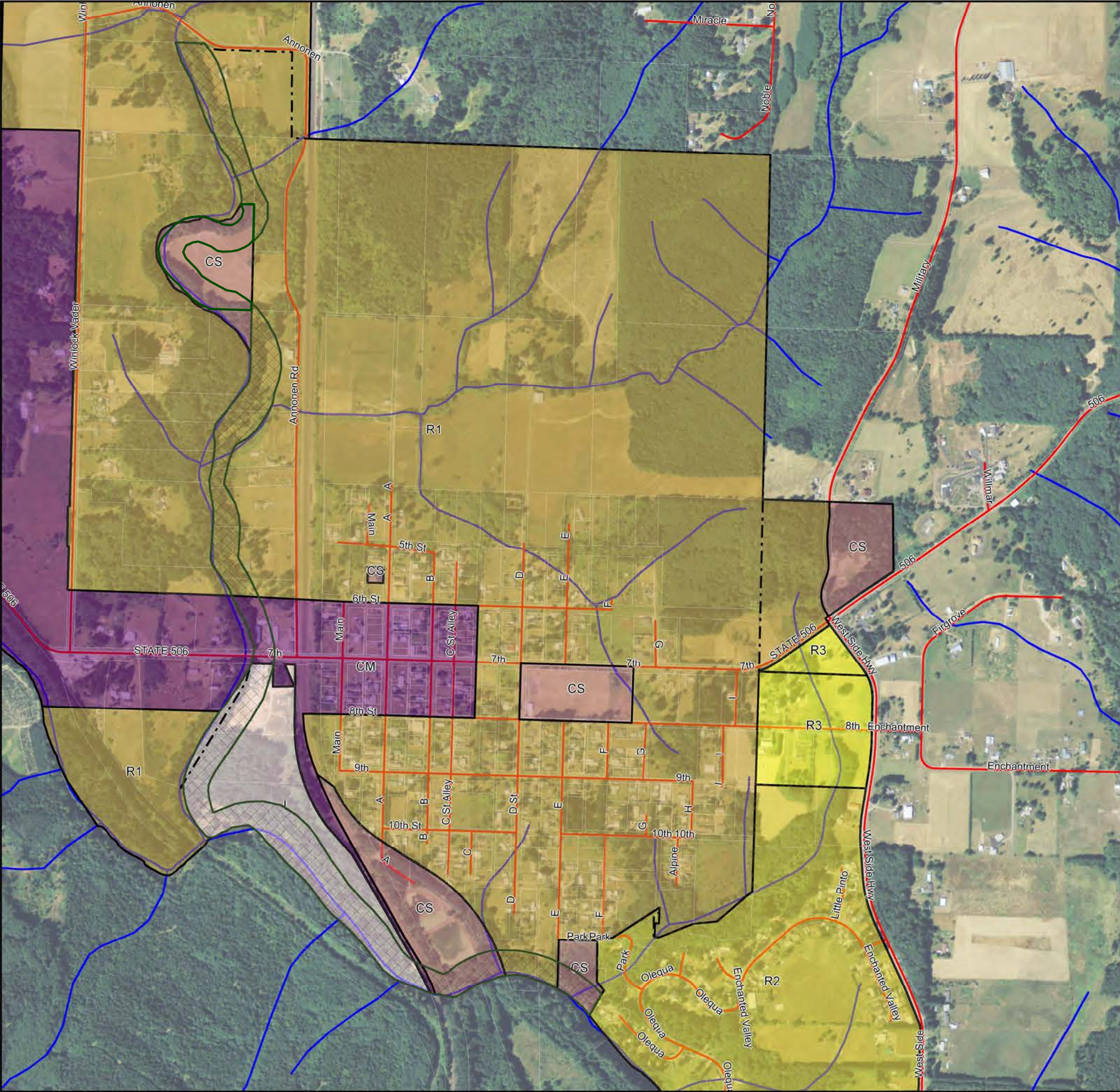
MAP 1

PROPOSED SHORELINE JURISDICTION

INVENTORY & CHARACTERIZATION REPORT


Gray & Osborne, Inc.
CONSULTING ENGINEERS

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE



LEGEND

- ZONING*
- CM - COMMERCIAL MIXED USE = 6%
 - CS - COMMERCIAL SERVICES = 8%
 - I - INDUSTRIAL = 42%
 - R1 - SINGLE FAMILY RESIDENTIAL = 44%
 - R2 - SINGLE & TWO FAMILY RESIDENTIAL
 - R3 - SINGLE & MULTI- FAMILY RESIDENTIAL
- PROPOSED SHORELINE JURISDICTION**
- CITY LIMITS*
- PARCELS*
- RIVER & STREAMS*
- ROADS*

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CITY OF VADER

MAP 2

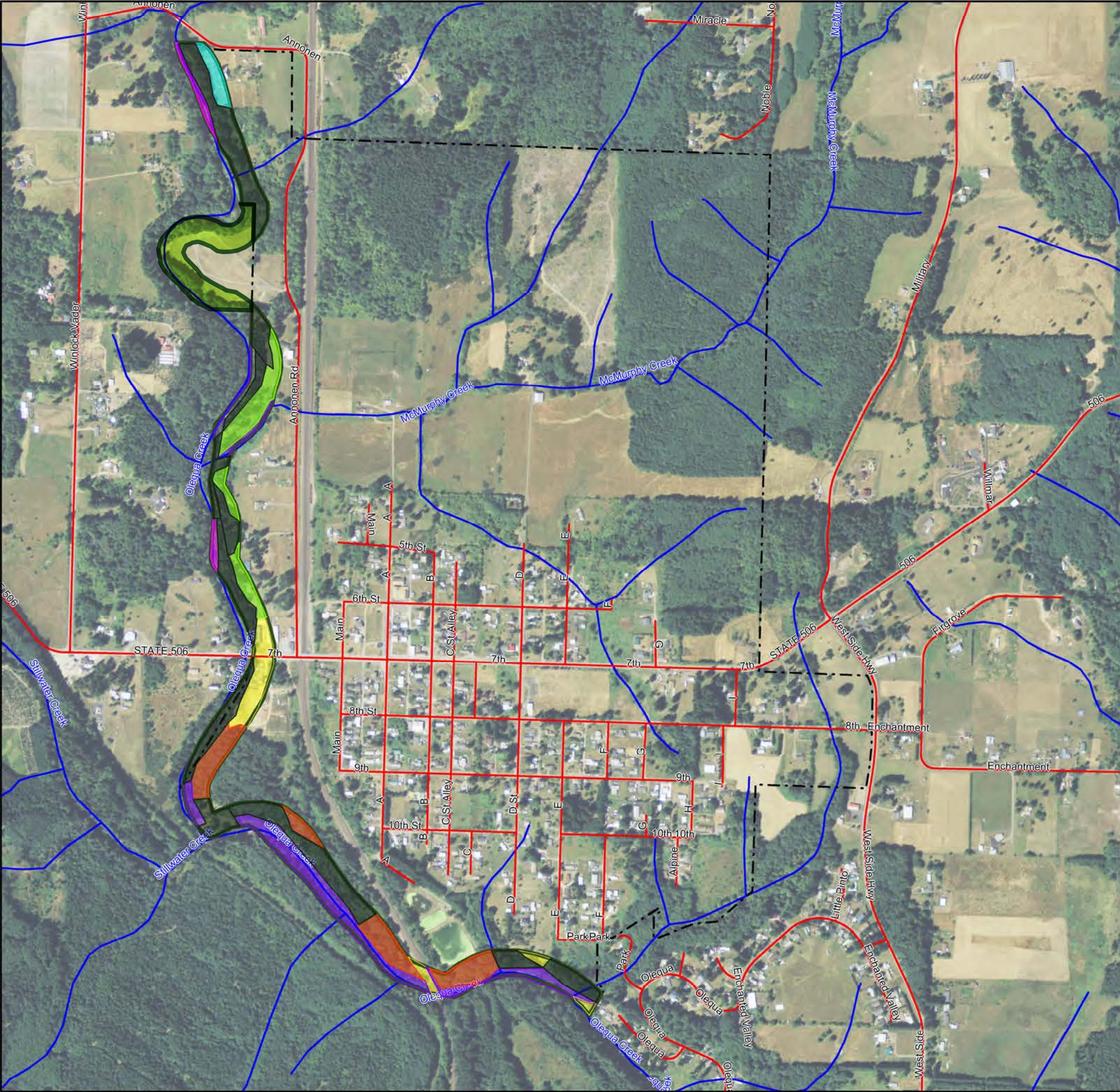
ZONING

INVENTORY & CHARACTERIZATION REPORT

Gray & Osborne, Inc.

