Appendix A4-
Wetland Investigation &
Delineation Report

Wetland Investigation and Delineation Report

East West Corridor Project
Yakima County, Washington

Prepared for:
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ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
FEMA	Federal Emergency Management Agency
NEPA	National Environmental Policy Act
NRCS	National Resources Conservation Service
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
PHS	Priority Habitats and Species
RCW	Revised Code of Washington
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

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1. EXECUTIVE SUMMARY

Yakima County is proposing to build a new east to west transportation corridor connecting the City of Yakima downtown area to the Terrace Heights community. This corridor is part of a larger plan that will eventually connect Fruitvale Boulevard in western Yakima to 57th Street in Terrace Heights. The East-West Corridor project will involve the construction of five bridges: one over I-82, a vehicular bridge and a pedestrian bridge over the Yakima River and a vehicular and a pedestrian bridge over Roza Canal. In addition to roadway and bridge construction, the proposed project will involve improvements to I-82 including a new interchange for access from the new East-West Corridor and improvements to the existing interchange at East Yakima Avenue. This project will also involve restoration and levee work along the Yakima River floodplain including removal and/or setback of levees and floodplain habitat restoration. The goal is to improve traffic flow within the growing region, as current and projected population growth in Terrace Heights is expected to result in increasing congestion and delays.

A wetland delineation was conducted within the project area to determine the extent of wetlands and other "Waters of the U.S." The study area encompasses approximately 544.5 acres of existing natural lands, floodplain, roads, residential development, and commercial and industrial enterprises located within Township 13N Range 18E Section 13 and Township 13N Range 19E Sections 7, 17, 18, 20, and 29. Field investigations were conducted multiple years between late 2015, 2016, and 2019.

Based on the data collected prior to and during site visits, thirty-nine wetlands were found, covering 81.287 acres. Of these, three wetlands were determined to be non-jurisdictional while the remaining thirty-six fall under USACE jurisdiction.

This report documents the investigation, best professional judgement and conclusions of the investigators. It should be considered a preliminary jurisdictional and boundary determination

until it has been reviewed and approved in writing by the U.S. Army Corps of Engineers (USACE) in accordance with Section 404 of the Clean Water Act.

2. INTRODUCTION

2.1 Authorizing Agency and Reason for the Investigation

This Wetland Investigation and Delineation Report was prepared by Widener and Associates on behalf of the Yakima County (County) to delineate the location and extent of "Waters of the United States" (33 CFR Part 328, 1986), including wetlands, within the study area.

The primary objective of the delineation was to identify and delineate the waters/wetlands within the project boundaries consistent with the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the USACE Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE, 2008b).

2.2 Site Location

The study area includes the proposed location of a transportation corridor through the City of Yakima, encompassing a total of 544.5 acres. In addition to the footprint of the project, a large area east of the Yakima River in the Terrace heights area was assessed to aid in the project planning and allow for the minimization of wetland impacts.

The study area is within the geographic area of Township 13N Range 18E Section 13 and Township 13N Range 19E Section 7, 17, 18, 20, 29. *Refer to Figure 1 – Vicinity Map and Figure 2 – Study Area.*

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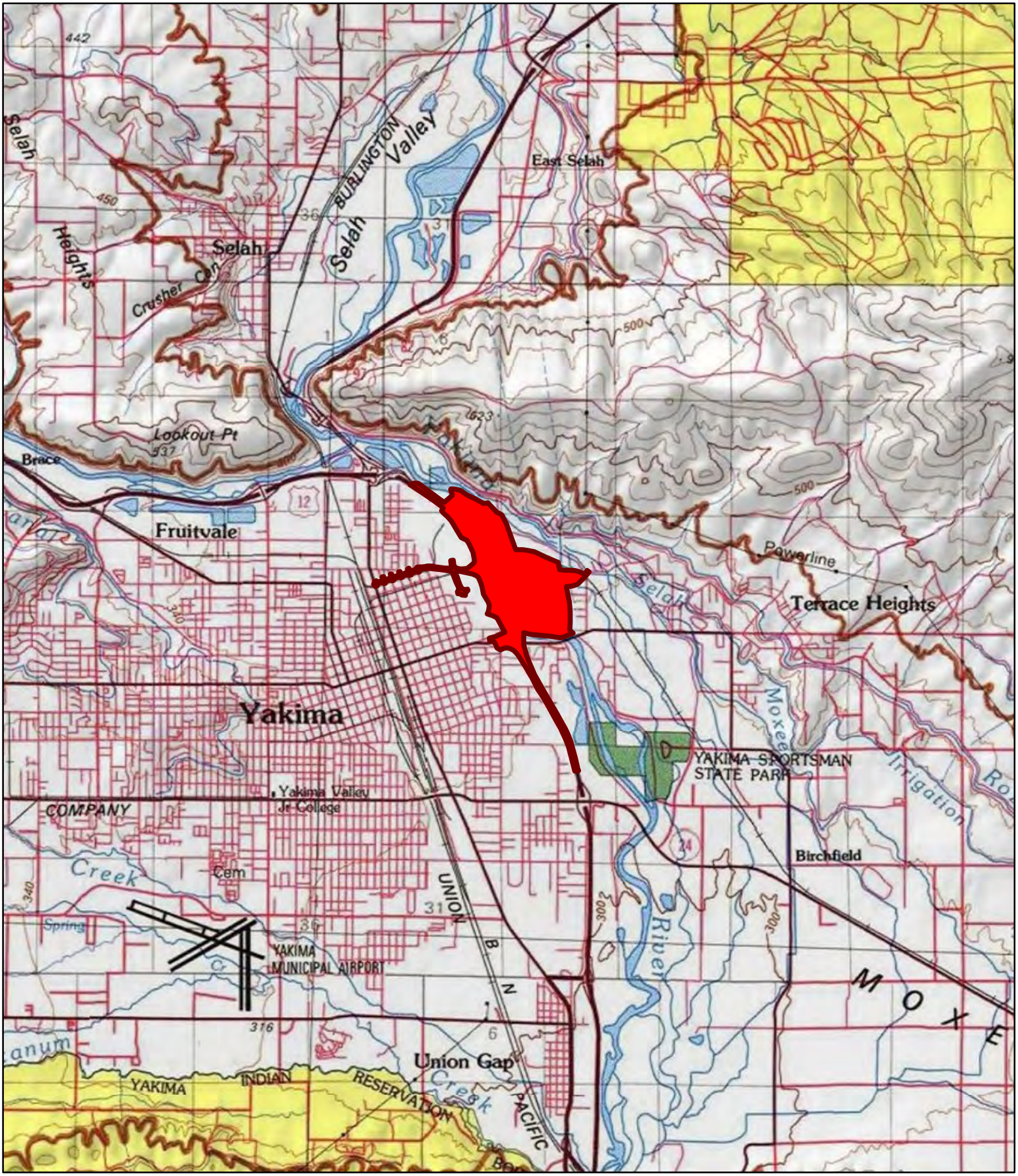

Figure 1. Vicinity Map

Study Area

February 3, 2017

NORTH

Miles 0 0.5 1 2

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Figure 2. Study Area

Study Area

February 3, 2017

NORTH

Feet 0 1,000 2,000 4,000

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2.3 Project description

2.3.1 Existing Conditions

The area at the western terminus of the proposed construction, west of Interstate 82, is within the Boise Cascade Mill Redevelopment Area and is zoned as Regional Development. This area was a part of a lumber mill from 1903 to 2006, with log ponds remaining until the 1960's. It currently consists of 225 acres of cleared land for redevelopment of mixed use, commercial, and light industrial purposes. The project area east of I-82 is predominantly zoned as Suburban Residential with some Light Industrial at the eastern terminus (Yakima County, 2014). There are several private residences and commercial businesses along the proposed route within the community of Terrace Heights, east of I-82. However, the majority of the project area is undeveloped land. Existing impervious areas within the proposed project area include portions of Hartford Road and Butterfield Road as well as several driveways.

The proposed project area is characterized by the Yakima River and its associated floodplain immediately east of I-82. The Yakima River separates the City of Yakima from Terrace Heights and flows generally north to south through the proposed project area. The southern portion of the project area east of the river is comprised of lowlands while the northern portion rises abruptly through a series of terraces to form the Yakima Ridge. Each of these terraces was formed in alluvium from past configurations of the Yakima River. Beginning at the southern end of the project area and heading north, the first terrace encountered is the Rest Haven Bench which is occupied by Rest Haven Road and its adjacent residential properties. The next terrace heading north is completely occupied by the Selah-Moxee Canal. The third terrace is occupied entirely by the Roza Canal, the main canal for the Roza Irrigation District (RID). The Roza Canal runs generally north-south through the eastern portion of the proposed project area.

2.3.2 Proposed Work

The project proposes to create a new transportation corridor between the City of Yakima and the community of Terrace Heights. As the population of Terrace Heights has grown rapidly in recent years and the population is projected to continue increasing, an additional corridor is necessary to provide an alternative crossing of the Yakima River. The Yakima River is a significant barrier to transportation between these two areas and only one direct crossing currently exists; the Yakima Avenue/ Terrace Heights Drive route. Upon project completion, the completed section of the East-West corridor will consist of a 5-lane roadway with two vehicular travel lanes in both directions, a center turn lane, sidewalks, curbing, gutters, and illumination. The proposed bridges aside from the Yakima River pedestrian bridge will have two 14-foot travel lanes, two 12-foot travel lanes, and a 7-foot sidewalk on one side. A 14-foot wide surface for pedestrians and bicycles will also run along a portion of the new roadway including crossing I-82 and the Roza Canal, as well as a stand-alone bridge over the Yakima River directly north of the vehicular bridge.

Five bridges are being proposed with maximum span lengths, girder types, and spacing designed following the Washington State Department of Transportation (WSDOT) Bridge Design Manual. One bridge and interchange will be constructed over I-82 to accommodate the proposed alignment. This bridge would be a 194-foot long, single-span structure consisting of spliced prestressed standard WSDOT WF83G concrete girders. Both a vehicular bridge and pedestrian bridge over the Yakima River will also be constructed approximately 650-850 feet south of the existing Central Washington Railroad bridge crossing. The vehicular bridge will be an 851.5-foot long, 4-span structure consisting of two 185.75-foot spans and two 240-foot spans. The vehicular bridge will be constructed with WSDOT WF83PTG prestressed concrete girders and have 3 intermediate piers with two 6-foot columns sitting on two 10-foot drilled shafts. The adjacent pedestrian bridge will be a 783-foot long, 4-span structure consisting of one 143-foot outer span, two 240-foot spans, and one 160-foot span. The pedestrian bridge will be constructed with prefabricated steel trusses on three intermediate piers with a 4-foot column sitting on a 7-foot drilled shaft. A 129-foot long, single-span vehicular bridge will be

built with standard WSDOT WF58G prestressed concrete girders across Roza Canal near the project's eastern boundaries. A single-span pedestrian bridge will also be built across Roza Canal, constructed with a prefabricated steel truss. All five bridges will generally run east-west.

Some of the piers for the proposed permanent bridges over the Yakima River will need to be drilled below the Ordinary High-Water Mark (OHWM) of the river while others will be drilled within the limits of the 100-year floodplain. There will be no rise in the 100-year or 500-year floodplain (Shannon & Wilson 2019). The proposed pier locations and roadway alignment will have the least environmental impact of any of the analyzed alternatives.

3. METHODS

3.1 Wetland Delineation, Identification, and Classification

Waters of the U.S., including wetlands, were delineated within the study area consistent with the technical approaches outlined in the *USACE Wetlands Delineation Manual* (Environmental Laboratory, 1987), and the *Regional Supplement to USACE Wetland Delineation Manual: Arid West Region* (Version 2.0) (U.S. Army Corps of Engineers, 2008b).

In general, the wetland delineation consisted of three main tasks: (1) assessing vegetation, soil, and hydrologic characteristics to identify areas meeting the wetland technical standards, (2) evaluating constructed drainage features to determine if they would be regulated as wetlands, and (3) marking and surveying wetland boundaries.

Sampling points were selected at sites representative of the wetland area. Dominant plant species in each of the three strata (tree, scrub shrub, and herbaceous) were identified and quantified by visual assessment. A determination of the presence of hydrophytic vegetation was made at each observation point using the dominant test or prevalence index in accordance with the USACE guidelines (U.S. Army Corps of Engineers, 2008b).

Hydrology data was collected from field observations of direct and indirect hydrologic indicators and compared to records of historic climate data. Methodology for determination of wetland hydrology field indicators was consistent the USACE guidelines (U.S. Army Corps of Engineers, 2008b).

Identification of the presence of hydric soils was consistent with the Arid West Regional Supplement to the Corps of Engineers Wetland Delineation Manual (U.S. Army Corps of Engineers, 2008b) and NRCS Field Indicators of Hydric Soils in the United States (USDA, NRCS, 2018). Where possible, soils were examined in test pits to a depth of approximately 20 inches, or the depth at which it could be confirmed that positive indicators were either present or absent. Soil colors were described in data forms using the Munsell soil color chart numbering system (Munsell Color, 2000).

Wetland boundaries flagged by the wetland professional were surveyed by a Yakima County survey crew with a Trimble GPS.

With permission from contacts with the U.S. Army Corps of Engineers and the Washington Department of Ecology in September 2016 (Cade, 2016), the boundaries of several islands within the Yakima River channel were determined by aerial photography rather than a GPS survey. These wetlands were sampled and flagged, but flooding had washed away the flags before they could be surveyed with GPS units. Because of this, some wetland determination data forms (found in Appendix A) may lack specific coordinates. Rather than re-delineating the entire area, all upland areas were flagged and surveyed while recent aerial imagery was used to distinguish between open water, unconsolidated shore, and vegetated wetland. Surveyed and aerially-delineated wetlands can be distinguished on the maps provided in Appendix F. It is likely these aerially-delineated riverine island wetlands will include upland areas, therefore their respective boundaries are likely overestimated. If these wetlands will be impacted by the project, the wetlands will be surveyed at a finer scale and be re-delineated to ensure accurate analysis of potential impacts.

Wetlands to be impacted will be rated after project areas are finalized. All ratings and impacts will be included in a separate mitigation report, which will also detail how impacts will be mitigated for according to federal, state, and local guidelines.

3.2 Pre-field Review of Information

Existing information was reviewed prior to field studies to aid in the delineation and inform the wetland professional of current site conditions and known environmental data. Thirty years of climate records for Yakima, WA were obtained from the National Resource Conservation Service (NRCS), National Water and Climate Center website to compare rainfall conditions at the time of fieldwork and determine whether conditions are drier or wetter than normal (NRCS, 2019). The NRCS Web Soil Survey provided background information regarding the general characterization of the soils in the area, the parent material, as well as series, taxonomy and subgroup information (NRCS, 2016). USGS river gauge data was reviewed to analyze the magnitude of recent floods to aid in delineation of the OHWM.

Aerial photos and project maps of the area were reviewed to help orientate the delineator in the field. Existing information concerning the project area was reviewed prior to fieldwork to identify vegetation patterns, topography, soils, streams, and other natural resources potentially located within the project boundaries. National Wetlands Inventory Maps (USFWS, 2016) (Appendix E), the National Wetland Plant List (Lichvar, 2016), and FEMA flood maps (FEMA, 2016) were reviewed prior to field investigations.

4. SITE CHARACTERIZATION

4.1 Project Area Setting

The project area is in a historic reach of the Yakima River floodplain within the City of Yakima between downtown and the Terrace Heights neighborhood. The river has since been leveed on either side, which constricts the river and reduces the overall floodplain area. Much of land in the City of Yakima was historically agricultural, however, little remains within the Yakima city limits. Overall, much of the project area is natural and undeveloped land, but still contains roadways, residential development, and commercial and industrial enterprises.

4.2 Hydrology

The project is located within the Yakima River drainage basin. The Yakima River originates in the Cascade Mountain Range and flows through the project area until it reaches the Columbia River near the Tri-Cities. Much of the contributing water is held in reservoirs that regulate water flow and provide water for agriculture during the summer when rainfall is typically low. Intensive irrigation practices have largely changed hydroperiods for stream and groundwater levels, often displaying the highest levels in late spring and summer rather than during the winter rainy season. All delineated wetlands were associated to water derived from the Yakima River or associated hyporheic groundwater.