CONSULTING ENGINEERS

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE



LEGEND

- PROPOSED SHORELINE JURISDICTION**
- CITY LIMITS*
- RIVER & STREAMS*
- ROADS*

LAND COVER***

- DECIDUOUS FOREST
- GRASSLAND
- LOW INTENSITY DEVELOPED
- MIXED FOREST
- PALUSTRINE EMERGENT WETLAND
- PALUSTRINE FORESTED WETLAND
- PASTURE & HAY

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE
***WASHINGTON STATE DEPARTMENT OF FISH & WILDLIFE
(NOAA COASTAL CLIMATE CENTER)




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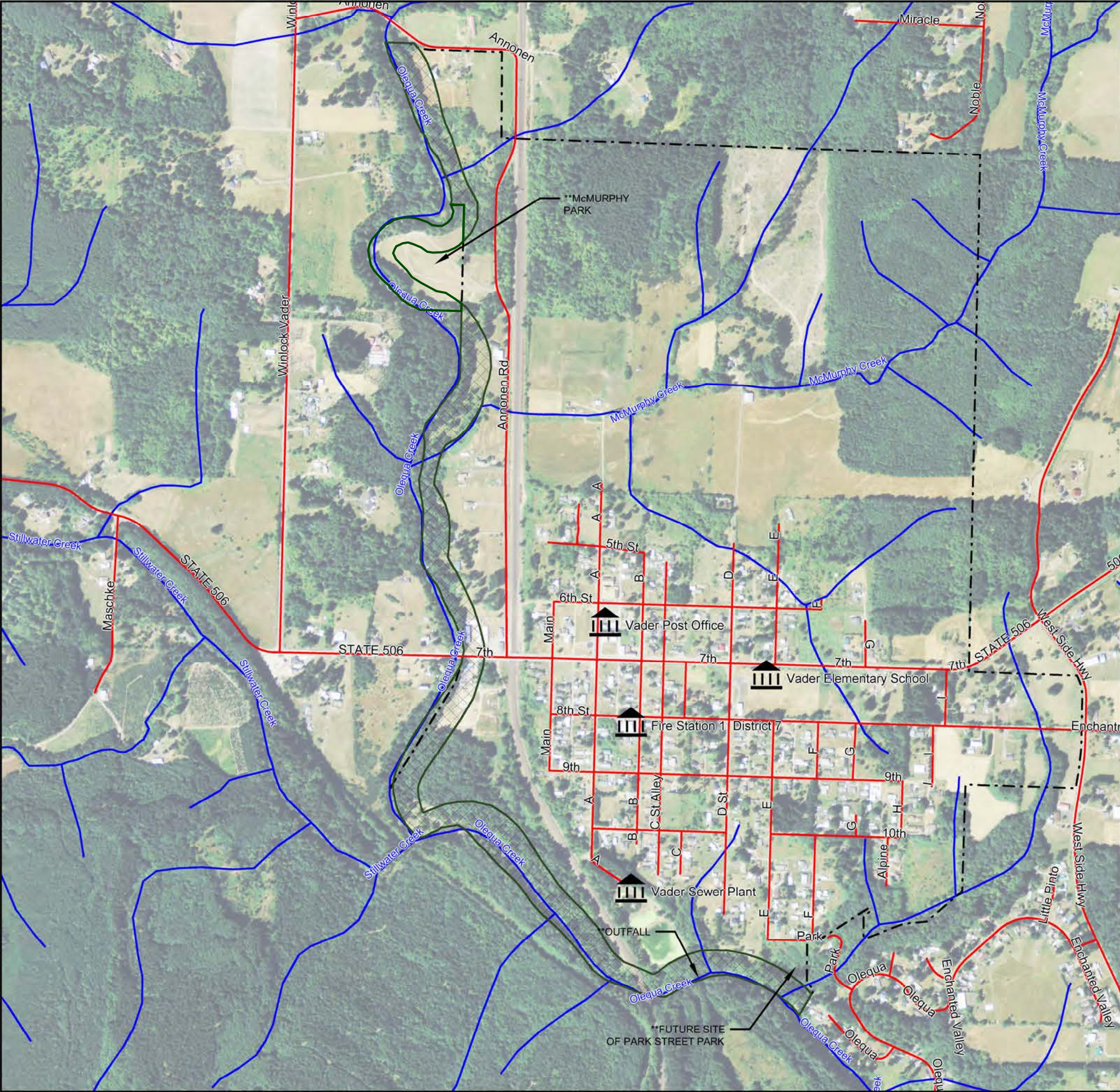
CITY OF VADER

MAP 4

VEGETATION






INVENTORY & CHARACTERIZATION REPORT


Gray & Osborne, Inc.
CONSULTING ENGINEERS



SCALE: 1" = 800'

LEGEND

-  PUBLIC FACILITY*
-  PROPOSED SHORELINE JURISDICTION**
-  ROADS*
-  CITY LIMITS*
-  RIVERS & STREAMS*


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CITY OF VADER

MAP 5

PUBLIC ACCESS AREAS

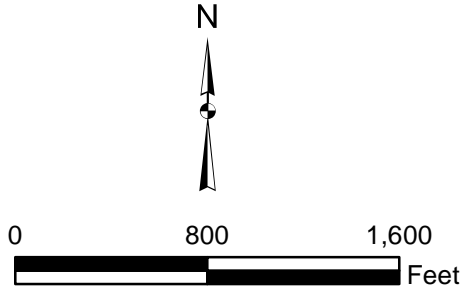
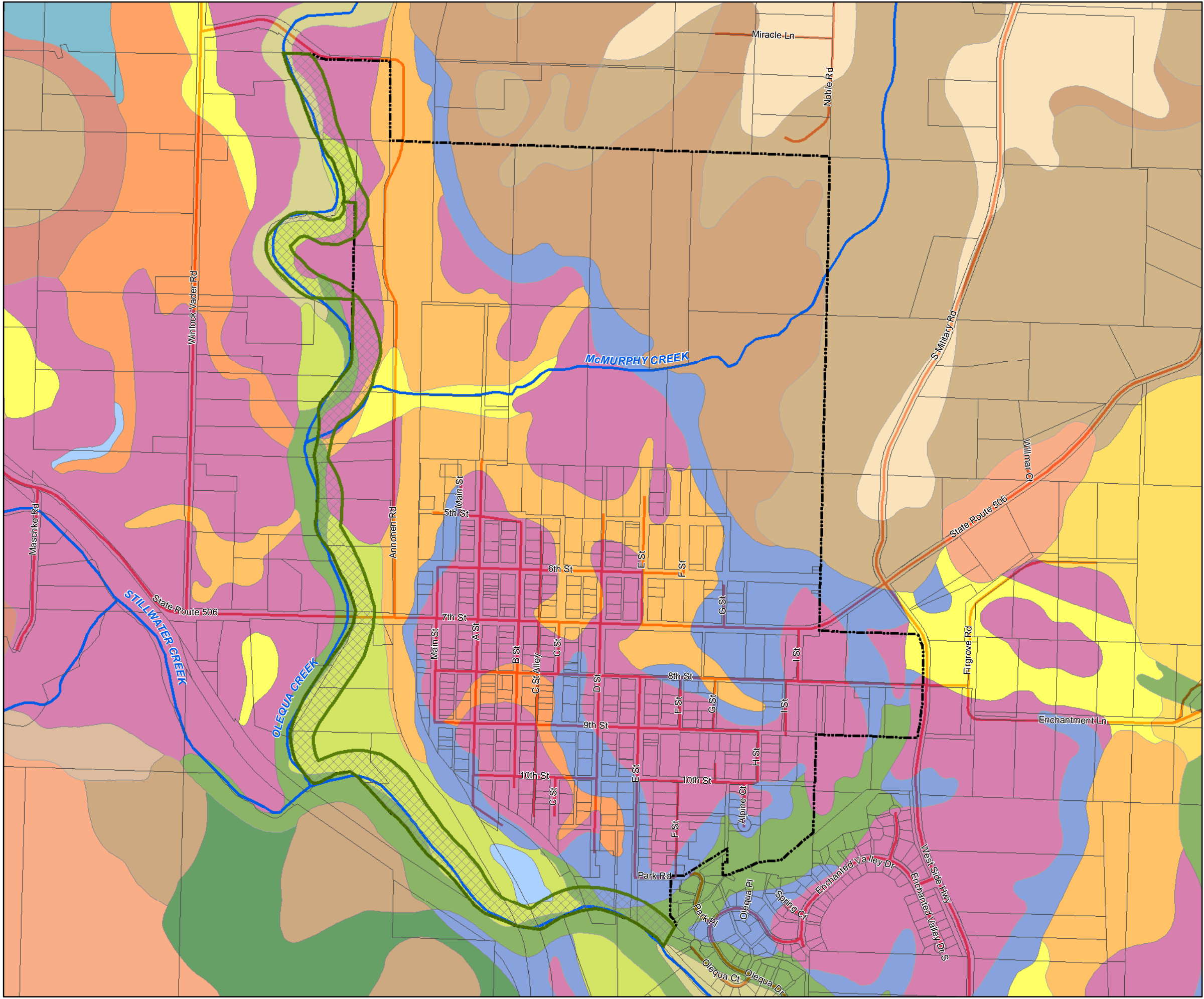
INVENTORY & CHARACTERIZATION REPORT



Gray & Osborne, Inc.

CONSULTING ENGINEERS

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE



Legend


- PROPOSED SMP JURISDICTION*
 - CITY LIMITS*
 - RIVERS & STREAMS*
 - ROADS*
- SOILS:**
- Andic Xerumbrepts, steep
 - Buckpeak silt loam, 30 to 65 percent slopes
 - Chehalis silty clay
 - Cloquato silt loam
 - Galvin silt loam, 0 to 8 percent slopes
 - Galvin silt loam, 8 to 15 percent slopes
 - Klaber silt loam
 - Lacamas silt loam, 0 to 3 percent slopes
 - Lacamas-Scamman complex, 0 to 15 percent slopes
 - Ledow sand
 - Melbourne loam, 0 to 8 percent slopes
 - Melbourne loam, 15 to 30 percent slopes
 - Melbourne loam, 8 to 15 percent slopes
 - Newberg fine sandy loam
 - Olequa silt loam, 0 to 5 percent slopes
 - Olequa silt loam, 15 to 30 percent slopes
 - Olequa silt loam, 5 to 15 percent slopes
 - Olympic silty clay loam, 15 to 30 percent slopes
 - Olympic silty clay loam, 30 to 65 percent slopes
 - Olympic silty clay loam, 8 to 15 percent slopes
 - Pits
 - Reed silty clay loam
 - Salkum silty clay loam, 0 to 5 percent slopes
 - Salkum silty clay loam, 15 to 30 percent slopes
 - Salkum silty clay loam, 30 to 65 percent slopes
 - Salkum silty clay loam, 5 to 15 percent slopes
 - Water

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE

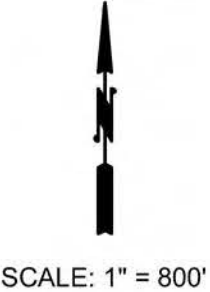
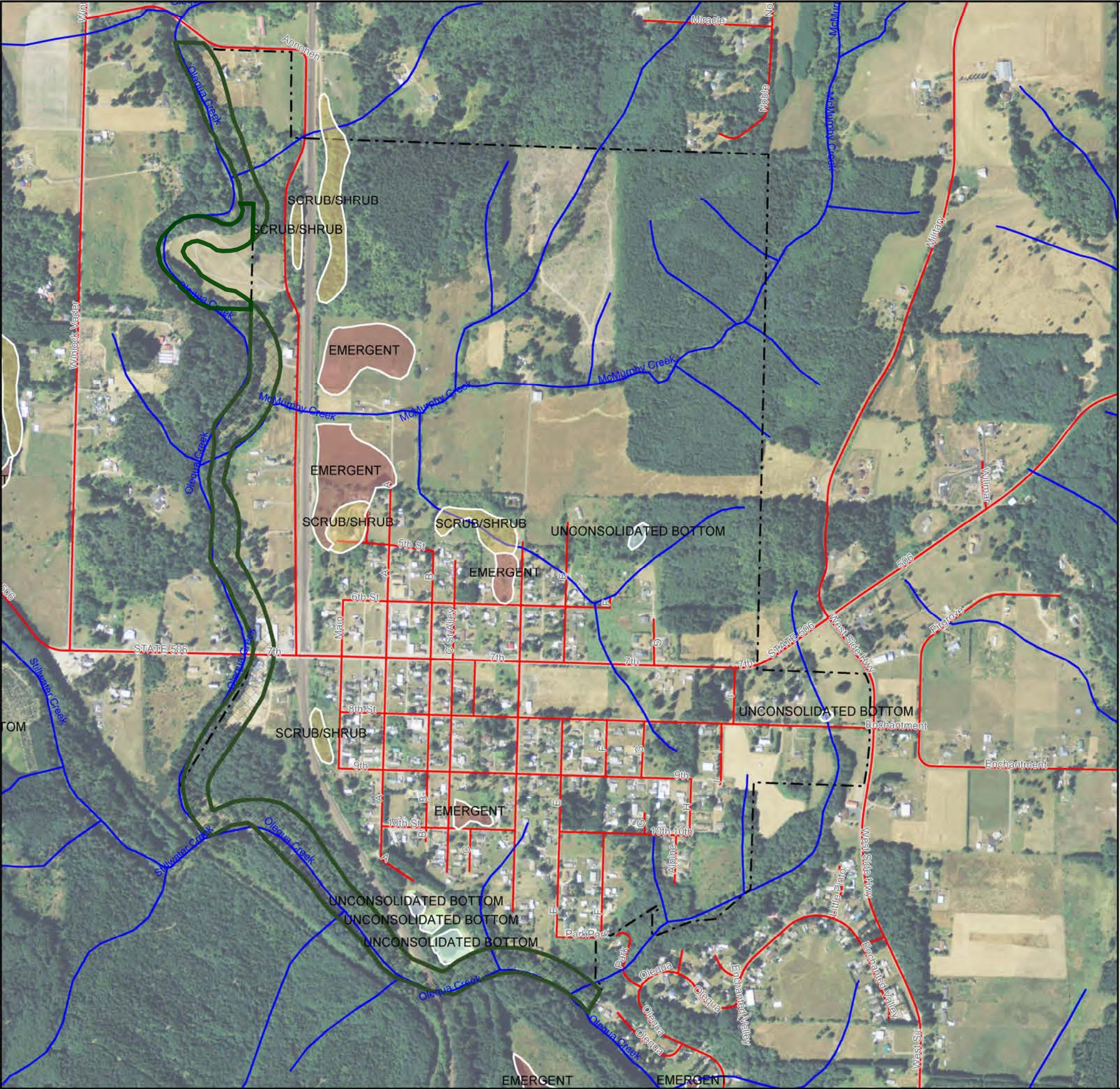
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CITY OF VADER

MAP 6
SOILS
INVENTORY AND CHARACTERIZATION REPORT



Gray & Osborne, Inc.
CONSULTING ENGINEERS



LEGEND

- WETLANDS*
- EMERGENT
 - FORESTED
 - SCRUB/SHRUB
 - UNCONSOLIDATED BOTTOM
 - UNCONSOLIDATED SHORE
- PROPOSED SMP JURISDICTION**
- CITY LIMITS*
- RIVERS & STREAMS*
- ROADS*