The growing season in the project area is 178 days in length from April 21st to October 16th assuming 50% probability of 28°F or higher temperatures (NRCS, 2019). Average annual rainfall for the area as measured at the Yakima Airport is 7.97 inches. Data obtained from the NRCS Yakima Airport Station (WA243) indicated a range from drier than normal to wetter than normal during the time when wetland delineations occurred. In general, hydrological conditions for three months prior to each month were drier than normal during all 2015 site investigations, wet during the February 2016 investigations, and normal during the March,

September, and October 2016 site investigations. To complete and revise delineations, more investigations took place in January and October 2019, where the prior periods were normal and wetter than normal, respectively. Table 1 summarizes data by month, taking into consideration precipitation data from 3 months prior, and comparing it to averages over the previous 30-year period, as per NRCS standard methods. Additional hydrologic data is available in Appendix B.

Table 1. Hydrologic Conditions During Site Investigations
Based on data from three months prior from NRCS WETS Table data (NRCS, 2019)

	January	February	March	September	October	November	December
2015	-	-	-	-	Dry	Dry	Dry
2016	-	Wet	Normal	Normal	Normal	-	-
2019	Normal	-	-	-	Wet	-	-

4.3 Plant Community

The project area is located within the Big Sagebrush – Blue Bunch Wheatgrass Zone of the Shrub-Steppe major vegetation area (Franklin and Dyrness 1973; Jackson and Kimerling 1993). As the study area is large, it contains multiple plant communities.

The most abundant plant community included a forested black cottonwood (*Populus balsamifera*) overstory with an understory of willows (*Salix spp.*), red-osier dogwood (*Cornus sericea*), and reed canarygrass (*Phalaris arundinacea*). Along the edge of the forested zones are primarily shrubs and emergent vegetation areas on the cobble shore. Willows, roses (*Rosa spp.*), and weedy invasive species are common here. Areas within the shallow but permanently inundated side channels of the Yakima River, particularly on the northeastern side of the larger river islands, generally supported emergent species mixed with shrubs. Many of these communities consisted of reed canarygrass and narrowleaf willow (*Salix exigua*).

Upland potions of the study area are primarily dominated by noxious weeds typical of the region including tall tumblemustard (*Sisymbrium altissimum*), small tumbleweed mustard

(*Sisymbrium loeselii*), hoary cress (*Lepidium draba*), pepperweed (*Lepidium latifolium*), Canada thistle (*Cirsium arvense*), and cheatgrass (*Bromus tectorum*).

Many of the plants found along the shores of the river islands were invasive, weedy upland species. Generally, only well-dispersed and fast-growing r-strategists establish along these margins as they get washed away and replaced each year. These conditions favor upland species that are not typically found in stable wetland areas.

For a list of plants observed in the study area's wetlands, refer to Appendix C.

4.4 Soils Mapped and Found

The Web Soil Survey identified ten soil series found in the study area including: Ashue loam, Logy silt loam, Naches loam, Track loam, Weirman sandy loam channeled, Weirman fine sandy loam, Weirman gravelly fine sandy loam, Weirman fine sandy loam wet, Yakima silt loam, and Zillah silt loam (NRCS 2016)(Appendix D). Mapped soils and their hydric ratings can be found in Table 2 and Appendix D.

Table 2. Project Area Soils: Hydric Ratings and Area

Soil Series	Hydric Rating	Acres in Study Area	% of Study Area
Ashue loam	10	3.5	0.6%
Logy silt loam, 0 to 2 % slopes	5	0.5	0.1%
Naches loam	0	5.1	0.9%
Track loam	95	0.7	0.1%
Weirman sandy loam, channeled	100	255.9	47.0%
Weirman fine sandy loam	5	48.8	9.0%
Weirman gravelly fine sandy loam	5	97.8	18.0%
Weirman fine sandy loam, wet	5	15.3	2.8%
Yakima silt loam	0	3.2	0.6%
Zillah silt loam	0	4.0	0.7%
Water	0	109.8	20.2%
TOTALS		544.5	100%

4.5 Existing Wetland Mapping

The National Wetlands Inventory (NWI) maps extensive wetlands throughout the Yakima River corridor. Small areas of additional wetlands are mapped around high flow channels of the Yakima River and beside irrigation ditches. Mapped features include riverine, freshwater pond, freshwater emergent, and freshwater forested/shrub wetlands. NWI maps are provided in Appendix E.

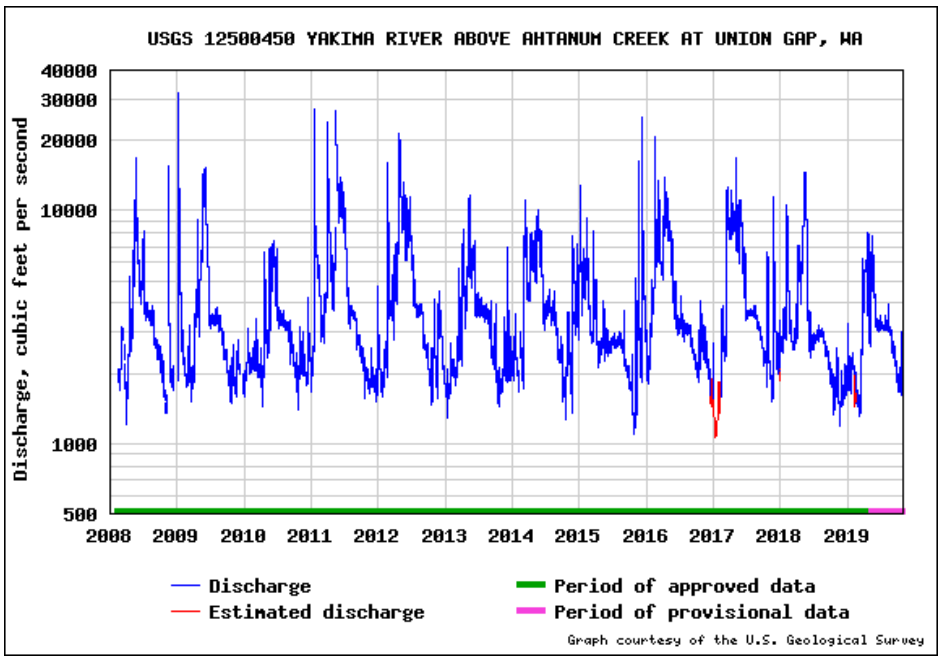
5. RESULTS

5.1 Yakima River

The ordinary high water (OHW) boundary was marked in late 2015 by biologists with Widener and Associates and surveyed by Yakima County. Data obtained from USGS indicates that high water levels occurring in late 2015 were roughly equivalent to a two-year flood, or what is typically considered the elevation of OHW. Water had reached the discharge and gage height of this event 4 times in the last 10 years since collection began from USGS at Union Gap (Figure 3) (USGS, 2019). Based on this data, the 1-year flood occurs at an approximate gage height of 46 feet, 2 feet less than the 2-year flood. The river left behind wracked debris during the most recent high-water event and provided a strong OHW indicator.

The OHW of the Yakima River was estimated around an upland island identified in 2019 using high resolution LiDAR data from 2013 (Quantum Spatial 2014), comparing elevations of nearby surveyed OHW boundaries, recent aerial imagery, and field verification of upland habitat.

Figure 3. USGS Water Gage Data 01/2008 - 10/2019



5.2 Roza Canal

The OHWM of Roza Canal's Wasteway 2, south of Hartford Road, was surveyed within the study area (see Figure 4). This canal is part of a system that diverts water from the Yakima River at the Roza Dam to irrigate agricultural lands throughout Yakima and Benton County. Roza Canal's Wasteway 2 connects with the Yakima River just upstream of the Terrace Heights Drive Bridge.

5.3 Wetlands

Many of the delineated wetlands are within the limits of the Yakima River's surveyed OHWM as they associate with river hydrology. The majority of wetlands within the study area occur along the shorelines and floodplain of the Yakima River. Wetlands within the study area not occurring within the floodplain were observed to receive groundwater or stormwater inputs, and most often outlet to the Yakima River via culvert.

The following summaries of wetlands characterize their location, vegetation, hydrology, and soils found. An overview map of the delineated wetlands is shown in Figure 3, Wetland delineation data sheets can be found in Appendix A, and more detailed wetland maps can be found in Appendix F.

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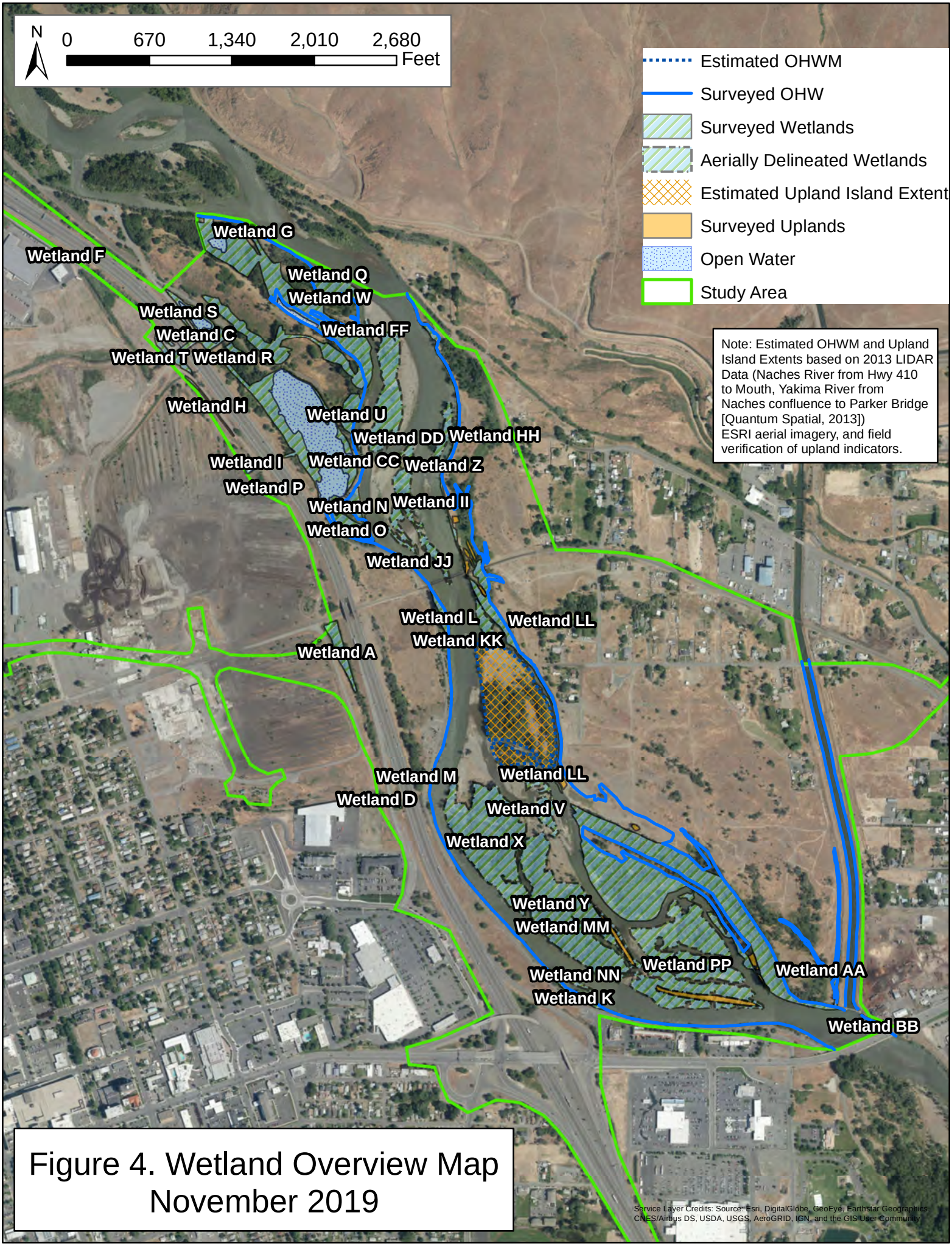

Figure 4. Wetland Overview Map
November 2019

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Wetland A

Wetland A is in a depression between a road (Industrial Road), highway (Interstate 82), and railroad track (Central Washington Railroad). Water drains into the northern part of the wetland through culverts and flows south, leaving through long pipes connected to Wetland D and J. Wetland A is triangular in shape and tapers near the outfall on the south end. The area of the wetland is 0.887 acres (38,631 sq. feet). Scrub-shrub and emergent vegetation are present in the wetland area. It is a USACE jurisdictional wetland as the water eventually reaches the Yakima River and other downstream Waters of the U.S.

Vegetation: Vegetative species include *Phalaris arundinacea*, *Iris pseudacorus, Typha latifolia, Cirsium arvense, Rosa woodsii, Salix exigua, Rumex crispus, Populus balsamifera, Lepidium latifolium, Salix fragilis, Solanum dulcamara, Brassica sp.*. The wetland met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: Portions of the wetland were inundated during the site visit, primarily in a small ditch through the center. Oxidized rhizospheres were found along living roots at sampling points, meeting hydrology indicator C3.

Soil: The top soil layer was depleted and had redox concentrations, meeting the Depleted Matrix (F3) indicator.

Conclusion: Wetland A satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland A

Wetland B

Wetland B is located in a small depression on the west side of Industrial Road, opposite of Wetland A. The wetland appears to receive its hydrology from groundwater, which flows east into Wetland A through a culvert. The area of the wetland is 0.010 acres (416 sq. feet) and contains mostly emergent vegetation. Wetland B is a USACE jurisdictional wetland as the water eventually drains into the Yakima River and other downstream Waters of the US.

Vegetation: The wetland was primarily dominated by *Phalaris arundinacea* and *Robinia pseudoacacia*. It met the prevalence index indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: Portions of the wetland were inundated during the site visit, primarily in lower elevation areas in the center. Hydrology indicators High Water Table (A2), Saturation (A3), and Hydrogen Sulfide Odor (C1) were observed in the wetland.

Soil: The top soil layer was a dark muck meeting the Loamy Mucky Mineral (F1) hydric soil indicator as well as producing a sulfuric smell, meeting the Hydrogen Sulfide (A4) hydric soil indicator.

Conclusion: Wetland B satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland B

Wetland C

Wetland C is located on both sides of I-82, connecting via an underpass. Water flows into the wetland from a culvert on the west side of the interstate that feeds into a perennial pond on the east side of the interstate. The water then drains southward into Wetland P through a grated spillway. Much of the wetland surrounds the open water, and Wetland C features both lacustrine and depressional characteristics. The area of the wetland is 1.555 acres (67,722 sq. feet). Both scrub-shrub and emergent vegetation are present in the wetland. It a USACE jurisdictional wetland as the water eventually drains into the Yakima River and other downstream Waters of the U.S.

Vegetation: The wetland contained many species including: *Salix fragilis, Phalaris arundinacea, Iris pseudacorus, Typha latifolia, Cirsium arvense, Rosa woodsii, Salix exigua, Rumex crispus, Populus balsamifera, Lepidium latifolium, Euthamia occidentalis, Arctium minus, Sonchus arvensis, Lythrum salicaria, Cornus sericea, Plantago lanceloata, Juncus effusus, Schoenoplectus americanus, Ribes aureum,* and *Tanacetum vulgare*. It met the prevalence index indicator for hydrophytic vegetation at a sampling point that was representative of the wetland area.

Hydrology: The wetland was inundated at the site visit ranging from deep water habitat to shallows areas near the wetland margins. The hydrology indicator at the sampling point was High Water Table (A2) at 8 inches depth, and Saturation (A3) to the surface.

Soil: Soils to eight inches were sandy loams, with pure cobble encountered at 8 inches depth. Redox concentrations were encountered between four and eight inches, meeting the Sandy Redox (S5) hydric soil indicator.

Conclusion: Wetland C satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland C

Wetland D

Wetland D is in a small depression located just east of I-82. Hydrology is provided from the north through a pipe connected to Wetland A. The wetland's water outlets westward to Wetland J through a culvert underneath an I-82 off-ramp. The wetland area is 0.044 acres (1,915 sq. feet). Both scrub-shrub and emergent vegetation are present in the wetland. It a USACE jurisdictional wetland as the water eventually drains into the Yakima River and other downstream Waters of the U.S.