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE


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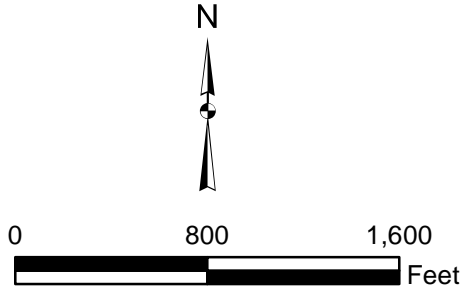
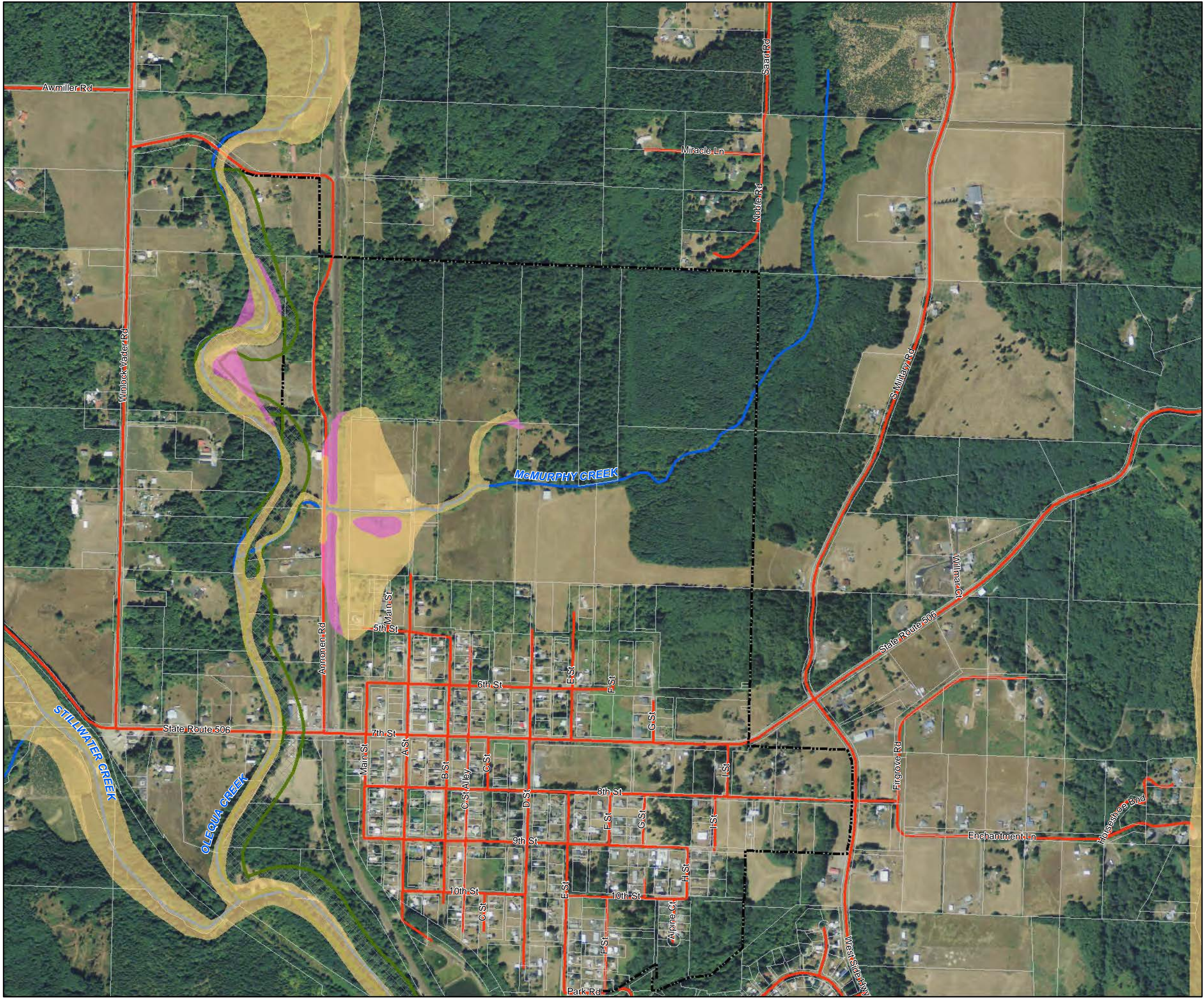
CITY OF VADER

MAP 7

WETLANDS

INVENTORY & CHARACTERIZATION REPORT


Gray & Osborne, Inc.
CONSULTING ENGINEERS



Legend


- FEMA FLOODPLAINS***
- 100-YEAR
 - 500-YEAR
- PROPOSED SMP JURISDICTION***
- CITY LIMITS***
- ROADS***

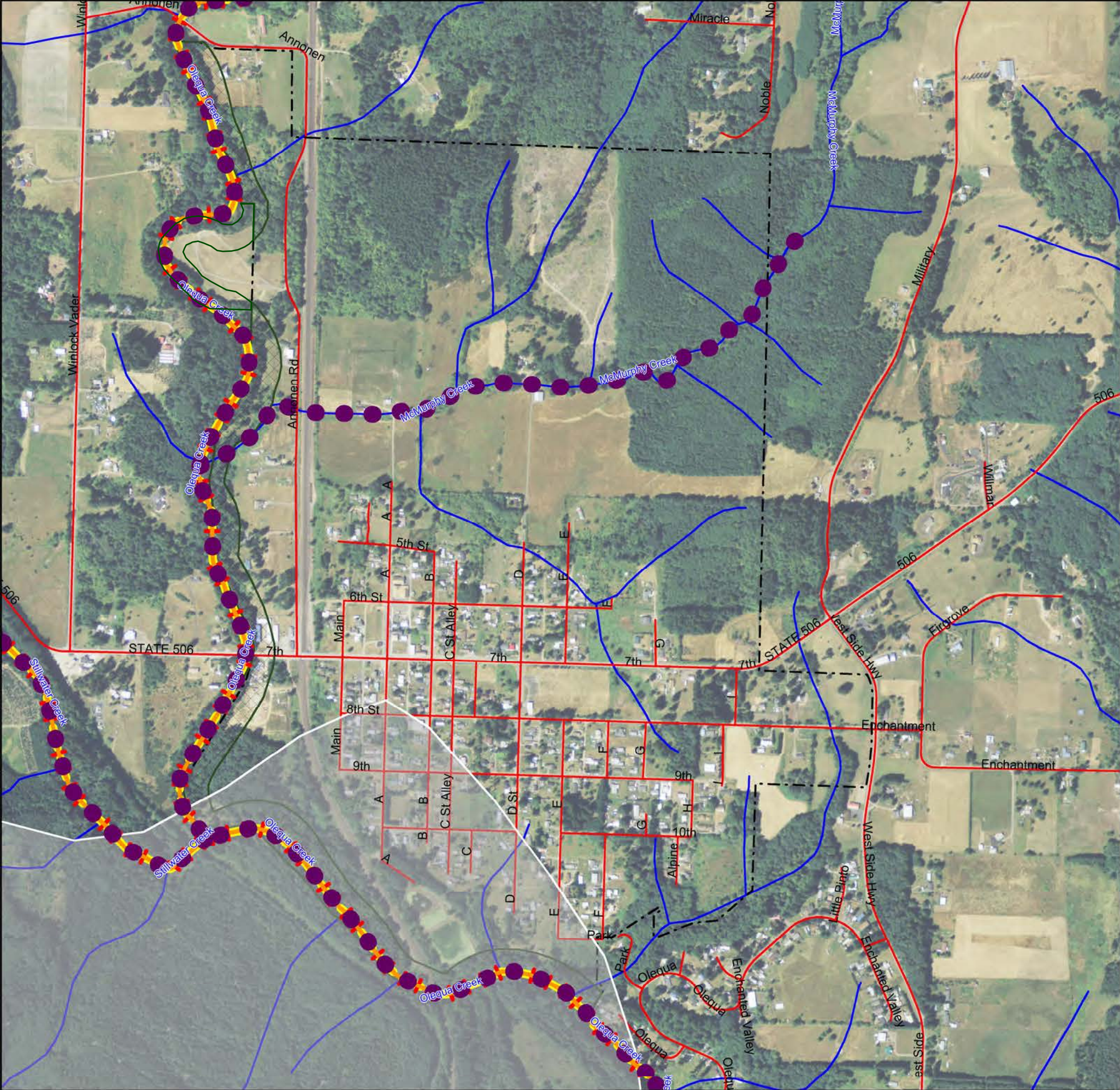
DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE

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CITY OF VADER

MAP 8
FLOODPLAINS
INVENTORY AND CHARACTERIZATION REPORT


Gray & Osborne, Inc.
CONSULTING ENGINEERS



SCALE: 1" = 800'

LEGEND

FISH DISTRIBUTION (SASI MANAGED)***

- Coho Salmon
- Chinook Salmon
- Coast Resident Cutthroat
- Steelhead Trout

- PRIORITY HABITATS (Roosevelt Elk Winter Range Only)***
- PROPOSED SMP JURISDICTION**
- CITY LIMITS*
- RIVER & STREAMS*
- ROADS*

NOTE: SPOTTED OWL HABITAT INCORPORATES CITY LIMITS & ALL OF PROPOSED SMP BOUNDARY***.