Vegetation: The wetland was primarily dominated by *Salix fragilis, Salix exigua, Rumex crispus, Phalaris arundinacea, Iris pseudacorus, Lythrum salicaria, and Solanum dulcamara*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was inundated at the site visit, particularly in the central lower elevation area. The hydrology indicators at the sampling point were nearby Surface Water (A1) with a depth of approximately 2 inches, High Water Table (A2) at 11 inches depth, and Saturation (A3) at 7 inches depth.

Soil: Soils observed were sandy in nature with some silt particles. A layer containing redox concentrations as pore linings was encountered at a depth of six inches, meeting the Sandy Redox (S5) hydric soil indicator.

Conclusion: Wetland D satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland D

Wetland E

Wetland E is located in a small depression west of I-82, north of Wetland C and east of Wetland T. The main source of hydrology appears to be ground water, which drains into Wetland C through a small culvert under a gravel road (Freeway Lake Road). It is a USACE jurisdictional wetland as its waters eventually drain into the Yakima River and other downstream Waters of the U.S. The area of the wetland is 0.041 acres (1,807 sq. feet). Scrub-shrub and emergent vegetation comprise the majority of the wetland area.

Vegetation: The wetland was primarily inhabited by *Phalaris arundinacea, Lythrum salicaria, Salix exigua, Solidago lepida, Equisetum arvense, Carex spp., Typha latifolia, Populus balsamifera,* and *Clematis ligusticifolia*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but met hydrology indicators Water-Stained leaves (B9), Shallow Aquitard (D3), and FAC-Neutral Test (D5).

Soil: Soils to three inches were silt loams mixed with cobbles, with primarily cobbles below. This made sampling soils for hydric soil indicators very difficult, and none were found in the top three inches. As this soil is naturally problematic, wetland determination was made based on vegetative and hydrologic indicators.

Conclusion: Wetland E, though containing problematic soils, provides vegetation and hydrology indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland E

Wetland F

Wetland F is in a small depression southwest of I-82, between the interstate and Freeway Lake Road, north of Wetlands C and E. Water flows into the wetland from a large concrete culvert under I-82 and drains southward, under Freeway Lake Road into a channelized ditch paralleling the road, eventually meeting with Wetland C. The area of the wetland is 0.012 acres (527 sq. feet). Both scrub-shrub and emergent vegetation are present in the wetland

area. It is a USACE jurisdictional wetland as the water eventually drains into the Yakima River and other downstream Waters of the U.S.

Vegetation: The wetland was primarily dominated by *Phalaris arundinacea, Ulmus pumila, Salix exigua, and Euthamia occidentalis*. It met the dominance test indicator for hydrophytic vegetation at a sampling point representative of the wetland area.

Hydrology: Wetland F met the hydrology indicators Water-Stained leaves (B9), Shallow Aquitard (D3), and FAC-Neutral Test (D5).

Soil: Soils were naturally problematic in this wetland. Soil textures of silt loams were encountered from 0 to 5 inches depth until a layer of cobble rock was found. As hydric soil indicators do not readily form in such coarse materials, wetland determination was made based on vegetative and hydrological indicators.

Conclusion: Wetland F satisfies the vegetation and hydrology indicators of wetlands with problematic soils thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland F

Wetland G

Wetland G is located on an island within the Yakima River in the northern part of the study area. Wetland hydrology is provided from the Yakima River which inundates the island during periods of high water. It is a USACE jurisdictional wetland as the waters drain directly into other Waters of the U.S. The area of the wetland is 0.072 acres (3,120 sq. feet). Scrub-shrub vegetation comprises much of the wetland area.

Vegetation: The wetland was primarily dominated by *Phalaris arundinacea* and *Salix exigua*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit, but met the hydrology indicators Drift Deposits (B3) and Drainage Patterns (B10).

Soil: Soils were comprised of streambed cobble and presented naturally problematic conditions. Pits could not be adequately dug in rock and hydric soil indicators do not readily

form on newly formed entisols. Wetland determinations were made based on the vegetation and hydrology since soil could not be used to as indicator for wetland presence.

Conclusion: Wetland G satisfies the vegetation and hydrology indicators in problematic soil conditions thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland G

Wetland H

Wetland H is located in a linear depression west of I-82, south of Wetland C. Hydrology is provided by a connected ditch that runs west to east, parallel to a gravel offshoot of Industrial Road, and outlets southward to Wetland I through a culvert. The area of the wetland is 0.200 acres (8,713 sq. feet). Emergent vegetation comprises the majority of the wetland area. It is a USACE jurisdictional wetland as the water eventually drains into the Yakima River and other downstream Waters of the US.

Vegetation: The wetland was primarily dominated by *Phalaris arundinacea, Juncus effusus, Scirpus sp., Equisetum arvense, Cirsium arvense, Iris pseudacorus, Typha latifolia, Euthamia*

occidentalis, Carex obnupta, Rumex crispus, Polygonum sp., Lythrum salicaria, Salix fragilis, Equisetum hyemale, Schoenoplectus americanus, Solidago lepida, and *Oenothera sp*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit, but met hydrology indicators Inundation Visible on Aerial Imagery (B7), Water-Stained leaves (B9), Saturation Visible on Aerial Imagery (C9), and Shallow Aquitard (D3).

Soil: Soils were comprised of cobble rock and presented naturally problematic conditions. Pits could not be adequately dug in rock and hydric soils do not always form in dense rock sediments. Wetland determinations were made based on the vegetation and hydrology since soil could not be used to as indicator for wetland presence.

Conclusion: Wetland H meets vegetation and hydrology indicators in problematic soil conditions thereby satisfying regulatory technical standards to be classified as a wetland.

Wetland H

Wetland I

Wetland I is located in south of Wetland H and contains an area of open water that contains concrete structures. Hydrology is provided by a culvert, passing water from Wetland H, and drains to the east via a culvert under I-82. The wetland area is 0.084 acres (3,642 sq. feet). Emergent plants comprise the majority of vegetation in the wetland area. It is a USACE jurisdictional wetland as the water eventually drains into the Yakima River and other downstream Waters of the U.S.

Vegetation: The wetland was primarily dominated by *Typha latifolia, Cirsium arvense, Phalaris arundinacea, Rumex crispus, Euthamia occidentalis, Iris pseudacorus, Lythrum salicaria, Bidens sp., and Scirpus sp.*. It met the prevalence index indicator for hydrophytic vegetation at a sampling point representative of the wetland area.

Hydrology: The wetland was mostly inundated during the site visit and the hydrology indicator of Water-Stained leaves (B9) was observed at the sample point taken near the wetland margins.

Soil: A thick layer of peat was found underneath a silt loam surface layer, meeting the hydric soil indicator of Histosol (A1).

Conclusion: Wetland I satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland I

Wetland J

Wetland J is located in a small depression between I-82 and the eastbound Exit 33A offramp. Water flows westward into the wetland from a culvert connected to Wetland D and outlets through a culvert underneath I-82 and into the Yakima River. The area of the wetland is 0.040 acres (1,757 sq. feet). Scrub-shrub species comprise most of the wetland vegetation. It is a USACE jurisdictional wetland as the water directly drains into the Yakima River and other downstream Waters of the U.S.

Vegetation: The wetland was primarily dominated by *Phalaris arundinacea, Salix fragilis,* and *Robinia pseudoacacia*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland met the hydrology indicators of High Water Table (A2) at 2 inches depth, Saturation (A3) to the soil surface, and Shallow Aquitard (D3).

Soil: Soils to six inches were mucky in texture. A layer of cobble was encountered at six inches depth. The Loamy Mucky Mineral (F1) hydric soil indicator was met.

Conclusion: Wetland J satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland J

Wetland K

Wetland K is along the western edge of the Yakima River, adjacent to the Yakima Greenway trail, and is periodically flooded during high water events. The edges of Wetland K are defined by quarry spall rock, supporting and armoring the adjacent paved trail as part of a federal levee. The area of the wetland is 0.351 acres (15,278 sq. feet), most of which is forested or scrub-shrub with an emergent understory. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: The wetland was primarily dominated by *Rosa woodsii, Salix exigua, Conium maculatum, Symphoricarpos albus, Acer saccharinum, Phalaris arundinacea, Rumex crispus,*

Tanacetum vulgare, Lepidium latifolium, and Robinia pseudoacacia. This wetland had vegetation that had been previously cut prior to a 2015 visit, and therefore was resampled in 2019.

Hydrology: The wetland was not inundated during the site visit, but met hydrology indicators Water-Stained leaves (B9), Sediment Deposits (B2), Drift Deposits (B3), and Drainage Patterns (B10).

Soil: Soils encountered were silty sandy loams in texture with consistent color to a depth of 20 inches. These entisols were naturally problematic due to being subjected to frequent flooding, deposition, and erosion. Wetland determination was made based on the vegetation and hydrology technical indicators since soil could not be used to as indicator for wetland presence.

Conclusion: Wetland K satisfies the vegetation and hydrology indicators in problematic soil conditions thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland K

Wetland L

Wetland L is along the west edge of the Yakima River beside the Yakima Greenway trail and is periodically flooded during high water events. The area of the wetland is 0.427 acres (18,588 sq. feet), most of which is forested and scrub-shrub. It is a USACE jurisdictional wetland as it is directly hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: The wetland was primarily dominated by *Lepidium latifolium, Cornus sericea, Rosa woodsii, Salix exigua, Populus balsamifera, Bassia scoparia,* and *Ailanthus altissima*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but met hydrology indicator Water-Stained leaves (B9).

Soil: Soils encountered were sandy silty loams. Redoximorphic features were found at 19 inches depth but did not meet technical requirements of a hydric soil indicator. As these soils are naturally problematic in nature due to their position in an active floodplain with active deposition and erosion processes, wetland determination was based on vegetative and hydrologic indicators.

Conclusion: Wetland L satisfies the vegetation and hydrology indicators in problematic soil conditions thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland L

Wetland M

Wetland M is in a depression east of I-82, opposite of the interstate from Wetlands D and J, near the western bank of the Yakima River. The source of hydrology for this wetland is groundwater, which then drains into the Yakima River through a dual culvert. The area of the wetland is 0.044 acres (1,921 sq. feet). Forested and scrub-shrub vegetation comprise most of the wetland area, with an emergent understory also appearing in areas. It is a USACE jurisdictional wetland as the water eventually drains into the Yakima River, a Water of the U.S.

Vegetation: The wetland was primarily dominated by *Populus balsamifera, Robinia pseudoacacia, Ribes aureum, Typha latifolia,* and *Carex obnupta*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but met hydrology indicator Water-Stained leaves (B9).

Soil: Soils were sands and sandy loams with many redox concentrations, meeting the Sandy Redox (F3) hydric soil indicator.

Conclusion: Wetland M satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland M

Wetland N

Wetland N is along the west edge of the Yakima River and is periodically flooded during high water events. The area of the wetland is 0.482 acres (20,992 sq. feet), most of which is forested and scrub-shrub. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: The wetland was primarily dominated by *Phalaris arundinacea, Populus balsamifera, Ribes aureum, Lepidium latifolium, Rosa woodsii, Cornus sericea, Salix exigua,* and, *Euthamia occidentalis*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but met hydrology indicator Water-Stained leaves (B9), Sediment Deposits (B2), and Drift Deposits (B3).

Soil: As entisols within the Yakima River floodplain, soils within Wetland N were naturally problematic and not used in wetland determination. Entisols do not always display hydric soils characteristics so the determination was based on vegetation and hydrology indicators. In general, soils encountered were silty loams in texture.

Conclusion: Wetland N satisfies the vegetation and hydrology indicators with problematic soils, thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland N

Wetland O

Wetland O is along the west edge of the Yakima River and is periodically flooded during high water events. Wetland O also receives water from a plastic culvert originating in Wetland P to the north. The area of the wetland is 1.103 acres (48,052 sq. feet), and includes forested,

scrub-shrub, and emergent vegetation. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: The wetland contained vegetation such as *Phalaris arundinacea, Populus balsamifera, Hypericum perforatum, Ribes aureum, Lepidium latifolium, Rosa woodsii, Cornus sericea, Salix exigua, Euthamia occidentalis, Iris pseudacorus, Typha latifolia, Lythrum salicaria, Dipsacus fullonum, Juncus effusus, Rumex crispus, Conium maculatum, Scirpus sp.,* and *Carex sp*. It met the prevalence test indicator for hydrophytic vegetation at sampling points representative of the wetland area.

Hydrology: Portions of the wetland were inundated during the site visit. Indicators met at the sample point location include Water-Stained leaves (B9), Sediment Deposits (B2), and Drift Deposits (B3).

Soil: Soils were silty sandy loams with many redox features, meeting the indicator Depleted Matrix (F3).

Conclusion: Wetland O satisfies the vegetation, hydrology, and hydric soil indicators, thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland O

Wetland P

Wetland P is located east of I-82, between the interstate and the Yakima River around the fringe of a small lake. Water flows into the wetland from Wetland Q, Wetland C, and Wetland I through culverts. It also floods during periods of high water from the Yakima River. Water from Wetland P is able to flow southward into Wetland O via a plastic culvert, then is discharged into the Yakima River. Much of the wetland surrounds an open water area and exhibits both lacustrine and depressional characteristics. The area of the wetland is 4.079 acres (177,701 sq. feet). Both scrub-shrub and emergent vegetation are present in the wetland. Wetland P is a USACE jurisdictional wetland as its water eventually drains into the Yakima River and other downstream Waters of the U.S.

Vegetation: The wetland was primarily dominated by *Salix fragilis, Phalaris arundinacea, Iris pseudacorus, Typha latifolia, Cirsium arvense, Rosa woodsii, Salix exigua, Rumex crispus, Populus balsamifera, Lepidium latifolium, Euthamia occidentalis, Arctium minus, Sonchus arvensis, Lythrum salicaria, Cornus sericea, Plantago lanceloata, Juncus effusus,*

Schoenoplectus americanus, Ribes aureum, Tanacetum vulgare, Hypericum perforatum, and *Capsella bursa-patoris*. It met the prevalence index indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was inundated at the site visit ranging from deep water habitat to shallows areas of wetland margins. The hydrology indicators at the sampling point were Water-Stained leaves (B9) and Oxidized Rhizospheres along Living Roots (C3).

Soil: Soils to nine inches were silty loams, with many redoximorphic features appearing at two inches in depth, meeting the Depleted Matrix (F3) hydric soil indicator.

Conclusion: Wetland P satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland P

Wetland Q

Wetland Q is located on the western bank of the Yakima River. It is riverine in nature and outlets both into the Yakima River and Wetland P. The wetland interweaves through and

around the ordinary high water mark of the nearby Yakima River and floods during periods of high flows. Wetland Q is 10.827 acres (471,628 sq. feet) in size. The wetland contains forested and scrub shrub vegetation, with emergent vegetation lining ponded areas. Wetland Q is a USACE jurisdictional wetland as its waters outlet into the Yakima River and other downstream Waters of the U.S.

Vegetation: Vegetation varied between the three wetland sample plots. Species included *Populus balsamifera, Robinia pseudoacacia, Rosa woodsii, Salix exigua, Phalaris arundinacea, Lepidium latiflolium,* and *Carex obnupta.* All three wetland survey points met the dominance indicator for hydrophytic vegetation.

Hydrology: The wetland contained some areas of inundation during the site visits, and exhibited indicators of hydrology at the sampling points such as High Water Table (A2), Saturation (A3), Sediment Deposits (B2), Drift Deposits (B3), and Drainage Patterns (B10). All wetland test points contained multiple indicators of wetland hydrology to satisfy the technical requirements.

Soil: The three wetland test plots exhibited different soil properties.
The most northern test pit had soils that were sandy loams in texture. These soils contained redoximorphic features starting at one-inch depth and continued as particle size grew larger to sandier soils. This plot met the hydric soil indicator of Sandy Redox (S5).
The easternmost test pit did not display hydric soil indicators and had a sandy silt loam texture intermixed with cobble to twenty inches. As this pit lies the closest to the Yakima River, it may experience the most amount of flooding, erosion, and general disturbance. Therefore, only this test pit's vegetative and hydrological indicators were used to determine wetland presence.
The westernmost test pit's soils were also problematic in nature. Soils had a texture of fibric muck from the surface to 4 inches, where cobble underlain the area. This met the indicator for problematic hydric soil "2cm Muck" (A10).

Conclusion: All three test pits for Wetland Q display strong indicators of wetland vegetation and hydrology. Disregarding problematic soils, Wetland Q meets technical standards to be classified as a wetland.