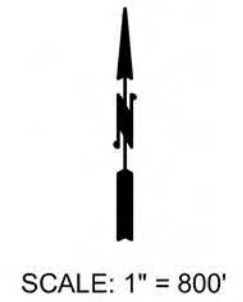
DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE
***WASHINGTON DEPT. OF FISH & WILDLIFE

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CITY OF VADER
MAP 9
PRIORITY HABITATS
INVENTORY & CHARACTERIZATION REPORT

Gray & Osborne, Inc.
CONSULTING ENGINEERS

**CATEGORY 2 - BACTERIA
(FECAL COLIFORM)**




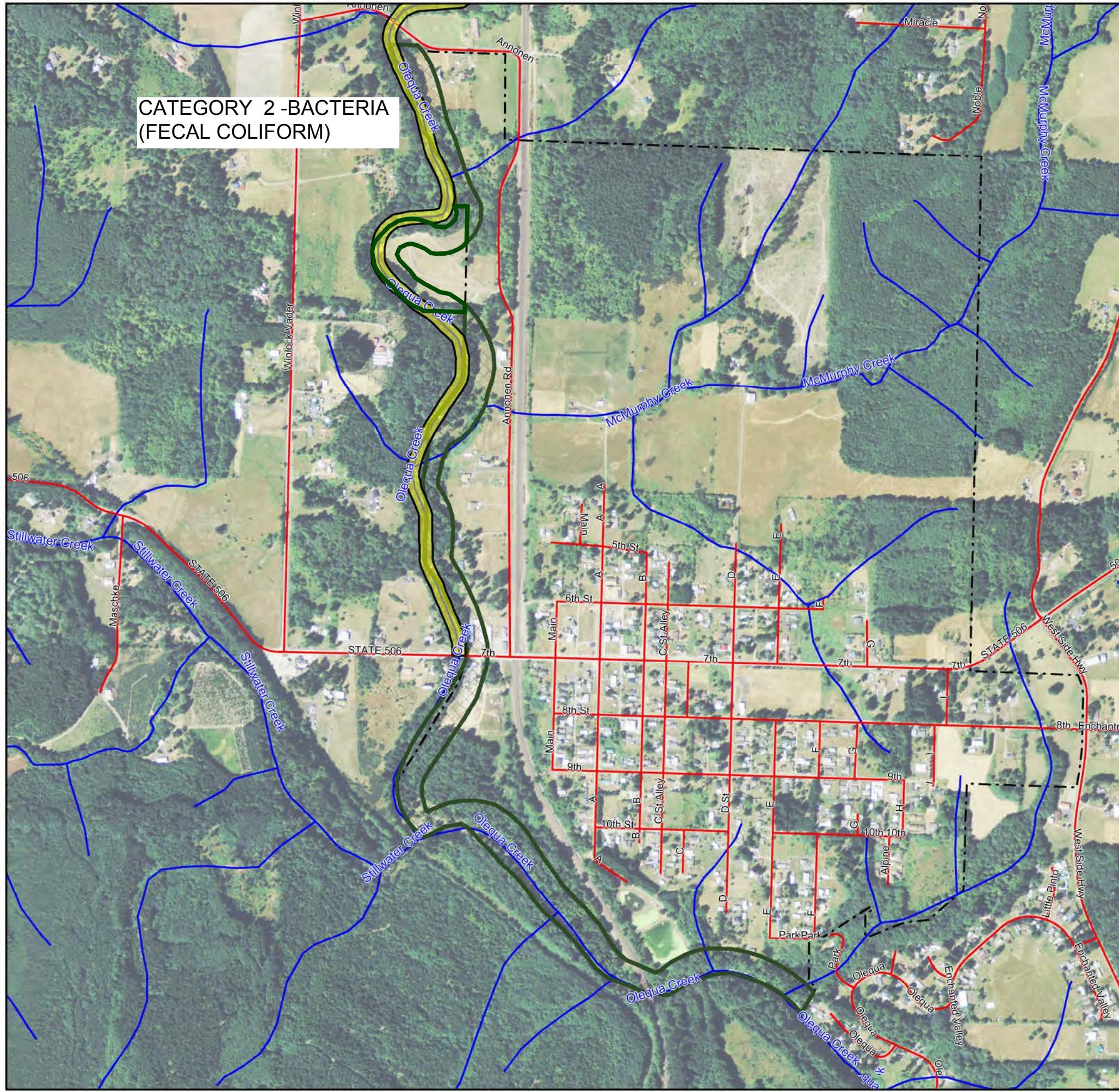
- LEGEND**
- 305b REGULATED SITES***
 - PROPOSED SMP JURISDICTION**
 - CITY LIMITS*
 - RIVERS & STREAMS*
 - ROADS*

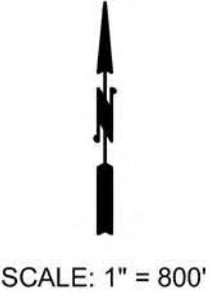
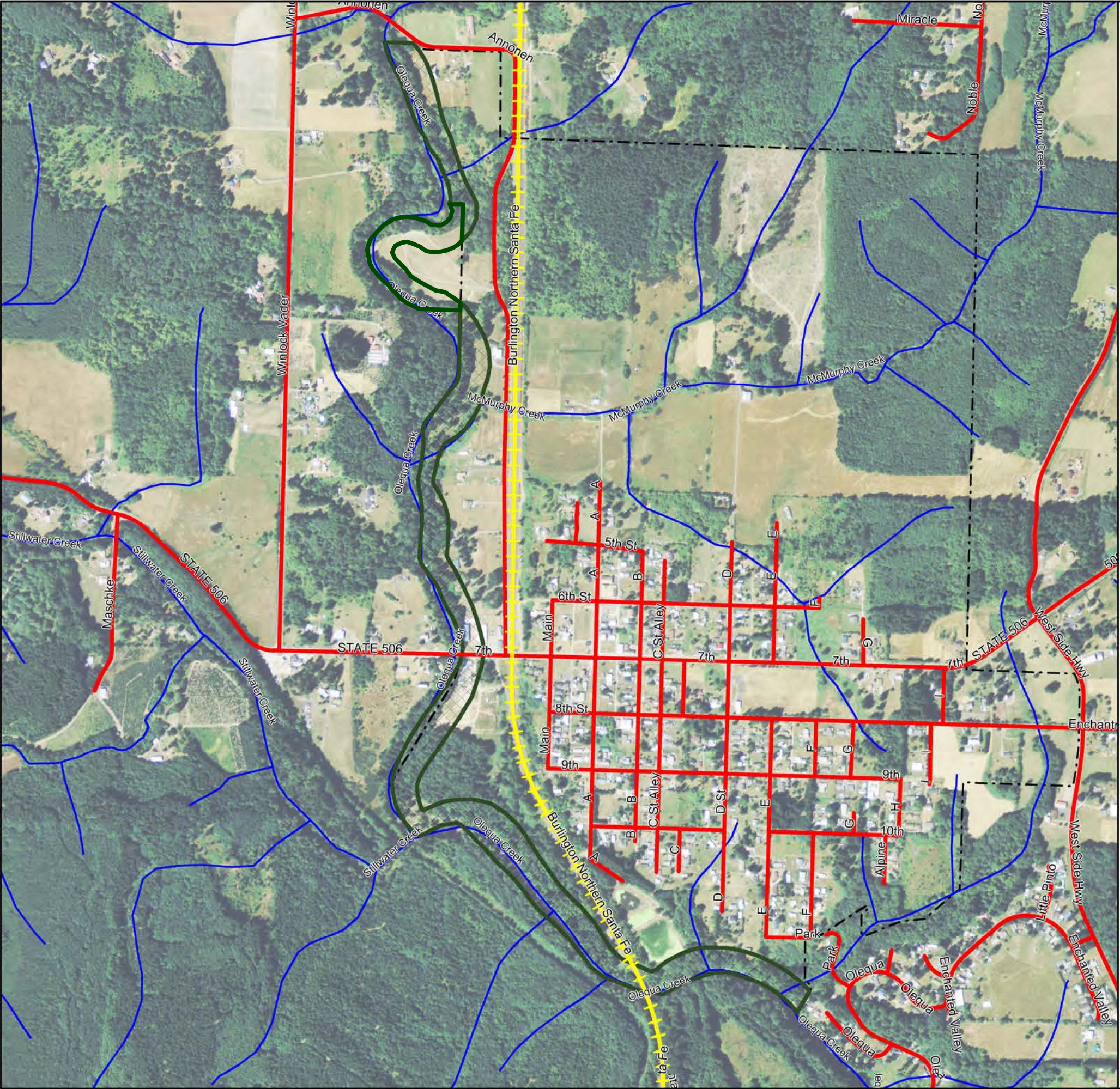
DATA SOURCES:
 *LEWIS COUNTY GIS
 **GRAY & OSBORNE
 ***WASHINGTON DEPARTMENT OF ECOLOGY

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CITY OF VADER
 MAP 10
**WATER QUALITY IMPAIRMENT
 INVENTORY & CHARACTERIZATION REPORT**


Gray & Osborne, Inc.
CONSULTING ENGINEERS





LEGEND

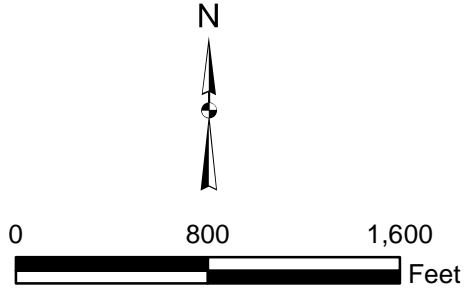
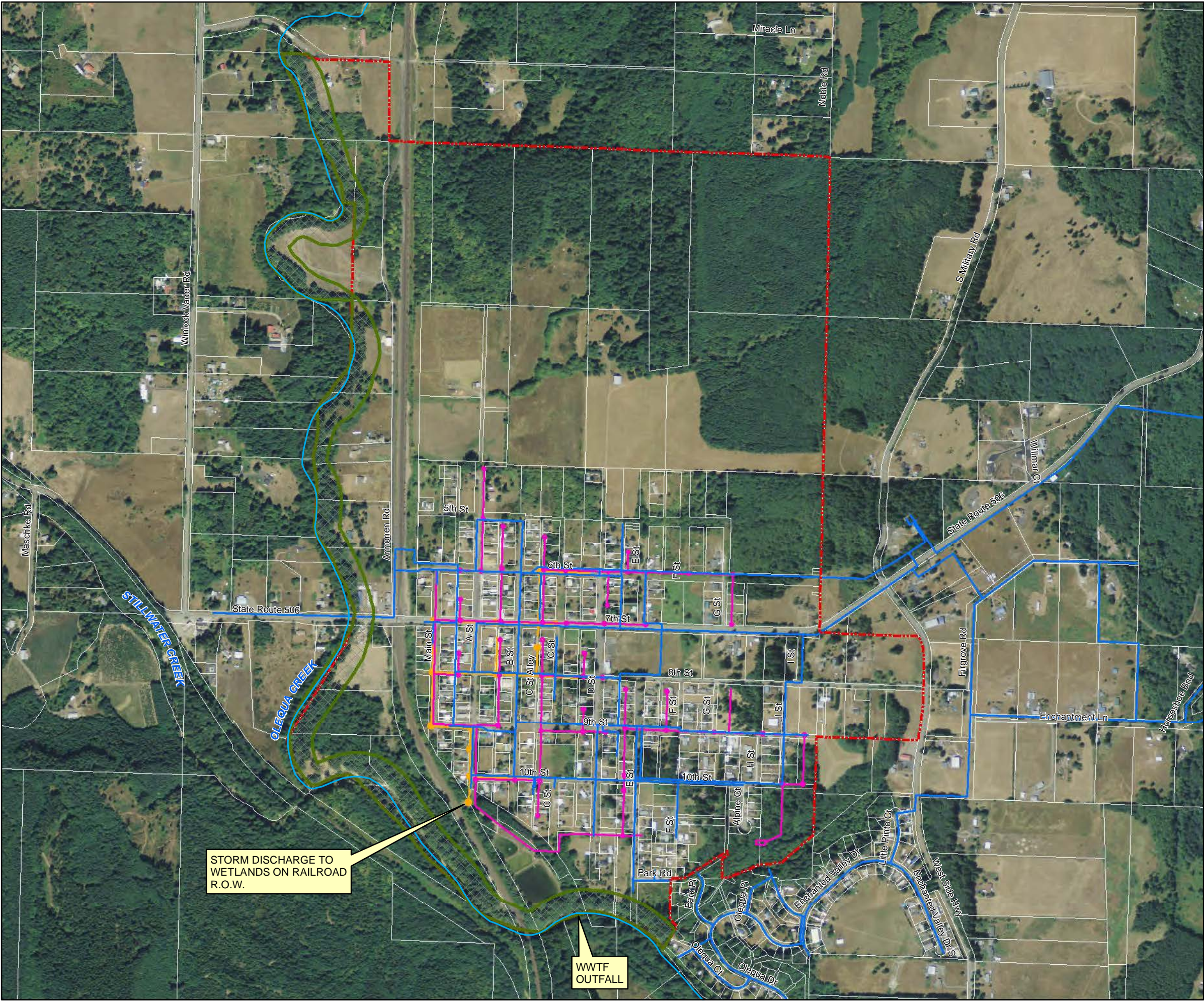
- RAILROADS***
- ROADS*
- PROPOSED SMP JURISDICTION**
- CITY LIMITS*
- RIVERS & STREAMS*

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE
***WASHINGTON DEPT. OF TRANSPORTATION

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CITY OF VADER
MAP 11
TRANSPORTATION
PROPOSED SMP BOUNDARY

Gray & Osborne, Inc.
CONSULTING ENGINEERS



Legend

- PROPOSED SMP JURISDICTION*
- WATER LINES**
- SEWER LINES**
- STORM LINES**
- CITY LIMITS*


*INCLUDES PROPERTIES THAT INTERSECT THE 200' FLOODWAY BUFFER, THE 100 YEAR FLOODPLAIN AND THE 200' OHW BUFFER.