Wetland Q

Wetland R

Wetland R is located between I-82 and the Yakima River, north of Wetland P and south of Wetland C. It is depressional in nature and groundwater appears to be a main source of hydrology. Like the wetlands surrounding Wetland R, it also floods during periods of high water from the Yakima River. Wetland R does not appear to have an outlet of water and therefore may not be a USACE jurisdictional wetland. The area of the wetland is 0.214 acres (9,319 sq. feet). Areas of forested and emergent vegetation are present in the wetland area.

Vegetation: The wetland was primarily dominated by *Populus balsamifera, Carex obnupta, and Lepidium latlifolium. It also contained Elaeagnus angustifolia, Rhus glabra, and Euthamia occidentalis*. It met the dominance indicator for hydrophytic vegetation at sampling points representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but exhibited indicators of hydrology at the sampling location such Oxidized Rhizospheres along Living Roots (C3), Sediment Deposits (B2), and Drift Deposits (B3).

Soil: Soils to ten inches were sandy silt loams. From ten to twenty inches in depth, clayey silt loams were encountered with prominent redox features. These soils met the hydric soil indicator of Depleted Matrix (F3).

Conclusion: Wetland R satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland R

Wetland S

Wetland S is in a depression northeast of I-82, across the highway from Wetland T. It is a depressional wetland surrounded by road fill on its borders. Groundwater appears to be the wetlands main source of hydrology, with no observed outlet. Therefore, this wetland may not

be under USACE jurisdiction. The area of the wetland is 0.122 acres (5,298 sq. feet). Scrub-shrub vegetation comprises the majority of the wetland area, with an emergent understory.

Vegetation: The wetland was primarily dominated by *Elaeagnus angustifolia*, *Cornus sericea, Rosa woodsii, and Euthamia occidentalis*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was inundated during the site visit, with surface water present at a depth of one inch. The wetland met hydrology indicators Surface water (A1) and Water-Stained Leaves (B9).

Soil: Cobble with a thin one-inch muck surface layer was encountered. Thus, the indicator 2cm Muck (A10) was met, signifying problematic hydric soil.

Conclusion: Wetland S satisfies the vegetation and hydrology indicators as well as a problematic hydric soil indicator, thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland S

Wetland T

Wetland T is located in a linear depression south east of I-82, west of the intersection of Freeway Lake Road and Industrial Road. It is depressional in nature and has no observed outlet, therefore may not be under USACE jurisdiction. The area of the wetland is 0.164 acres (7,146 sq. feet). Emergent vegetation comprises much of the wetland area.

Vegetation: The wetland was primarily dominated by *Phalaris arundinacea*, *Rosa woodsii, and Cirsium arvense*. It met the prevalence test indicator for hydrophytic vegetation at sampling points representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but met the hydrology indicators High Water Table (A2) at 8 inches depth, Saturation (A3) at 6 inches depth, and Water-Stained Leaves (B9).

Soil: Soils were cobbly silt loams from the surface to a depth of six inches. From six to twenty inches depth, muck with cobble intermixed was encountered. This satisfied the requirements of hydric soil indicator Loamy Mucky Mineral (F1).

Conclusion: Wetland T satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland T

Wetland U

Wetland U is along the west edge of the Yakima River and is periodically flooded during high water events. The area of the wetland is 0.840 acres (36,574 sq. feet) and includes forested and scrub-shrub wetland vegetation. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: The wetland was primarily dominated by *Populus balsamifera, Rosa woodsii,* and *Cornus sericea*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: Indicators met at the sample point location include Sediment Deposits (B2), Drift Deposits (B3), and Drainage Patterns (B10).

Soil: Soils were sandy silty loams in texture. Redoximorphic concentrations were found below depths of seven inches, therefore meeting the hydric soil indicator of Depleted Matrix (F3).

Conclusion: Wetland U satisfies the vegetation, hydrology, and hydric soil indicators, thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland U

Wetland V

Wetland V is located along the eastern edge of the Yakima River, surrounded by the river's side channels and wetlands X, Y, LL and MM. Wetland V is periodically flooded during high water events and is 1.223 acres (48,916 sq. feet) in size. Wetland V is mainly composed of scrub-shrub wetland vegetation. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: The wetland was primarily dominated by *Salix exigua, Salix fragilis, Rumex crispus, Centaurea sp., Linaria dalmatica,* and *Polygonum cuspidatum.* It met the dominance test indicator for hydrophytic vegetation at a sampling point representative of the wetland area.

Hydrology: Indicators met at the sample point location include Sediment Deposits (B2), Drift Deposits (B3), and Drainage Patterns (B10).

Soil: Soils were sandy in texture. A layer of cobble was encountered at six inches depth. This made sampling soils difficult. As the wetland lies entirely within an active floodplain, the soils can be considered naturally problematic and wetland determination will be made based on vegetative and hydrological indicators.

Conclusion: Wetland V satisfies the vegetation and hydrology indicators in problematic soil conditions thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland V

Wetland W

Wetland W is located on the western bank of the Yakima River. It is 1.281 acres (55,779 sq. feet) in size and is hydrologically associated with the Yakima River, lying entirely within the Ordinary High Water Mark and flooding during periods of high water. Thus, Wetland W is a USACE jurisdictional wetland. Wetland W contains a range of forested, scrub shrub, and emergent vegetation.

Vegetation: The wetland was primarily dominated *by Phalaris arundinacea, Populus balsamifera, Rosa woodsii, Salix exigua,* and *Euthamia occidentalis.* It met the dominance test indicator for hydrophytic vegetation at a sampling point representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit. Indicators met at the sample point location included Sediment Deposits (B2), and Drift Deposits (B3).

Soil: Soils were silty sandy loams with redox features occurring to the surface. The soils met the hydric soil indicator Depleted Matrix (F3).

Conclusion: Wetland W satisfies the vegetation, hydrology, and hydric soil indicators, thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland W

Wetland X

Wetland X is located on the eastern bank of the main stem of the Yakima River and is 9.014 acres (392,630 sq. feet). Forested, scrub shrub, and emergent vegetation all occupy Wetland X. It is a USACE jurisdictional wetland as its hydrology is directly associated with the Yakima River and thus other downstream Waters of the U.S.

Vegetation: The wetland was primarily inhabited by *Populus balsamifera, Acer saccharinum, Rosa woodsii, Sonchus arvensis, Euthamia occidentalis, Cirsium arvense,* and *Phalaris arundinacea*. It met the dominance test indicator for hydrophytic vegetation at sampling points representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but met hydrology indicators Water-Stained leaves (B9), Sediment Deposits (B2), Drift Deposits (B3), and Drainage Patterns (B10).

Soil: Soils to nine inches were sandy mixed with rock. Cobble rock was encountered at nine inches depth. This made sampling soils for hydric soil indicators very difficult. As this soil is naturally problematic due to its location in an active floodplain, wetland determinations were made based on vegetative and hydrologic indicators.

Conclusion: Wetland X satisfies the vegetation and hydrology indicators in problematic soil conditions thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland X

Wetland Y

Wetland Y is located on the eastern bank of the Yakima river just south of Wetland X and Wetland V. It is 9.941 acres (433,036 sq. feet) in size. Wetland hydrology is provided from the Yakima River which inundates the wetland during periods of high water. Forested vegetation comprises the majority of the wetland area with an emergent understory. It is a USACE jurisdictional wetland as the waters drain directly into other Waters of the U.S.

Vegetation: The wetland was primarily dominated by *Populus balsamifera, Rosa woodsii, Phalaris arundinacea, Centaurea sp.*. It met the dominance test indicator for hydrophytic vegetation at a sampling point representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but met hydrology indicators Water-Stained Leaves (B9), Sediment Deposits (B2), Drift Deposits (B3) and Drainage Patterns (B10).

Soil: Soils were comprised of sand and streambed cobble and presented naturally problematic conditions. Pits could not be adequately dug in rock and hydric soil indicators do not readily form on newly formed entisols. Wetland determinations were made based on the vegetation and hydrology since soil could not be used to as indicator for wetland presence.

Conclusion: Wetland Y satisfies the vegetation and hydrology indicators in problematic soil conditions thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland Y

Wetland Z

Wetland Z is a thin wetland strip that lines the edge of the Yakima River. Wetland Z is 0.978 acres (42,594 sq. feet). Areas of forested, scrub-shrub, and emergent vegetation are all present in the wetland area. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: Dominant species primarily include *Phalaris arundinacea, Salix exigua, Salix fragilis, Populus balsamifera,* and *Betula occidentalis*. It met the dominance test indicator for hydrophytic vegetation at all sampling points.

Hydrology: The wetland was inundated in lower elevation locations during site visits. At test pit locations, hydrology indicators included Sediment Deposits (B2), Drift Deposits (B3), Drainage Patterns (B10), and FAC-Neutral Test (D5).

Soil: Much of the soil was natural problematic as it was primarily newly deposited or eroded entisols. Wetland determination was made based on vegetative and hydrologic indicators.

Conclusion: Wetland Z satisfies the vegetation and hydrologic indicators in problematic soil conditions, thereby meeting regulatory technical standards to be classified as a wetland.

Wetland Z

Wetland AA

Wetland AA is within a high flow channel that is inundated during periods of flooding. The area of the wetland is 0.056 acres (2,434 sq. feet), most of which forested with an herbaceous understory. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: The wetland was primarily dominated by *Populus balsamifera, Phalaris arundinacea, and Rosa woodsii*. It met the dominance test indicator for hydrophytic vegetation at a sampling point that was representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit, but met hydrology indicator Sediment Deposits (B2), Drainage Patterns (B3), and FAC-Neutral Test (D5).

Soil: Soil were silt loams with abundant redox features meeting the hydric soil indicator Redox Dark Surface (F6).

Conclusion: Wetland AA satisfies the vegetation, hydrology, and hydric soil indicators, thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland AA

Wetland BB

Wetland BB is located at the edge of the Yakima River, just east of the Roza Canal. The area of the wetland is 0.074 acres (3,243 sq. feet), most of which is scrub-shrub. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S. It slopes into the river along a riprap bank.

Vegetation: The wetland was primarily dominated by *Salix exigua, Salix fragilis, Phalaris arundinacea, Betula occidentalis,* and *Clematis ligusticifolia*. It met the dominance test indicator for hydrophytic vegetation at a sampling point representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit, but met hydrology indicator Sediment Deposits (B2), Drift Deposits (B3), and FAC-Neutral Test (D5).

Soil: Soil was naturally problematic as it was primarily in a riprap bank and wetland determination was made based on vegetative and hydrologic indicators.

Conclusion: Wetland BB satisfies the vegetation and hydrology in problematic soils, thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland BB

Wetland CC

Wetland CC is located within a vegetated sandbar island in the Yakima River, north of the railroad bridge. It is hydrologically associated with the Yakima River, and therefore is under USACE jurisdiction. Wetland CC is 0.042 acres (1,822 sq. feet).

Vegetation: Vegetation in Wetland CC includes *Salix exiqua, Cornus sericea,* and *Betula pumila.* These species and their absolute cover meet the dominance test to satisfy the requirements for hydrophytic vegetation presence.

Hydrology: Indicators of hydrology were present, including Surface Soil Cracks (B6), Sediment Deposits (B2), Drift Deposits(B3), and Drainage Patterns (B10).

Soils: Wetland CC contains naturally problematic soils, as it is located directly within the floodplain of the Yakima River and is subjected to frequent flooding, erosion, and deposition. Soils here are entisols and sandy in nature, thus wetland determination was made based on vegetative and hydrologic indicators.

Conclusion: Based on hydrophytic vegetation and hydrology, Wetland CC meets technical requirements to be classified as a jurisdictional wetland.

Wetland CC

Wetland DD

Wetland DD is an island within the primary channel of the Yakima River. It is 3.927 acres (171,045 sq. feet) with mostly scrub shrub vegetation. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: The wetland was primarily dominated by *Salix exigua*, *Populus balsamifera,* and *Phalaris arundinacea*. It met the dominance test indicator for hydrophytic vegetation at a sampling point that was representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit, but met hydrology indicator Sediment Deposits (B2), Drift Deposits (B3), and Drainage Patterns (B10).

Soil: Soil was naturally problematic as the wetland lies within a vegetated sand bar within the floodplain. Soils are primarily entisols consisting of sand and cobble. Therefore, wetland determination was made based on vegetative and hydrologic indicators.

Conclusion: Wetland DD satisfies the vegetation and hydrology in problematic soils, thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland DD

Wetland FF

Wetland FF lies within a vegetated sandbar in the Yakima River. It is 0.089 acres (3,886 sq. feet) with mostly scrub shrub vegetation. It is hydrologically associated with the Yakima River, and therefore is under USACE jurisdiction.

Vegetation: Vegetation in Wetland FF includes *Salix exiqua, Cornus sericea,* and *Robinia pseudoacacia.* These species and their absolute cover meet the dominance test to satisfy the requirements for hydrophytic vegetation presence.

Hydrology: Indicators of hydrology were present, including Surface Soil Cracks (B6), Sediment Deposits (B2), Drift Deposits(B3), and Drainage Patterns (B10).

Soils: Wetland FF contains naturally problematic soils, due to its location within the floodplain of the Yakima River. The wetland is subjected to frequent flooding, erosion, and deposition.

Soils here are entisols and sandy in nature, thus wetland determination was made based on vegetative and hydrologic indicators.

Conclusion: Based on hydrophytic vegetation and hydrology, Wetland FF meets technical requirements to be classified as a jurisdictional wetland.

Wetland FF

Wetland HH

Wetland HH lies within a vegetated sandbar in the Yakima River. It is 0.688 acres (29,956 sq. feet) and is hydrologically associated with the Yakima River, and therefore is under USACE jurisdiction.

Vegetation: Vegetation in Wetland HH is dominated by *Populus balsamifera.* This species and its absolute cover meet the dominance test to satisfy the requirements for hydrophytic vegetation presence.

Hydrology: Many indicators of hydrology were present, including a High Water Table (A2) at 8 inches depth, Saturation (A3) at 6 inches, Sediment Deposits (B2), Drift Deposits(B3), and Drainage Patterns (B10).

Soils: Wetland HH contains naturally problematic soils, due to its location within the floodplain of the Yakima River. The wetland is subjected to frequent flooding, erosion, and deposition. Soils here are entisols and sandy in nature, thus wetland determination was made based on vegetative and hydrologic indicators.

Conclusion: Based on hydrophytic vegetation and hydrology, Wetland HH meets technical requirements to be classified as a jurisdictional wetland.

Wetland HH

Wetland II

Wetland II is on an island within the main channel of the Yakima River north of the Central Washington Railroad bridge. It is 2.060 acres (89,726 sq. feet) in size. Wetland hydrology is provided from the Yakima River which inundates the island, except for a small area of delineated upland, during periods of high water. Scrub-shrub vegetation comprises much of the wetland area. It is a USACE jurisdictional wetland as the waters drain directly into other Waters of the U.S.

Vegetation: The wetland was primarily dominated by *Salix exigua, Populus balsamifera, Linaria dalmatica, and Centaurea sp.*. It met the prevalence index indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but met hydrology indicators Sediment Deposits (B2) and Drainage Patterns (B10).

Soil: Soils were comprised of fine sand and streambed cobble and presented naturally problematic conditions. Pits could not be adequately dug in rock and hydric soil indicators do not readily form on newly formed entisols. Wetland determinations were made based on the vegetation and hydrology since soil could not be used to as indicator for wetland presence.

Conclusion: Wetland II satisfies the vegetation and hydrology indicators in problematic soil conditions thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland II

Wetland JJ

Wetland JJ is an island within the main stem of the Yakima River. It lies south of Wetland II and north of the Central Washington Railroad bridge, with its southern nexus abutting a bridge pier. It is 0.570 acres (24,833 sq. feet) in area. The wetland is mainly composed of scrub shrub vegetation.

Vegetation: The wetland was primarily dominated by *Populus balsamifera, Salix exigua, Alnus rhombifolia,* and *Rosa woodsii.* It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland met the hydrology indicators of Oxidized Rhizospheres along Living Roots (C3) and Sediment Deposits (B2).

Soil: Soils to six inches were silty sands in texture with distinct redoximorphic concentrations. A layer of cobble was encountered at six inches depth and soils were unable to be sampled further. The horizon closest to the surface was able to meet the hydric soil indicator Sandy Redox (S5).