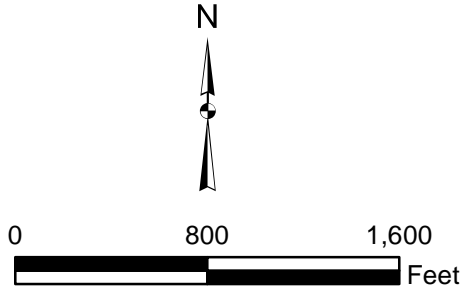
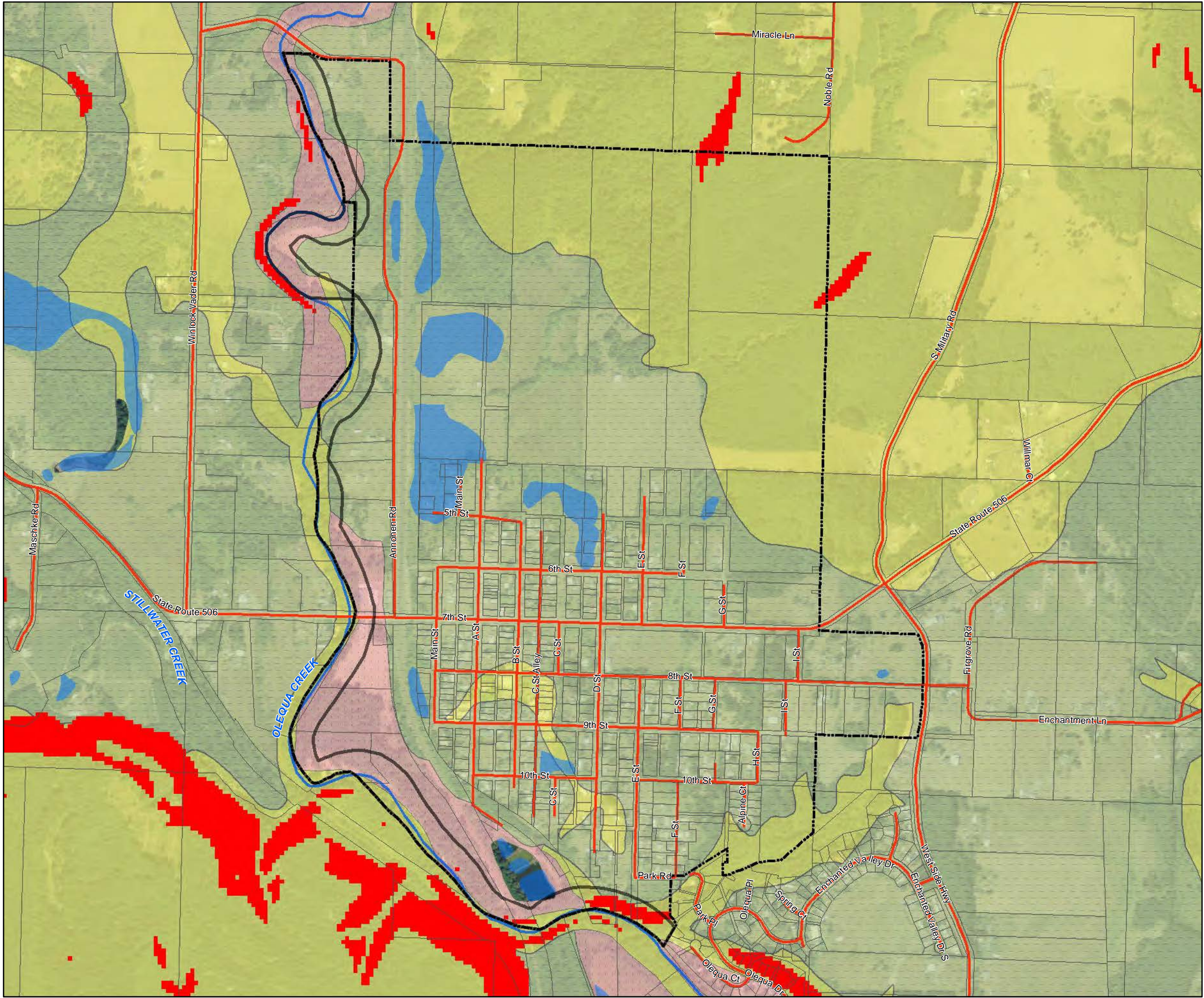
DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE

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CITY OF VADER

MAP 12
UTILITIES
INVENTORY AND CHARACTERIZATION REPORT


Gray & Osborne, Inc.
CONSULTING ENGINEERS



Legend


- PROPOSED SMP JURISDICTION*
- WETLANDS*
- 30% SLOPES OR GREATER*
- AQUIFER***
- III-SLIGHT
- II-MODERATE
- I-SEVERE
- CITY LIMITS*
- OLEQUA CREEK*
- ROADS*

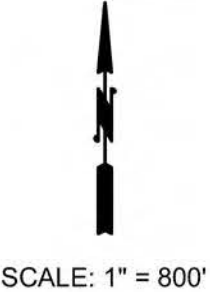
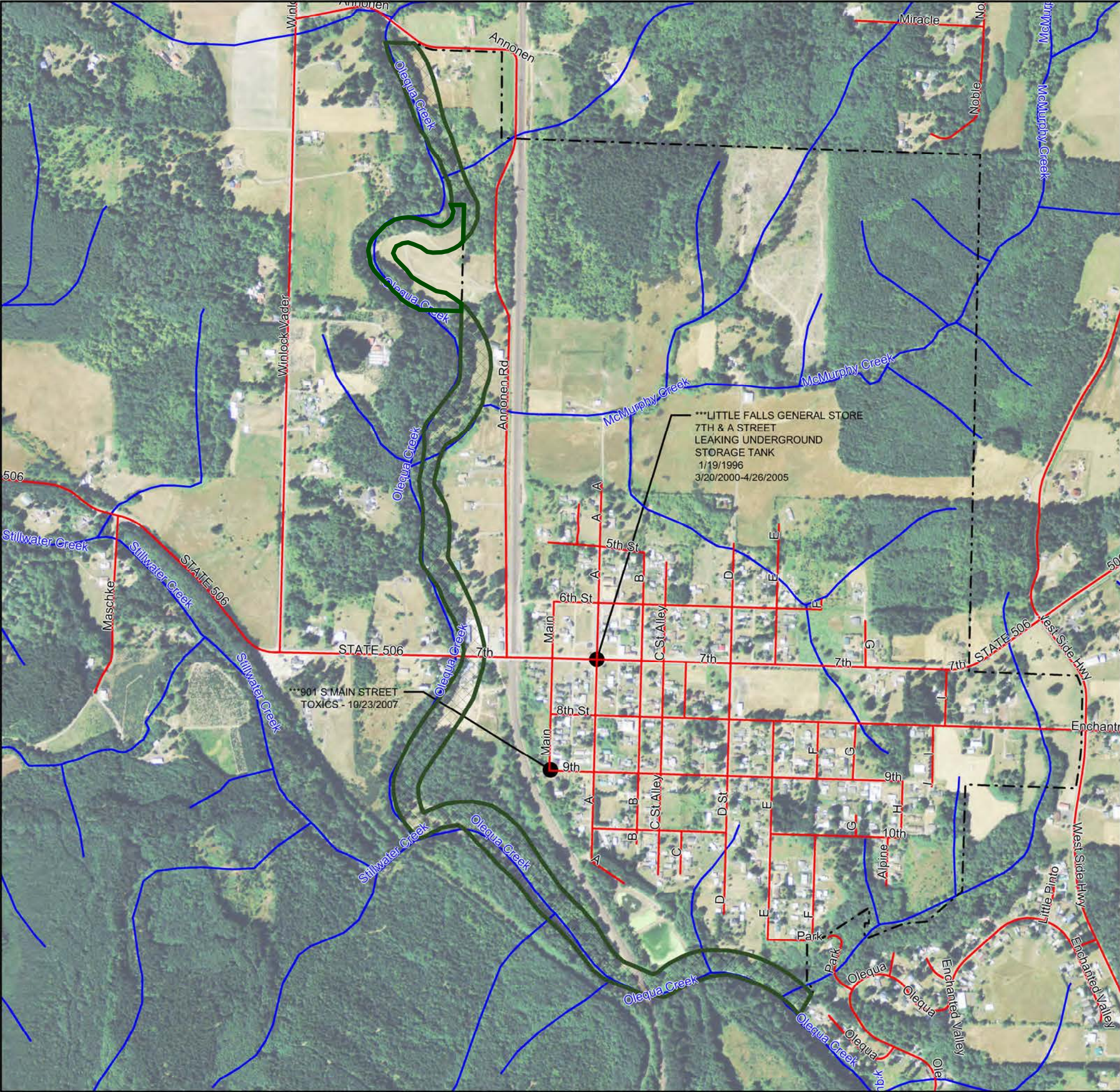
DATA SOURCES:
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**GRAY & OSBORNE

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CITY OF VADER

MAP 13
CRITICAL AREAS
INVENTORY AND CHARACTERIZATION REPORT


Gray & Osborne, Inc.
CONSULTING ENGINEERS



- LEGEND
- PROPOSED SMP JURISDICTION**
 - ROADS*
 - CITY LIMITS*
 - RIVERS & STREAMS*

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE
***WASHINGTON DEPARTMENT OF ECOLOGY