Conclusion: Wetland JJ satisfies the vegetation, hydrology, and hydric soil indicators thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland JJ

Wetland KK

Wetland KK is along the east edge of the Yakima River south of the Central Washington Railroad bridge and is periodically flooded during high water events. The area of the wetland is 0.508 acres (22,135 sq. feet), and contains forested, scrub shrub, and emergent vegetation. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River and other Waters of the U.S.

Vegetation: The wetland was primarily dominated by *Salix fragilis, Salix exigua, Bassia scoparia, Rumex crispus, Tanacetum vulgare, Centaurea sp.,* and *Lythrum salicaria*. It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was not inundated during the site visit but met hydrology indicator Water-Stained leaves (B9), Water Marks (B1), Sediment Deposits (B2), Drift Deposits (B3), and Drainage Patterns (B10).

Soil: Soils encountered were sandy in texture with pure riverbed cobble occurring at 10 inches depth. As these soils are naturally problematic in nature due to their position in an active floodplain, wetland determination was based on vegetative and hydrologic indicators.

Conclusion: Wetland KK satisfies the vegetative and hydrologic indicators in problematic soil conditions thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland KK

Wetland LL

Wetland LL spans an area of 2.305 acres (100,411 sq. feet). It includes areas along the eastern bank of the Yakima River and surrounds a vegetated high flow channel. Scrub-shrub and emergent wetlands are present, and some areas on the high water channel's western bank have forested overstories. Wetland LL is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Wetland LL was surveyed over multiple years after the East West Corridor project's location was further finalized. Much of the adjacent, previously aerially-delineated island was resurveyed and found to be upland.

Vegetation: The wetland has multiple plant communities and a diverse array of vegetation. Some of the more abundant species include *Populus balsamifera, Phalaris arundinacea, Salix exigua, Salix fragilis, Rosa woodsii, Ribes aureum, Cornus sericea, Carex obnupta,* and *Typha latifolia.* It met the dominance test indicator for hydrophytic vegetation at all sampling points.

Hydrology: The wetland was inundated in lower elevation areas during site visits. At test pit locations in 2016, hydrology indicators included Sediment Deposits (B2), Drift Deposits (B3), Drainage Patterns (B10), and FAC-Neutral Test (D5). Primary indicators of hydrology were observed in 2019 as a High Water Table (A2) at 8 inches depth and Saturation (A3) present to the surface.

Soil: Much of the soil in Wetland LL is naturally problematic as the wetland occurs along a seasonally-flooded high water channel of the Yakima River. Most soils observed were entisols characterized by recent deposition. In these areas, wetland determination was made based on wetland vegetative and hydrologic indicators. One test pit located near the railroad crossing exhibited redoximorphic features and met hydric soil indicator Redox Dark Surface (F6).

Conclusion: Wetland LL meets indicators of wetland vegetation, hydrology, and where not naturally problematic, hydric soils. Wetland LL meets regulatory technical standards to be classified as a wetland.

Wetland LL

Wetland MM

Wetland MM is a large wetland complex spanning an area of 16.230 acres (706,974 sq. feet). It includes areas along the northeastern bank of the Yakima River, river islands, and vegetated high flow channels. Forested, scrub-shrub, and aquatic bed wetlands are all present in the wetland area. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River, a Water of the U.S.

Vegetation: The wetland has multiple plant communities and a diverse array of vegetation. Some abundant species include *Populus balsamifera, Phalaris arundinacea, Salix exigua, Salix fragilis, Phalaris arundinacea, Rosa woodsii, Ribes aureum, Cornus sericea, Carex obnupta,* and

unknown aquatic bed species. It met the dominance test indicator for hydrophytic vegetation at all sampling points.

Hydrology: The wetland was inundated in lower elevation locations during site visits. At test pit locations, hydrology indicators included Sediment Deposits (B2), Drift Deposits (B3), Drainage Patterns (B10), Oxidized Rhizospheres along Living Roots (C3), and FAC-Neutral Test (D5).

Soil: Much of the soil was natural problematic as it was primarily entisols along gravel bar islands. In these areas, wetland determination was made based on vegetative and hydrologic indicators. Certain locations along the mainland formed redoximorphic features and met hydric soil indicator Redox Dark Surface (F6).

Conclusion: Wetland MM satisfies the vegetation, hydrology, and hydric soil indicators in certain locations, or in some cases a determination was made based on vegetation and hydrology alone. This wetland meets regulatory technical standards to be classified as a wetland.

Wetland MM

Wetland NN

Wetland NN is a vegetated gravel island within the main stem of the Yakima River. It is located within the main stem of the river between Wetland K and Wetland Y and is periodically flooded during high water events. It is 0.132 acres (5,739 sq. feet), most of which is cobble rock with scrub-shrub and emergent vegetation. It is a USACE jurisdictional wetland as it is hydrologically associated with the Yakima River and other Waters of the U.S.

Vegetation: The wetland was primarily dominated by *Salix exigua* and *Phalaris arundinacea.* It met the dominance test indicator for hydrophytic vegetation at sampling points that were representative of the wetland area.

Hydrology: The wetland was inundated with two inches of water during the site visit, meet hydrology indicator Surface Water (A1) as well as exhibiting Sediment Deposits (B2).

Soil: As entisols within the Yakima River floodplain, soils within Wetland NN were naturally problematic and not used in wetland determination. Entisols do not always display hydric soils characteristics so the determination was based on vegetation and hydrology indicators. In general, soils encountered were pure cobble to the surface.

Conclusion: Wetland NN satisfies the vegetation and hydrology indicators with problematic soils, thereby meeting the regulatory technical standards to be classified as a wetland.

Wetland NN

Wetland PP

Wetland PP is an island between the Yakima River and a web of side channels. It is 10.677 acres (465,072 sq. feet) and hydrologically associated with the Yakima River, and therefore is under USACE jurisdiction.

Vegetation: Vegetation in Wetland PP consists of mainly forested and scrub shrub species. They include *Populus balsamifera, Acer saccharinum, Alnus rhombifolia, Ribes aureum,* and *Cornus sericea*. These species and their absolute cover meet the dominance test to satisfy the requirements for hydrophytic vegetation presence.

Hydrology: Indicators of hydrology were present, including Sediment Deposits (B2), Drift Deposits(B3), and Drainage Patterns (B10).

Soils: Wetland CC contains naturally problematic soils, as it is located directly within the floodplain of the Yakima River and is subjected to frequent flooding, erosion, and deposition. Soils here are entisols and sandy in nature, thus wetland determination was made based on vegetative and hydrologic indicators. Soils found were fine sand to silty sand in texture.

Conclusion: Based on hydrophytic vegetation and hydrology, Wetland CC meets technical requirements to be classified as a jurisdictional wetland.

Wetland PP

6. CONCLUSION

Based on the data collected, 39 wetlands exist within the study area. The wetlands listed in Table 3 were determined to be jurisdictional under USACE guidelines. Water from these wetlands eventually reach the Yakima River, which drain into the Columbia River, a navigable water and classifying them under USACE jurisdiction. In our professional opinion, wetlands R, S, and T were determined to fall outside of USACE justification, however a USACE jurisdictional determination will be required to confirm this conclusion. All wetlands will be regulated at the state and local level regardless of federal jurisdiction. The combined acreage of all 39 wetlands is approximately 81.287 acres, or roughly 14.9% of the study area's total 544.5 acres. Of note, the total wetland acreage is expected to be an overestimate due to the approved aerial-delineation of some riverine islands, which may include some upland areas.

Table 3. Jurisdictional Wetlands

Wetland Name	Area (acres)	Wetland Name	Area (acres)	Wetland Name	Area (acres)	Wetland Name	Area (acres)
A	0.887	**J**	0.04	**V**	1.123	**FF**	0.089
B	0.01	**K**	0.351	**W**	1.281	**HH**	0.688
C	1.555	**L**	0.427	**X**	9.014	**II**	2.060
D	0.044	**M**	0.44	**Y**	9.941	**JJ**	0.570
E	0.041	**N**	0.482	**Z**	0.978	**KK**	0.508
F	0.012	**O**	1.103	**AA**	0.056	**LL**	2.305
G	0.072	**P**	4.079	**BB**	0.072	**MM**	16.230
H	0.200	**Q**	10.827	**CC**	0.042	**NN**	0.132
I	0.084	**U**	0.840	**DD**	3.927	**PP**	10.677

Table 4. Non-Jurisdictional Wetlands

Wetland Name	Area (acres)
R	0.214
S	0.122
T	0.164

Once impacts to wetlands have been identified and quantified, mitigation will be undertaken in accordance with USACE guidelines if necessary. Wetland ratings and mitigation strategies will be included in a separate mitigation report document.

This report documents the investigation, best professional judgment and conclusions of the investigators. It should be considered a preliminary jurisdictional determination until it has been reviewed and approved in writing by the USACE in accordance with Section 404 of the Clean Water Act.

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APPENDIX A – WETLAND DATASHEETS

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Wetland Determination Data Forms

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WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/6/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-1, WET A

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): B | Lat: 46.614775 | Long: -120.492686 | Datum: NAD83

Soil Map Unit Name: Weirman fine sandy loam, wet | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = ____, 20% = ____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	10	yes	FACW
2.			
3.			
4.			
5.			
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	98	yes	FACW
2. *Brassica rapa*	2	no	FACU
3.			
4.			
5.			
6.			
7.			
8.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-1, WET A

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 4/2	95	10YR 4/6	5	C	PL	si lo	
5-20	10YR 2/2	95	10YR 4/6	5	C	PL, M	si lo	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/8/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-15, UP A

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): B | Lat: 46.614727 | Long: -120.492817 | Datum: NAD83

Soil Map Unit Name: Weirman fine sandy loam, wet | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☒, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **TP-15 within limits of fill for access road**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Rosa woodsii*	25	yes	FACU
2. *Salix exigua*	15	yes	FACW
3. *Robinia pseudoacacia*	10	yes	FACU
4.			
5.			
50% = 25, 20% = 10	50	= Total Cover	
Herb Stratum (Plot size:5')			
1. *none*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = , 20% =	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 100	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species	15	x2 =	30
FAC species		x3 =	
FACU species	35	x4 =	140
UPL species		x5 =	
Column Totals:	50 (A)		170 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-15, UP A

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							gravel fill	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Gravel fill encountered. Unable to dig to sample native soils.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/6/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-2, WET B

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 3

Subregion (LRR): B | Lat: 46.614479 | Long: -120.49291 | Datum: NAD83

Soil Map Unit Name: Weirman fine sandy loam, wet | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Robinia pseudoacacia*	10	yes	FACU
2.			
3.			
4.			
5.			
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	100	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species	100	x2 =	200
FAC species		x3 =	
FACU species	10	x4 =	40
UPL species		x5 =	
Column Totals:	110 (A)		240 (B)

Prevalence Index = B/A = 2.18

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-2, WET B

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/2	100					muck	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☒ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 2

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/8/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-16, UP B
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 1
Subregion (LRR): B | Lat: 46.614513 | Long: -120.49291 | Datum: NAD83
Soil Map Unit Name: Weirman fine sandy loam, wet | NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☒, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **TP-16 within limits of fill for access road**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = , 20% =	0	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Bassia scoparia*	3	yes	FAC
2. *Cirsium arvense*	2	yes	FACU
3. *Asclepias speciosa*	1	no	FAC
4.			
5.			
6.			
7.			
8.			
50% = 3, 20% = 1.2	6	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 94	% Cover of Biotic Crust		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	4	x3 =	12
FACU species	2	x4 =	8
UPL species		x5 =	
Column Totals:	8 (A)		20 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-16, UP B

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							gravel fill	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Unable to sample native soils beneath gravel fill

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-18-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP- 201 (C WET)

Investigator(s): Teddi McFall, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): B | Lat: 46.6206809 | Long: -120.4976110 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **cobble rock encountered at 8 inch depth, hydric soil indicators found above**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Rosa woodsii*	20	yes	FACU
2.			
3.			
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	30	yes	FACW
2. *Lythrum salicaria*	1	no	OBL
3. *Iris pseudacorus*	1	no	OBL
4. *Rumex crispus*	5	no	FAC
5. *Typha latifolia*	10	no	OBL
6. *Juncus effusus*	2	no	FACW
7. *Lepidium latifolium*	10	no	FAC
8.			
50% = 29.5, 20% = 11.8	59	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust	_____	

Dominance Test Worksheet:

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

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	12	x1 =	12
FACW species	32	x2 =	64
FAC species	15	x3 =	45
FACU species	20	x4 =	80
UPL species	_____	x5 =	_____
Column Totals:	79 (A)		201 (B)

Prevalence Index = B/A = 2.54

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-201 (C WET)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10 YR 3/2	100					sa lo	
4-8	10 YR 3/2	98	5 YR 8/5	2	C	PL	sa loam	
8 +							cobble rock	unable to dig deeper

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

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

Remarks: cobble rock encountered at 8 inches depth.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 0

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/7/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-10, UP C

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.620633 | Long: -120.497692 | Datum: NAD83

Soil Map Unit Name: Zillah silt loam | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **TP-10 on edge of fill for dirt access road**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Rosa woodsii*	1	yes	FACU
2.			
3.			
4.			
5.			
50% = , 20% =	1	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	30	yes	FACW
2. *Bassia scoparia*	20	yes	FAC
3. *Lepidium latifolium*	10	no	FAC
4. *Artemesia absinthium*	2	no	NI
5.			
6.			
7.			
8.			
50% = 31, 20% = 12.4	62	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *Clematis vitalba*	10	yes	FAC
2.			
50% = 5, 20% = 2	10	= Total Cover	
% Bare Ground in Herb Stratum 38	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-10, UP C

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]		
0-2	2.5Y 4/1	100					si lo	cobbly
2+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Cobble layer at 2 inch depth. Unable to dig deeper to sample soils.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-203 (D - wet)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.61100 | Long: -120.490926 | Datum: NAD83

Soil Map Unit Name: Zillah silt loam | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix fragilis*	80	yes	FAC
2.			
3.			
4.			
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 'r)			
1. *Salix exigua*	10	yes	FACW
2. *Salix fragilis*	10	yes	FAC
3.			
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Phalaris arundinacea*	100	yes	FACW
2. *Rumex crispus*	10	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
50% = 55, 20% = 22	110	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 5	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East - West Corridor

SOIL Sampling Point: TP-203 (D -wet)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	100					sandy si	
6-12	10 YR 3/2	98	2.5 YR 5/8	2	C	PL	sandy si	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	2
Water Table Present?	Yes	☒	No	☐	Depth (inches):	11
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches):	7

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-202 (UPL D)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): convex | Slope (%): 10

Subregion (LRR): B | Lat: 46.6110191 | Long: -120.4908663 | Datum: NAD83

Soil Map Unit Name: Zillah silt loam | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Upland boundary within limits of fill slope for I-82

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size:15 ' r)			
1. *Salix fragilis*	30	yes	FAC
2.			
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size:5 ' r)			
1. *Phalaris arundinacea*	20	yes	FACW
2. *Bassia scoparia*	20	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-202

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5 Y 5/4	100					sandy loam	
10 +							Cobble rock	Unable to dig to sample deeper

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Road fill rock encountered at 10 inches depth- problematic to survey

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

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

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/7/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-5, WET E

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): B | Lat: 46.621025 | Long: -120.497647 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **TP-5 on edge of fill for gravel road**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	60	yes	FACW
2.			
3.			
4.			
5.			
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	70	yes	FACW
2. *Lythrum salicaria*	5	no	OBL
3. *Solidago lepida*	5	no	FAC
4. *Equisetum arvense*	1	no	FAC
5. *Carex sp.*	2	no	-
6.			
7.			
8.			
50% = 41.5, 20% = 16.6	83	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = , 20% =	17	= Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-5, WET E

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y 4/1	100					si lo	cobbly
3+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: seasonally-ponded depression with cobble at 3 inches

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/7/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-6, WET F

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 7, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): B | Lat: 46.6231 | Long: -120.501038 | Datum: NAD83

Soil Map Unit Name: Zillah silt loam | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **TP-6 within limits of cobble fill for adjacent roadways**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	50	yes	FACW
2. *Ulmus pumila*	10	no	UPL
3.			
4.			
5.			
50% = 30, 20% = 12	60	= Total Cover	
Herb Stratum (Plot size:5')			
1. *none*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = , 20% =	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = , 20% =	0	= Total Cover	

% Bare Ground in Herb Stratum 100 | % Cover of Biotic Crust

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-6, WET F

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 4/2	100					si lo	
5+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: seasonally-ponded shallow depression with cobble at 5 inches

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/7/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-7, UP F

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 7, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.623127 | Long: -120.501119 | Datum: NAD83

Soil Map Unit Name: Zillah silt loam | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **TP-7 within limits of fill for adjacent roadways**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = ____, 20% = ____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Ulmus pumila*	20	yes	UPL
2. *Salix exigua*	10	yes	FACW
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size:5')			
1. *none*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = ____, 20% = ____	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 100	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	____	x1 =	____
FACW species	10	x2 =	20
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	20	x5 =	100
Column Totals:	30 (A)		120 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-7, UP F

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	2.5Y 4/2	100					si lo	cobbly
3+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

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

Remarks: cobble layer encountered at 3 inches, made digging test pit difficult

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 3/1/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-56, WET G
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 7, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 1
Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: R3UBH
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Island within the primary channel of the Yakima River. Naturally problematic soil - vegetated gravel bar within floodplain.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	30	yes	FACW
2.			
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size:5')			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 70	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-56, WET G

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]		
0+							cobble	cobble to surface

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Naturally problematic soil - vegetated gravel bar wihin floodplain. Cobble at surface.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/8/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-11, WET H
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 5
Subregion (LRR): B | Lat: 46.620205 | Long: -120.496987 | Datum: NAD83
Soil Map Unit Name: Weirman fine sandy loam, wet | NWI classification: R4SBCx
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **TP-11 within limits of cobble spoil from ditch excavation or access road construction**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = , 20% =	0	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Cirsum arvense*	30	yes	FACU
2. *Equisetum arvense*	30	yes	FAC
3. *Carex obnupta*	20	yes	OBL
4. *Typha latifolia*	10	no	OBL
5. *Iris pseudacorus*	3	no	OBL
6. *Schoenoplectus americanus*	1	no	OBL
7. *Solidago lepida*	1	no	FAC
8.			
50% = 47.5, 20% = 19	95	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 5	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-11, WET H

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: seasonally-flowing vegetated ditch with restrictive cobble

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/8/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-12, UP H

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): B | Lat: 46.620222 | Long: -120.496958 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **TP-12 within limits of fill for access road**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = , 20% =	0	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Bassia scoparia*	40	yes	FAC
2. *Equisetum arvense*	30	yes	FAC
3. *Cirsium arvense*	10	no	FACU
4.			
5.			
6.			
7.			
8.			
50% = 40, 20% = 16	80	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 20	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-12, UP H

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							gravel fill	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Gravel-only soils encountered. Unable to dig to sample soils beneath.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/8/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-13, WET I

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): B | Lat: 46.618582 | Long: -120.495231 | Datum: NAD83

Soil Map Unit Name: Weirman fine sandy loam, wet | NWI classification: PAB4Hx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = , 20% =	0	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Typha latifolia*	70	yes	OBL
2. *Cirsium arvense*	25	yes	FACU
3. *Phalaris arundinacea*	5	no	FACW
4.			
5.			
6.			
7.			
8.			
50% = 47.5, 20% = 19	95	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 5	% Cover of Biotic Crust		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	70	x1 =	70
FACW species	5	x2 =	10
FAC species		x3 =	
FACU species	25	x4 =	100
UPL species		x5 =	
Column Totals:	120 (A)		180 (B)

Prevalence Index = B/A = 1.5

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-13, WET I

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	2.5Y 3/2	100					si lo	
5-21	5YR 2.5/1	100					fibric peat	

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

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

- ☒ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/8/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-14, UP I
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): B | Lat: 46.618626 | Long: -120.495271 | Datum: NAD83
Soil Map Unit Name: Weirman fine sandy loam, wet | NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *none*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = , 20% =	0	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Cirsium arvense*	70	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 35, 20% = 14	70	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 30	% Cover of Biotic Crust		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species	70	x4 =	280
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-14, UP I

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]		
0-20	7.5YR 3/3						si lo	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/8/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-18, WET J

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): B | Lat: 46.610737 | Long: -120.490307 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix fragilis*	50	yes	FAC
2. *Robinia pseudoacacia*	15	yes	FACU
3.			
4.			
50% = 32.5, 20% = 13	65	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____	0	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	80	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 40, 20% = 16	80	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 20	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-18, WET J

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					muck	
6+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☒ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Cobble layer encountered at 6 inch depth. Unable to sample deeper.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): 2
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 0

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/8/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-19, UP J
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): ____
Subregion (LRR): B | Lat: 46.610694 | Long: -120.490329 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☒, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **TP-19 within limits of fill and within regularly maintained ROW**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix fragilis*	40	yes	FAC
2. *Robinia pseudoacacia*	10	yes	FACU
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *none*			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____	0	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Ericameria nauseosa*	20	yes	UPL
2. *Lepidium latifolium*	2	no	FAC
3. *Asclepias speciosa*	1	no	FAC
4.			
5.			
6.			
7.			
8.			
50% = 11.5, 20% = 4.6	23	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 77	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**33**	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	43	x3 =	129
FACU species	10	x4 =	40
UPL species	20	x5 =	100
Column Totals:	73 (A)		269 (B)

Prevalence Index = B/A = 3.68

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-19, UP J

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							gravel fill	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Unable to sample. Gravel fill encountered at surface.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-18-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-204 (K-wet)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: 20, 13N, 19E

Landform (hillslope, terrace, etc.): Floodplain | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): B | Lat: 46.6064335 | Long: -120.4842959 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PSS1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Soils are entisols and naturally problematic

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Robinia pseudoacacia*	90	yes	FACU
2. *Acer saccharinum*	10	no	FAC
3.			
4.			
50% = 50, 20% = 20	100	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Salix exigua*	10	yes	FACW
2. *Rosa woodsii*	20	yes	FACU
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Conium maculatum*	20	yes	FACW
2. *Rumex crispus*	20	yes	FAC
3. *Tanacetum vulgare*	5	no	FACU
4.			
5.			
6.			
7.			
8.			
50% = 22.5, 20% = 9	45	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 10	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-204 (K- wet)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10 YR 3/2	100					si sa loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Lies in floodplain, therefore as an entisol has recent deposits and little time to develop

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-207, WET L

Investigator(s): Teddi McFall, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): B | Lat: 46.614808 | Long: -120.488953 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Soils lie in floodplain along bank of Yakima River. Entisols like these are naturally problematic.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	70	yes	FAC
2. *Ailanthus altissima*	10	no	FACU
3.			
4.			
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	15	yes	FACW
2. *Cornus sericea*	10	yes	FACW
3. *Rosa woodsii*	5	no	FACU
4. *Populus balsamifera*	3	no	FAC
5.			
50% = 16.5, 20% = 6.6	33	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Lepidium latifolium*	5	yes	FAC
2. *Bassia scoparia*	5	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
50% = 5, 20% = 2	10	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 98	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-207, WET L

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-19	10YR 4/3	100					sa silt loam	
19-20	10 YR 4/3	90	5 YR 4/6	10	C	M	silty sa loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Wetland lies on bank of Yakima river, subjected to flooding. Entisols are naturally problematic here.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 11/23/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-23, UP L

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 4

Subregion (LRR): B | Lat: 46.614726 | Long: -120.488968 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ailanthus altissima*	1	no	FACU
2. *Populus balsamifera*	30	yes	FAC
3.			
4.			
50% = 15.5, 20% = 6.2	31	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Ailanthus altissima*	25	yes	FACU
2. *Populus balsamifera*	5	no	FAC
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Hypericum perforatum*	1	yes	FACU
2. *Sisymbrium altissimum*	1	yes	FACU
3. *Unidentified grass*	2	yes	NI
4.			
5.			
6.			
7.			
8.			
50% = 2, 20% = 0.8	4	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 96	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	25	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	35	x3 =	105
FACU species	28	x4 =	112
UPL species		x5 =	0
Column Totals:	63 (A)		217 (B)

Prevalence Index = B/A = 3.44

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-23 UP L

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	7.5YR 2.5/3	100					si lo	
2-20							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: cobble layer encountered, soil is entisol without sufficient time to form redoximorphic features

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/8/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-24, WET M

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

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

Subregion (LRR): B | Lat: 46.611397 | Long: -120.489737 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	10	yes	FAC
2. *Robinia pseudoacacia*	10	yes	FACU
3.			
4.			
50% = 10, 20% = 4	20	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Ribes aureum*	30	yes	FAC
2. *Populus balsamifera*	20	yes	FAC
3.			
4.			
5.			
50% = 25, 20% = 10	50	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Carex obnupta*	30	yes	OBL
2. *Typha latifolia*	10	yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 60	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **83** (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-24, WET M

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					sandy lo	
6-14	10Y 2.5/1	50	7.5YR 3/3	50	C	M	sand	
14+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

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

Remarks: Cobble encountered at 14 inches depth. Unable to dig deeper.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/8/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-25, UP M

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 4

Subregion (LRR): B | Lat: 46.611378 | Long: -120.48978 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Robinia pseudoacacia*	10	yes	FACU
2. *Populus balsamifera*	10	yes	FAC
3.			
4.			
50% = 10, 20% = 4	20	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Ribes aureum*	10	yes	FAC
2. *Populus balsamifera*	30	yes	FAC
3.			
4.			
5.			
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Bromus tectorum*	40	yes	UPL
2. *Lepidium latifolium*	3	no	FAC
3. *Verbascum thapsus*	2	no	FACU
4.			
5.			
6.			
7.			
8.			
50% = 22.5, 20% = 9	45	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 55	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **60** (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-25 UP M

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100					sa lo	
2+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Cobble encountered at 2 inch depth. Unable to dig sample pit further.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/8/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-26, WET N
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 1
Subregion (LRR): B | Lat: 46.617237 | Long: -120.491647 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Problematic Hydric Soils. cobble-dominated entisols within river floodplain**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	40	yes	FAC
2.			
3.			
4.			
50% = 20, 20% = 8	40	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Cornus sericea*	20	yes	FACW
2. *Populus balsamifera*	10	yes	FAC
3. *Rosa woodsii*	2	no	FACU
4.			
5.			
50% = 16, 20% = 6.4	32	= Total Cover	
Herb Stratum (Plot size:5')			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-26, WET N

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					si lo	
4+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: naturally problematic soil - vegetated cobble-dominated area within floodplain of Yakima River. Cobble layer encountered at 4 inch depth

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/8/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-27, UP N/O

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 4

Subregion (LRR): B | Lat: 46.617091 | Long: -120.491566 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	10	yes	FAC
2.			
3.			
4.			
50% = 5, 20% = 2	10	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Ribes aureum*	5	yes	FAC
2. *Rosa woodsii*	5	yes	FACU
3.			
4.			
5.			
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Hypericum perforatum*	20	yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 10, 20% = 4	20	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 80	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	15	x3 =	45
FACU species	25	x4 =	100
UPL species		x5 =	
Column Totals:	40 (A)		145 (B)

Prevalence Index = B/A = 3.625

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-27 UP N/O

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Naturally problematic soil - cobble to surface. No indicators of hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/8/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-28, WET O
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 1
Subregion (LRR): B | Lat: 46.616992 | Long: -120.491428 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PSS1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	3	yes	FAC
2.			
3.			
4.			
50% = 1.5, 20% = 0.6	3	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Cornus sericea*	3	no	FACW
2. *Populus balsamifera*	10	no	FAC
3. *Rosa woodsii*	30	yes	FACU
4. *Salix exigua*	10	no	FACW
5.			
50% = 26.5, 20% = 10.6	53	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	30	yes	FACW
2. *Hypericum perforatum*	10	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 60	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species	43	x2 =	86
FAC species	13	x3 =	39
FACU species	40	x4 =	160
UPL species		x5 =	
Column Totals:	96 (A)		285 (B)

Prevalence Index = B/A = 2.97

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-28, WET O

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 3/2	100					silty sa loam	
8-20	2.5Y 4/2	80	7.5YR 3/3	20	C	PL	silty sa loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-208 (P-wet)

Investigator(s): Teddi McFall, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): B | Lat: 46.618931 | Long: -120.492096 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PSS1Cx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	20	yes	FAC
2.			
3.			
4.			
50% = 10, 20% = 4	20	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	5	yes	FACW
2. *Populus balsamifera*	5	yes	FAC
3.			
4.			
5.			
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	90	yes	FACW
2. *Hypericum perforatum*	1	no	FACU
3. *Capsella bursa-patoris*	1	no	FACU
4.			
5.			
6.			
7.			
8.			
50% = 46, 20% = 18.4	92	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 8	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-208 (P- wet)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					silty sa	
2-9	10YR 3/2	70	5 YR 4/6	30	C	PL / M	silty sa	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/11/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-42, UP P
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 3
Subregion (LRR): B | Lat: 46.618986 | Long: -120.492053 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	10	yes	FAC
2.			
3.			
4.			
50% = 5, 20% = 2	10	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Ribes aureum*	3	yes	FAC
2. *Populus balsamifera*	5	yes	FAC
3. *Salix exigua*	5	yes	FACW
4.			
5.			
50% = 6.5, 20% = 2.6	13	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	5	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 2.5, 20% = 1	5	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 95	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-42 UP P

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]		
0-20	10YR 3/2						sand	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-18-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-209 (Q -wet (fomerly TP-43))

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S18, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): B | Lat: 46.621268 | Long: -120.492494 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	50	yes	FAC
2.			
3.			
4.			
50% = 40, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Salix exigua*	80	yes	FACW
2. *Populus balsamifera*	10	no	FAC
3.			
4.			
5.			
50% = 45, 20% = 18	90	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Phalaris arundinacea*	10	yes	FACW
2. *Carex obnupta*	30	yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-209 (Q -wet (fomerly TP-43))

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	2.5Y 3/2	100					sa si loam	
1-4	2.5Y 3/2	60	5YR 4/6	40	C	PL/M	sa si loam	
4-10	10 YR 3/2	70	5YR 4/6	30	C	M	sandy	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

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

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/11/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-44, Up Q
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 3
Subregion (LRR): B | Lat: 46.621136 | Long: -120.492562 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	50	yes	FAC
2.			
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Populus balsamifera*	1	yes	FAC
2. *Ribes aureum*	2	yes	FAC
3.			
4.			
5.			
50% = 1.5, 20% = 0.6	3	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Bromus tectorum*	60	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 30, 20% = 12	60	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-44, Up Q

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					duff	
6-20	2.5Y 4/3	100					fine sand	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/10/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-31, Wet Q
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): B | Lat: 46.620693 | Long: -120.494067 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Naturally problematic soil - cobble at 4 in.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	30	yes	FAC
2. *Robinia pseudoacacia*	3	no	FACU
3.			
4.			
50% = 16.5, 20% = 6.6	33	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Populus balsamifera*	10	yes	FAC
2. *Rosa woodsii*	20	yes	FACU
3. *Salix exigua*	1	no	FACW
4.			
5.			
50% = 15.5, 20% = 6.2	31	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	40	yes	FACW
2. *Lepidium latiflolium*	10	yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
50% = 25, 20% = 10	50	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-31, Wet Q

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1						fibric muck	
4+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☒ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☒ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Naturally problematic soil - cobble with thin muck surface

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): 0.5
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 0

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/10/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-32, Up Q
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 1
Subregion (LRR): B | Lat: 46.620664 | Long: -120.493999 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Naturally problematic soil - restrictive cobble at 1 in.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	20	yes	FAC
2. *Robinia pseudoacacia*	5	yes	FACU
3.			
4.			
50% = 12.5, 20% = 5	25	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Populus balsamifera*	10	yes	FAC
2. *Salix exigua*	1	no	FAC
3.			
4.			
5.			
50% = 5.5, 20% = 2.2	11	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Bromus tectorum*	90	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 10	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	31	x3 =	93
FACU species	5	x4 =	20
UPL species	90	x5 =	450
Column Totals:	126 (A)		563 (B)

Prevalence Index = B/A = 4.47

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-32, Up Q

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1						sa loam	
4+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Naturally problematic soil - cobble at 4 inch depth

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☒ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/11/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-39, Wet Q
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): B | Lat: 46.62048 | Long: -120.491582 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	50	yes	FAC
2.			
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Populus balsamifera*	3	no	FAC
2. *Rosa woodsii*	30	yes	FACU
3.			
4.			
5.			
50% = 16.5, 20% = 6.6	33	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	20	yes	FACW
2. *Carex sp.*	3	no	OBL
3.			
4.			
5.			
6.			
7.			
8.			
50% = 11.5, 20% = 4.6	23	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 77	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **66** (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-39, Wet Q