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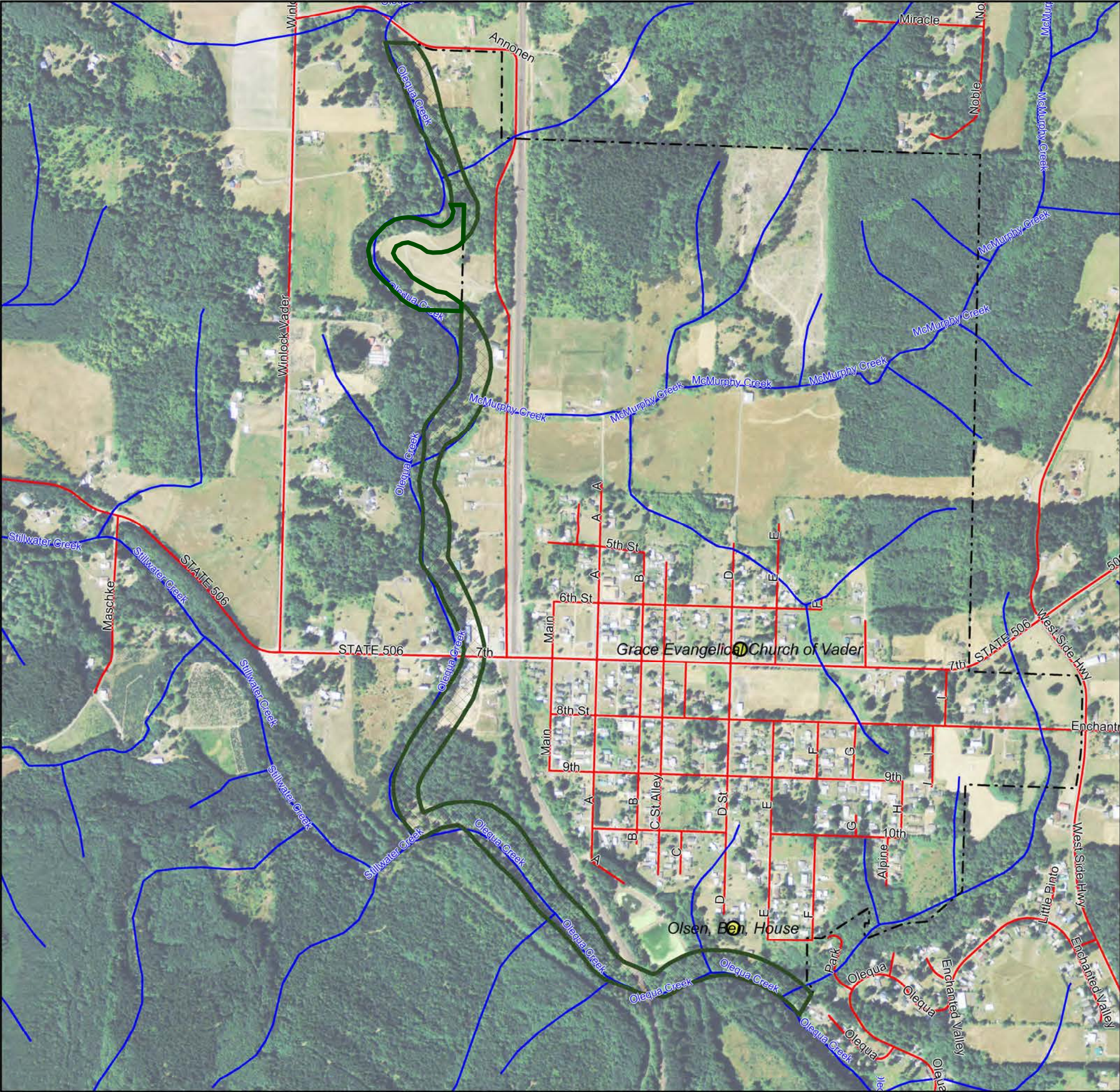
CITY OF VADER

MAP 14

TOXIC SITES OR CLEANUP AREAS

INVENTORY & CHARACTERIZATION REPORT


Gray & Osborne, Inc.
CONSULTING ENGINEERS



SCALE: 1" = 800'

- LEGEND
- HISTORICAL LANDMARKS OR HOMES***
 - CITY LIMITS*
 - RIVERS & STREAMS*
 - ROADS*
 - PROPOSED SMP JURISDICTION**


DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE
***WASHINGTON DEPT. OF ARCHAEOLOGY
& HISTORIC PRESERVATION

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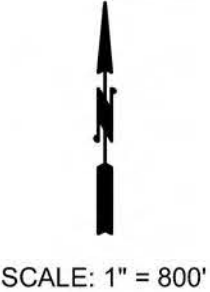
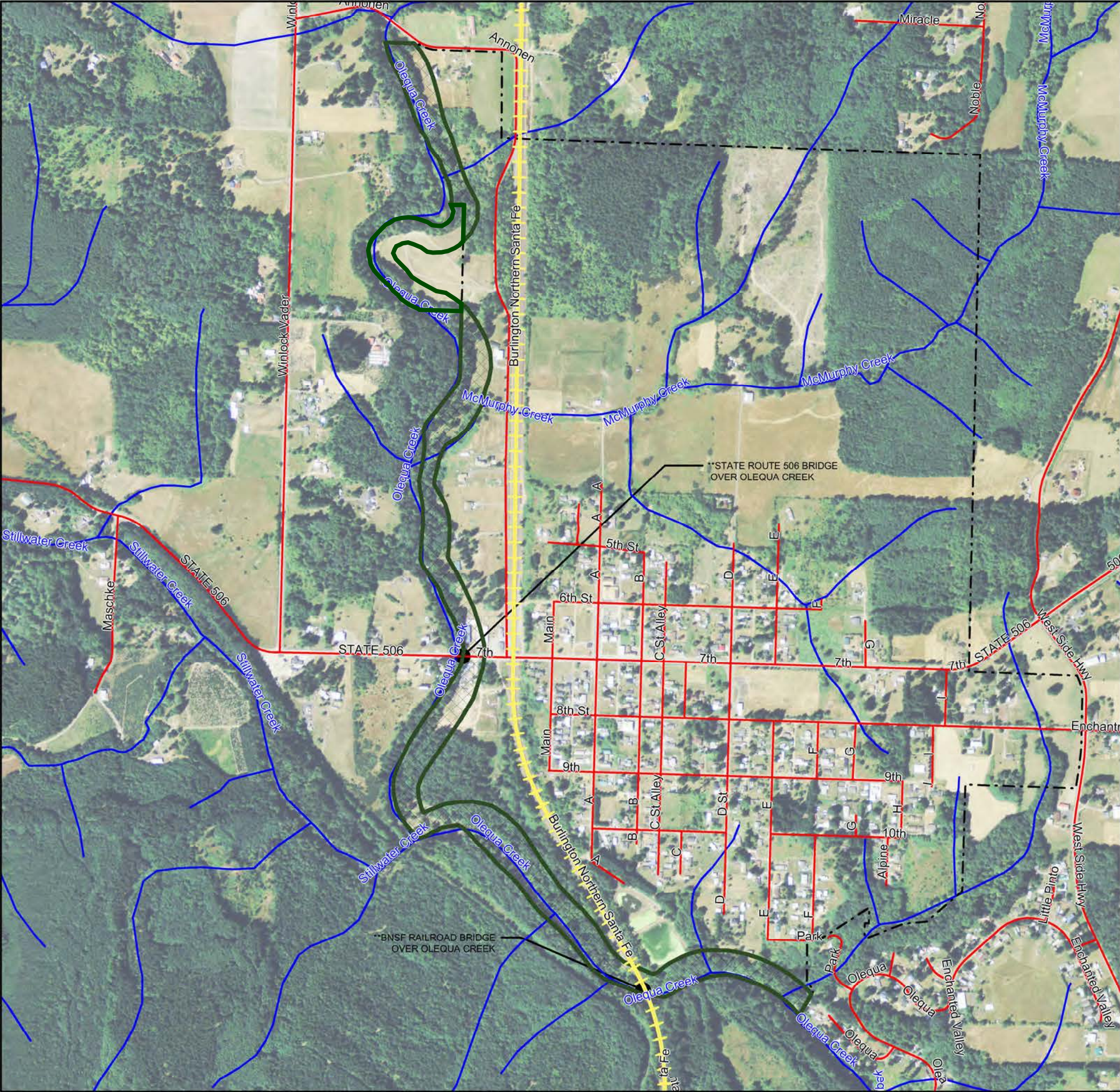
CITY OF VADER

MAP 15

ARCH & HISTORICAL SITES
INVENTORY & CHARACTERIZATION REPORT


Gray & Osborne, Inc.
CONSULTING ENGINEERS

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE



LEGEND

- RAILROAD***
- PROPOSED SMP JURISDICTION**
- ROADS*
- CITY LIMITS*
- RIVERS & STREAMS*

DATA SOURCES:
*LEWIS COUNTY GIS
**GRAY & OSBORNE
***STATE DEPARTMENT OF TRANSPORTATION


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CITY OF VADER

MAP 16

OVERWATER STRUCTURES

INVENTORY & CHARACTERIZATION REPORT


Gray & Osborne, Inc.
CONSULTING ENGINEERS