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/1	100					sandy si lo	cobbly

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/10/15
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-29, WET R
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 2
Subregion (LRR): B | Lat: 46.620846 | Long: -120.495487 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1Cx
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	60	yes	FAC
2. *Elaeagnus angustifolia*	5	no	FAC
3.			
4.			
50% = 32.5, 20% = 13	65	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Rhus glabra*	10	no	FACU
2.			
3.			
4.			
5.			
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Carex obnupta*	40	yes	OBL
2. *Lepidium latlifolium*	30	yes	FAC
3. *Euthamia occidentalis*	5	no	FACW
4.			
5.			
6.			
7.			
8.			
50% = 37.5, 20% = 15	75	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 25	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-29, WET R

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	100					sandy si lo	
10-20	10YR 4/2	90	7.5YR 4/4	10	C	PL	clayey si lo	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/10/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-30, UP R

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

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

Subregion (LRR): B | Lat: 46.620805 | Long: -120.495566 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1Cx

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	30	yes	FAC
2. *Elaeagnus angustifolia*	5	no	FAC
3.			
4.			
50% = 17.5, 20% = 7	35	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Rhus glabra*	40	yes	FACU
2. *Populus balsamifera*	10	no	FAC
3. *Cornus sericea*	5	no	FACW
4.			
5.			
50% = 27.5, 20% = 11	55	= Total Cover	
Herb Stratum (Plot size:5')			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100	% Cover of Biotic Crust		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species	5	x2 =	10
FAC species	45	x3 =	135
FACU species	40	x4 =	160
UPL species		x5 =	
Column Totals:	90 (A)		305 (B)

Prevalence Index = B/A = 3.39

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-30, UP R

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	100					silty sa	
14-20	10YR 4/2	80	7.5YR 4/4	20	C	M	loamy sa	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/10/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-33, Wet S

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 7, 13N, 19E

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

Subregion (LRR): B | Lat: 46.621834 | Long: -120.4976 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Naturally problematic and disturbed soil - cobble at 1 inch depth**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	10	yes	FAC
2.			
3.			
4.			
50% = 5, 20% = 2	10	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Cornus sericea*	5	yes	FACW
2. *Rosa woodsii*	20	yes	FACU
3.			
4.			
5.			
50% = 12.5, 20% = 5	25	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Euthamia occidentalis*	80	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 40, 20% = 16	80	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 20	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-33, Wet S

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/1						muck	
1+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☒ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Naturally problematic and disturbed soil - cobble with thin muck surface

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches): 1
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/10/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-34, UP S

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 7, 13N, 19E

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

Subregion (LRR): B | Lat: 46.621817 | Long: -120.497642 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Naturally problematic and disturbed soil - cobble to surface - fill slope for I-82**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	10	yes	FAC
2.			
3.			
4.			
50% = 5, 20% = 2	10	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Cornus sericea*	5	yes	FACW
2. *Rosa woodsii*	10	yes	FACU
3.			
4.			
5.			
50% = 7.5, 20% = 3	15	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Bromus tectorum*	30	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 15, 20% = 6	30	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 70	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species	5	x2 =	10
FAC species	10	x3 =	30
FACU species	10	x4 =	40
UPL species	30	x5 =	150
Column Totals:	55 (A)		230 (B)

Prevalence Index = B/A = 4.18

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-34, UP S

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Naturally problematic and disturbed soil - cobble to surface - fill slope for I-82

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/10/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-35, Wet T

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.621114 | Long: -120.498155 | Datum: NAD83

Soil Map Unit Name: Zillah silt loam | NWI classification: PSS1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = ____, 20% = ____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Rosa woodsii*	20	yes	FACU
2.			
3.			
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	95	yes	FACW
2. *Cirsium arvense*	5	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species	95	x2 =	190
FAC species	5	x3 =	15
FACU species	20	x4 =	80
UPL species		x5 =	
Column Totals:	120 (A)		285 (B)

Prevalence Index = B/A = 2.375

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-35, Wet T

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/1	100					cobbly si lo	
6-20	10YR 3/2	100					muck	cobbly

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☒ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 6

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/10/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-36, Up T

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): B | Lat: 46.621082 | Long: -120.498252 | Datum: NAD83

Soil Map Unit Name: Zillah silt loam | NWI classification: PSS1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **naturally problematic and disturbed soil - cobble at 2" - appears to have been placed artificially**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Rosa woodsii*	30	yes	FACU
2. *Rhus glabra*	1	no	FACU
3. *Populus balsamifera*	1	no	FAC
4.			
5.			
50% = 16, 20% = 6.4	32	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Bromus tectorum*	50	yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 25, 20% = 10	50	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	1	x3 =	3
FACU species	31	x4 =	124
UPL species	50	x5 =	250
Column Totals:	82 (A)		377 (B)

Prevalence Index = B/A = 4.598

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-36, Up T

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					si lo	
2+							cobble	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: naturally problematic and disturbed soil - cobble at 2" - appears to have been placed artificially

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-210 (U - wet)

Investigator(s): Teddi McFall, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 2

Subregion (LRR): B | Lat: 46.619868 | Long: -120.491649 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	100	yes	FAC
2.			
3.			
4.			
50% = 50, 20% = 20	100	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Populus balsamifera*	3	no	FAC
2. *Rosa woodsii*	10	yes	FACU
3. *Cornus sericea*	10	yes	FACW
4.			
5.			
50% = 11.5, 20% = 4.6	23	= Total Cover	
Herb Stratum (Plot size:5')			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: **66** (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-210 (U - wet)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2	100					sandy si lo	
7-13	10YR 4/2	80	7.5YR 5/8	20	C	M	sandy si lo	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 12/11/15

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-38, Up U

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 2

Subregion (LRR): B | Lat: 46.619873 | Long: -120.491574 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	30	yes	FAC
2.			
3.			
4.			
50% = 15, 20% = 6	30	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Populus balsamifera*	2	no	FAC
2. *Rosa woodsii*	10	yes	FACU
3. *Cornus sericea*	2	no	FACW
4. *Ribes aureum*	5	yes	FAC
5.			
50% = 9.5, 20% = 3.8	19	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Bromus tectorum*	95	yes	UPL
2. *Phalaris arundinacea*	1	no	FACW
3. *Artemesia absinthium*	1	no	NI
4.			
5.			
6.			
7.			
8.			
50% = 48.5, 20% = 19.4	97	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 3	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	50	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species	3	x2 =	6
FAC species	37	x3 =	111
FACU species	10	x4 =	40
UPL species	95	x5 =	475
Column Totals:	145 (A)		632 (B)

Prevalence Index = B/A = 4.36

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-38, Up U

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	100					sandy si lo	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-212 (V-wet)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17 T13N R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.6106038 | Long: -120.4853922 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PSS1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Entisols present due to location in floodplain. Cobble encountered at 6 inch depth.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Salix exigua*	60	yes	FACW
2. *Salix fragilis*	20	yes	FAC
3.			
4.			
5.			
50% = 40, 20% = 16	80	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Rumex crispus*	10	yes	FAC
2. *Centaurea sp.*	20	yes	NL (UPL)
3. *Polygonum cuspidatum.*	10	yes	FACU
4.			
5.			
6.			
7.			
8.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 20	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-212 (V- wet)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/3	100					Sand	
6+							Cobble	Unable to dig deeper

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Soil lies in floodplain with frequent flooding/deposits. Therefore entisols may not have had time to develop hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

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

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-211 (V - up)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17 T13N R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.6104748 | Long: -120.4852792 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: R3USC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: River cobble to surface

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Salix exigua*	15	yes	FACW
2.			
3.			
4.			
5.			
50% = 7.5, 20% = 3	15	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Centaurea diffusa*	10	yes	NL (UPL)
2. *Verbascum thapsus*	5	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
50% = 7.5, 20% = 3	15	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 80	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species	15	x2 =	30
FAC species		x3 =	
FACU species	5	x4 =	20
UPL species	10	x5 =	50
Column Totals:	25 (A)		100 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-211 (V - up)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							Cobble	River rock bed

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

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

Remarks: Cobble to surface

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

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

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-214 (W - wet)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S7, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.622146 | Long: -120.492036 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	80	yes	FAC
2.			
3.			
4.			
50% = ____, 20% = ____	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Salix exigua*	20	yes	FACW
2. *Rosa woodsii*	70	yes	FACU
3.			
4.			
5.			
50% = 45, 20% = 18	90	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Phalaris arundinacea*	5	yes	FACW
2. *Euthamia occidentalis*	5	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
50% = 5, 20% = 2	10	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-214 (W - wet)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10 YR 4/2	98	5YR 3/6	2	C	M	si sand	
9-16	10 YR 4/2	99	5YR 5/8	1	C	PL	si sand	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-213 (W - up)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S7, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.6220126 | Long: -120.4920930 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	30	yes	FAC
2.			
3.			
4.			
50% = ____, 20% = ____	30	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Rosa woodsii*	100	yes	FACU
2.			
3.			
4.			
5.			
50% = ____, 20% = ____	100	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Conium maculatum*	80	yes	FACW
2. *Phalaris arundinacea*	2	no	FACW
3. *Bromus tectorum*	15	yes	NL (UPL)
4.			
5.			
6.			
7.			
8.			
50% = 48.5, 20% = 19.4	97	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 10	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-213 (W - up)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3	100					sa si loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

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

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-216 (X - wet)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17, T13N, R 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.6105826 | Long: -120.4866676 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Cobble encounted at 9 inch depth. Entisols in floodplain naturally problematic.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	50	yes	FAC
2. *Acer saccharinum*	10	no	FAC
3.			
4.			
50% = 30, 20% = 12	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Rosa woodsii*	30	yes	FACU
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	30	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Sonchus arvensis*	10	yes	FACU
2. *Phalaris arundinacea*	5	yes	FACW
3. *Euthamia occidentalis*	5	yes	FACW
4. *Cirsium arvense*	5	yes	FAC
5.			
6.			
7.			
8.			
50% = 12.5, 20% = 5	25	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 50	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **66** (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East- West Corridor

SOIL

Sampling Point: TP-216 (X -wet)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10 YR 3/3	100					sandy rocky	
9+							cobble rock	unable to dig past

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Cobble encountered at 9 inch depth. Soils frequent to erosion, depostition, flooding making them naturally problematic.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-215 (X - up)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 5

Subregion (LRR): B | Lat: 46.61066 | Long: -120.486517 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	20	yes	FAC
2.			
3.			
4.			
50% = 10, 20% = 4	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Bromus tectorum*	10	yes	NL (UPL)
2. *Rumex crispus*	1	no	FAC
3. *Brassica rapa*	5	yes	FACU
4. *Centaurea sp.*	5	yes	NL (UPL)
5.			
6.			
7.			
8.			
50% = 10.5, 20% = 4.2	21	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1. *Rubus armeniacus*	10	yes	FAC
2.			
50% = 5, 20% = 2	10	= Total Cover	
% Bare Ground in Herb Stratum 60	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species	31	x3 =	93
FACU species	5	x4 =	20
UPL species	15	x5 =	75
Column Totals:	51 (A)		188 (B)

Prevalence Index = B/A = 3.69

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-215 (X - up)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							cobble	Floodplain river cobble to surface

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

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

Remarks: Cobble to surface, unable to sample beneath. thin sandy layer over cobble in areas.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

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

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-217 (Y - wet)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.6098371 | Long: -120.4856819 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Soils naturally problematic entisols within active floodplain

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	90	yes	FAC
2.			
3.			
4.			
50% = ____, 20% = ____	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Rosa woodsii*	20	yes	FACU
2.			
3.			
4.			
5.			
50% = ____, 20% = ____	20	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Phalaris arundinacea*	80	yes	FACW
2. *Centaurea sp.*	10	no	NL (UPL)
3.			
4.			
5.			
6.			
7.			
8.			
50% = 45, 20% = 18	90	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 20	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-217 (Y - wet)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10 YR 4/4	100					sand	
9 +							cobble rock	unable to dig deeper

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Cobble rock encountered at 9 inch depth. Unable to sample further. Naturally problematic soil due to location in floodplain.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-218 (Y - up)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.6098523 | Long: -120.4853751 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PUS/SS1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Soils are entisols within the active floodplain, therefore frequented to floods, erosion, deposition, etc. making them naturallly problematic.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	5	yes	FAC
2.			
3.			
4.			
50% = ____, 20% = ____	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Salix exigua*	2	yes	FACW
2.			
3.			
4.			
5.			
50% = ____, 20% = ____	2	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Centaurea sp.*	2	yes	NL (UPL)
2. *Bromus tectorum*	5	yes	NL (UPL)
3. *Linaria dalmatica*	2	yes	UPL
4.			
5.			
6.			
7.			
8.			
50% = 4.5, 20% = 1.8	9	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 90	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	____	x1 =	____
FACW species	2	x2 =	4
FAC species	5	x3 =	15
FACU species	____	x4 =	____
UPL species	9	x5 =	45
Column Totals:	16 (A)		64 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-218 (Y - up)

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							cobble	thin layer of sand in some areas

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

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

Remarks: naturally problematic soils in floodplain. cobble to surface.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/13/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-81 Wet Z
Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): 5
Subregion (LRR): B | Lat: 46.617892 | Long: -120.488977 | Datum: NAD83
Soil Map Unit Name: Water | NWI classification: PSS1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Due to naturally problematic soils, wetland determination was based on vegetation and hydrology.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus virginiana*	15	yes	FAC
2.			
3.			
4.			
50% = 7.5, 20% = 3	15	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Salix exigua*	25	yes	FACW
2. *Populus balsamifera*	20	yes	FAC
3. *Rosa woodsii*	4	no	FACU
4.			
5.			
50% = 24.5, 20% = 9.8	49	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Phalaris arundinacea*	30	yes	FACW
2. *Tanacetum vulgare*	3	no	FACU
3. *Hypericum perforatum*	3	no	FACU
4. *Xanthium strumarium*	3	no	FAC
5. *unknown*	1	no	-
6.			
7.			
8.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 60	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-81 Wet Z

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

Depth	Matrix		Redox Features				Texture	Remarks
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]		
0-12	2.5Y 3/2	100					sand	abundant cobble

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Naturally problematic. On riprap bank. Containing newly deposited soils. Wetland determination based on other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/13/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-80 Up Z

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): convex | Slope (%): 4

Subregion (LRR): B | Lat: 46.617889 | Long: -120.488895 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____	0	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Linaria dalmatica*	1	no	NL (UPL)
2. *Bromus tectorum*	2	no	NL (UPL)
3.			
4.			
5.			
6.			
7.			
8.			
50% = 1.5, 20% = 0.6	3	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 97	% Cover of Biotic Crust		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks: Vegetation did not exceed 5%

Project Site: East-West Corridor

SOIL

Sampling Point: TP-80 Up Z

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5Y 3/2	100					sand	abundant cobble

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-83 Wet Z
Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): 100
Subregion (LRR): B | Lat: 46.620546 | Long: -120.488793 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **Due to naturally problematic soils, wetland determination was based on vegetation and hydrology.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	35	yes	FAC
2.			
3.			
4.			
50% = 17.5, 20% = 7	35	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Salix exigua*	10	yes	FACW
2. *Populus balsamifera*	3	no	FAC
3. *Alnus viridis*	7	yes	FACW
4.			
5.			
50% = 10, 20% = 4	20	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Lactuca serriola*	3	no	FACU
2. *Tanacetum vulgare*	2	no	FACU
3. *Phalaris arundinacea*	15	yes	FACW
4. *equisetum arvense*	3	no	FAC
5. *Xanthium strumarium*	1	no	FAC
6. *Lotus corniculatus*	1	no	FAC
7. *unknown*	1	no	-
8.			
50% = 13, 20% = 5.2	26	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 74	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP WC1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	2.5Y 3/2	100					loam	some round gravel, in riprap slope
10+								riprap

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks: Naturally problematic. On riprap bank. Containing newly deposited soils. Wetland determination based on other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-82 Up Z
Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): 4
Subregion (LRR): B | Lat: 46.620560 | Long: -120.488735 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	20	yes	FAC
2.			
3.			
4.			
50% = 10, 20% = 4	20	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Rosa woodsii*	7	yes	FACU
2. *Populus balsamifera*	3	no	FAC
3. *Ribes aureum*	2	no	FAC
4. *Prunus virginiana*	4	yes	FAC
5. *Cornus spp.*	2	no	-
50% = 9, 20% = 3.6	18	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Clematis ligusticifolia*	5	yes	FAC
2. *Lactuca serriola*	1	no	FACU
3. *Bromus tectorum*	3	yes	NL (UPL)
4. *Poaceae spp.*	2	no	NI
5.			
6.			
7.			
8.			
50% = 5.5, 20% = 2.2	11	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 89	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	60	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-82 Up Z

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	2.5Y 3/2	100					sandy loam	abundant round gravel and cobble
4-11	2.5Y 4/2	100					sandy loam	abundant round gravel and cobble

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-98 Wet AA

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): concave | Slope (%): 3

Subregion (LRR): B | Lat: 46.606809 | Long: -120.478472 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	80	yes	FAC
2.			
3.			
4.			
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Populus balsamifera*	3	yes	FAC
2. *Rosa woodsii*	3	yes	FACU
3.			
4.			
5.			
50% = 3, 20% = 1.2	6	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Agropyron repens*	10	yes	FAC
2. *Carex spp.*	10	yes	NI
3.			
4.			
5.			
6.			
7.			
8.			
50% = 10, 20% = 4	20	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 80	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	80	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

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

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-99 Wet AA

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	97	7.5YR 4/6	3	C	M	silt loam	
7-12	10YR 3/2	80	7.5YR 4/6	20	C	M	silt loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-97 Up AA

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): convex | Slope (%): 10

Subregion (LRR): B | Lat: 46.607269 | Long: -120.476628 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	45	yes	FAC
2.			
3.			
4.			
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Prunus virginiana*	25	yes	FAC
2. *Rosa woodsii*	3	no	FACU
3. *Ribes aureum*	10	yes	FAC
4.			
5.			
50% = 19, 20% = 7.6	38	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Lepidium latifolium*	50	yes	FAC
2. *Hypericum perforatum*	4	no	FACU
3. *Toxicodendron radicans*	1	no	FAC
4.			
5.			
6.			
7.			
8.			
50% = 27.5, 20% = 11	55	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 45	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-97 Up AA

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/1	100					silt loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type:

Depth (Inches):

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 9/22/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-100 Wet BB

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 20, 13N, 19E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): none | Slope (%): 60

Subregion (LRR): B | Lat: 46.605855 | Long: -120.474735 | Datum: NAD83

Soil Map Unit Name: Weirman sand loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: **WETS Table indicates dryer than normal past three months.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Salix exigua*	95	yes	FACW
2. *Salix lucida*	3	no	FACW
3.			
4.			
5.			
50% = 49, 20% = 19.6	98	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Clematis ligusticifolia*	10	yes	FAC
2. *Unknown*	1	no	
3. *Unknown*	2	no	
4.			
5.			
6.			
7.			
8.			
50% = 6.5, 20% = 2.6	13	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 87	% Cover of Biotic Crust		

Dominance Test Worksheet:

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

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-100 Wet BB

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+								riprap

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: On riprap bank. no soil present and could not dig test pit. Wetland determination made based on other criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 9/22/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-99 Up BB

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 20, 13N, 19E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): convex | Slope (%): 20

Subregion (LRR): B | Lat: 46.605893 | Long: -120.474698 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☒, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: **WETS Table indicates dryer than normal past three months.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Salix exigua*	25	yes	FACW
2. *Betula occidentalis*	8	yes	FACW
3.			
4.			
5.			
50% = 16.5, 20% = 6.6	33	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Linaria dalmatica*	5	yes	NL (UPL)
2. *Bromus tectorum*	8	yes	NL (UPL)
3. *Lactuca serriola*	10	yes	FACU
4.			
5.			
6.			
7.			
8.			
50% = 11.5, 20% = 4.6	23	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 77	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	40	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	0	x1 =	0
FACW species	33	x2 =	66
FAC species	0	x3 =	0
FACU species	10	x4 =	40
UPL species	13	x5 =	65
Column Totals:	56 (A)		171 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-99 Up BB

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+								riprap under 3 inches of duff

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: On riprap bank. no soil present and could not dig test pit. Wetland determination made based on other criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 2/29/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-52, WET CC

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PSS1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Island within the primary channel of the Yakima River. Naturally problematic soil - vegetated sand bar within floodplain.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	40	yes	FACW
2. *Cornus sericea*	40	yes	FACW
3. *Betula pumila*	5	no	OBL
4.			
5.			
50% = 42.5, 20% = 17	85	= Total Cover	
Herb Stratum (Plot size:5')			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100	% Cover of Biotic Crust	_____	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-52, WET CC

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/2						sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Naturally problematic soil - vegetated sand bar wihin floodplain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 2/29/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-53, WET DD

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PSS1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Island within the primary channel of the Yakima River. Naturally problematic soil - vegetated sand/gravel bar within floodplain.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	20	yes	FAC
2.			
3.			
4.			
50% = 10, 20% = 4	20	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	40	yes	FACW
2.			
3.			
4.			
5.			
50% = 20, 20% = 8	40	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Phalaris arundinacea*	2	yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 1, 20% = 0.4	2	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 98	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-53, WET DD

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/2	100					sand	
8+	10 YR 2/2	100					cobbly sa	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Naturally problematic soil - vegetated sand/gravel bar within floodplain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 2/29/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-55, WET FF
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 1
Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PSS1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Island within the primary channel of the Yakima River. Naturally problematic soil - vegetated sand/gravel bar within floodplain.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	10	yes	FACW
2. *Cornus sericea*	15	yes	FACW
3. *Robinia pseudoacacia*	5	no	FACU
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size:5')			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%
☐ Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-55, WET FF

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/2	100					sa cobble	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Naturally problematic soil - vegetated sand/gravel bar within floodplain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 3/1/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-57, WET HH

Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐			
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☒**	**No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐			

Remarks: **Island within the primary channel of the Yakima River. Naturally problematic soil - vegetated sand/gravel bar within floodplain.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	30	yes	FAC
2.			
3.			
4.			
50% = 15, 20% = 6	30	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Populus balsamifera*	30	yes	FAC
2.			
3.			
4.			
5.			
50% = 15, 20% = 6	30	= Total Cover	
Herb Stratum (Plot size:5')			
1. *None*			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____	0	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒** **No ☐**

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-57, WET HH

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					silty sa	
6+	10YR 2/2						cobbly sa	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Naturally problematic soil - vegetated sand/gravel bar within floodplain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 6

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 3/1/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-58, WET II
Investigator(s): Jason Cade, Widener and Associates | Section, Township, Range: 18, 13N, 19E
Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): convex | Slope (%): 1
Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1/USA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Island within the primary channel of the Yakima River. Naturally problematic soil - vegetated sand/gravel bar within floodplain.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *None*			
2.			
3.			
4.			
50% = _____, 20% = _____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:15')			
1. *Salix exigua*	30	yes	FACW
2. *Populus balsamifera*	2	no	FAC
3.			
4.			
5.			
50% = 16, 20% = 6.4	32	= Total Cover	
Herb Stratum (Plot size:5')			
1. *Linaria dalmatica*	2	yes	UPL
2. *Centaurea sp.*	1	yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
50% = 1.5, 20% = 0.6	3	= Total Cover	
Woody Vine Stratum (Plot size:15')			
1. *None*			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 100	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	33	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	30	x2 =	60
FAC species	2	x3 =	6
FACU species	_____	x4 =	_____
UPL species	3	x5 =	15
Column Totals:	35 (A)		81 (B)

Prevalence Index = B/A = 2.31

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%
☒ Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-58, WET II

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					fine sand	
6+							cobble	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Naturally problematic soil - vegetated sand/gravel bar within floodplain

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 3/1/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-59 (wet JJ)

Investigator(s): Jason Cade, Widener & Associates | Section, Township, Range: S18, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1/USA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	20	yes	FAC
2.			
3.			
4.			
50% = 10, 20% = 4	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Populus balsamifera*	20	yes	FAC
2. *Salix exigua*	5	no	FACW
3. *Alnus rhombifolia*	3	no	FACW
4. *Rosa woodsii*	1	no	FACU
5.			
50% = 14, 20% = 5.8	29	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: East- West Corridor

SOIL

Sampling Point: TP-59 (wet JJ)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 3/2	95	7.5YR 4/6	5	C	PL	si sa	
6+	10YR 2/2	100					sa, cobble	coarse grained, unable to sample deeper

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

Water Table Present? Yes ☐ No ☐ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 3/2/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-61 (upl JJ)

Investigator(s): Jason Cade, Widener & Associates | Section, Township, Range: S18, T13N, R19E

Landform (hillslope, terrace, etc.): upland area in riverine island | Local relief (concave, convex, none): ____ | Slope (%): ____

Subregion (LRR): B | Lat: ____ | Long: ____ | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PFO1/USA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: Soils cobble to surface, naturally problematic.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	60	yes	FAC
2.			
3.			
4.			
50% = ____, 20% = ____	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Populus balsamifera*	3	yes	FAC
2. *Ribes aureum*	1	yes	FAC
3.			
4.			
5.			
50% = 2, 20% = 0.8	4	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Linaria dalmatica*	3	yes	NL (UPL)
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = ____, 20% = ____	3	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum ____	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	75	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP- 61 (upl JJ)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							cobble	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Large cobble to surface

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

Water Table Present? Yes ☐ No ☐ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: no evidence of hydrology found

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-206 (KK - wet)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.614653 | Long: -120.487631 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: R3USC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: Entisols within floodplain naturally problematic. Wetland boundary drawn at intersection of more densely-vegetated area and sparsely-populated cobble rock

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix fragilis*	50	yes	FAC
2.			
3.			
4.			
50% = ____, 20% = ____	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Salix exigua*	50	yes	FACW
2.			
3.			
4.			
5.			
50% = ____, 20% = ____		= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Bassia scoparia*	30	yes	FAC
2. *Rumex crispus*	20	yes	FAC
3. *Tanacetum vulgare*	20	yes	FACU
4. *Centaurea sp.*	20	yes	NL (UPL)
5. *Lythrum salicaria*	10	no	OBL
6.			
7.			
8.			
50% = 50, 20% = 20	100	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = ____, 20% = ____		= Total Cover	
% Bare Ground in Herb Stratum 0	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP-206 (KK - wet)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10 YR 4/3	100					sandy	
10+							cobble rock	unable to sample deeper

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: cobble encountered at 10 inch depth. Problematic soil conditions due to frequent flooding, erosion, and depostion in floodplain.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

Water Table Present? Yes ☐ No ☐ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 1-21-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-205 (KK - up)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.6144772 | Long: -120.4876235 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PUS/FO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: floodplain entisols naturally problematic. Very low density in vegetation, mostly cobble with hydrophytic weedy species. Wetland boundary drawn at edge of more dense foliage and less-vegetated cobble rock area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Salix exigua*	5	yes	FACW
2.			
3.			
4.			
5.			
50% = , 20% =	5	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Xanthium strumarium*	8	yes	FAC
2. *Phalaris arundinacea*	2	yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
50% = 5, 20% = 2	10	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = , 20% =		= Total Cover	
% Bare Ground in Herb Stratum 90	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :	Multiply by:
OBL species	x1 =
FACW species	x2 =
FAC species	x3 =
FACU species	x4 =
UPL species	x5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: East- West Corridor

SOIL

Sampling Point: TP-205 (KK - up)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							cobble rock	unable to dig deeper, fine sand coating

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Cobble encountered to surface. Soils naturally problematic due to location in active floodplain with little time to develop.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/13/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-84 Wet LL
Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E
Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): convex | Slope (%): 0
Subregion (LRR): B | Lat: 46.616076 | Long: -120.487827 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	10	yes	FAC
2.			
3.			
4.			
50% = 5, 20% = 2	10	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____	0	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Phalaris arundinacea*	15	yes	FACW
2. *Centaurea spp.*	2	no	NL (UPL)
3.			
4.			
5.			
6.			
7.			
8.			
50% = 8.5, 20% = 3.4	17	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 83	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	____	x1 =	____
FACW species	____	x2 =	____
FAC species	____	x3 =	____
FACU species	____	x4 =	____
UPL species	____	x5 =	____
Column Totals:	____ (A)		____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%
☐ Prevalence Index is ≤3.0[1]
☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-84 Wet LL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/1	100					silt loam	
2-8	10YR 3/1	80	7.5YR 4/6	20	C	M	silt loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: compacted restrictive layer

Depth (Inches): 8

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-85 Up LL

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: 46.614127 | Long: -120.486287 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present?	Yes ☐	No ☒		
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Prunus virginiana*	10	yes	FAC
2.			
3.			
4.			
50% = 5, 20% = 2	10	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1.			
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	0	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Bromus tectorum*	90	yes	NL (UPL)
2. *Sisymbrium altissimum*	5	no	NL (UPL)
3.			
4.			
5.			
6.			
7.			
8.			
50% = 47.5, 20% = 19	95	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 5	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	10	x3 =	30
FACU species	0	x4 =	0
UPL species	95	x5 =	475
Column Totals:	105 (A)		505 (B)

Prevalence Index = B/A = 4.81

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-85 Up LL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/2	100					loam	abundant gravel, some concrete and boulders

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-86 Wet LL
Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E
Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): concave | Slope (%): 40
Subregion (LRR): B | Lat: 46.614108 | Long: -120.486355 | Datum: NAD83
Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PSS1C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Due to naturally problematic soils, wetland determination was based on vegetation and hydrology.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	15	yes	FAC
2.			
3.			
4.			
50% = 7.5, 20% = 3	15	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Salix exigua*	15	yes	FACW
2. *Populus balsamifera*	20	yes	FAC
3. *unknown*	2	no	-
4.			
5.			
50% = 18.5, 20% = 7.4	37	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Phalaris arundinacea*	35	yes	FACW
2. *Hypericum perforatum*	3	no	FACU
3. *Poaceae spp.*	1	no	-
4. *Lythrum salicaria*	4	no	OBL
5.			
6.			
7.			
8.			
50% = 21.5, 20% = 8.6	43	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 57	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-86 Wet LL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	2.5Y 3/2	100					loamy sand	abundant coarse gravel

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Naturally problematic. Containing newly deposited soils. Wetland determination based on other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10-24-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP LL 1

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17, T13, R19E

Landform (hillslope, terrace, etc.): high water channel bed edge | Local relief (concave, convex, none): concave | Slope (%): 3

Subregion (LRR): B | Lat: 46.6141946 | Long: -120.4865526 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PSS1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: Using the NRCS method and data from the WETS station at the Yakima Airport, the prior period has been wetter than normal.
Soils naturally problematic, as they are entisols located in active floodplain/riverine island with side channels

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	50	yes	FAC
2.			
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Populus balsamifera*	5	no	FAC
2. *Salix exigua*	70	yes	FACW
3. *Alnus rhombifolia*	2	no	FACW
4. *Acer saccharinum*	5	no	FAC
5. *Cornus sericea*	2	no	FACW
50% = 42, 20% = 16.8	84	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Phalaris arundinacea*	80	yes	FACW
2. *Tanacetum vulgare*	5	no	FACU
3. *Xanthium strumarium*	60	yes	FAC
4. *Juncus articulatus*	2	no	OBL
5. *Trifolium repens*	2	no	FACU
6. *Carex stipata*	5	no	OBL
7. *Lactuca serriola*	1	no	FACU
8. *Hypericum scouleri*	1	no	FACW
50% = 78, 20% = 31.2	156	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 5	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :	Multiply by:
OBL species	x1 =
FACW species	x2 =
FAC species	x3 =
FACU species	x4 =
UPL species	x5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: East- West Corridor

SOIL

Sampling Point: TP LL 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10 YR 3/2	100					sa cl loam	organic/clay on surface, large cobbles
1-9	10 YR 3/2	100					sand, gravel	coarse grains

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Entisol located in active floodplain/riverine island side channel

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☐	Depth (inches): _____
Water Table Present?	Yes	☒	No	☐	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): 0

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: standing water pooled 10 feet to the south. pool has large (4-8 in diameter), algae-covered cobbles as bottom substrate

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10-24-19

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP LL 2

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17, T13, R19E

Landform (hillslope, terrace, etc.): high water channel bed edge | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): B | Lat: 46.6141946 | Long: -120.4865526 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: PSS1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: Using the NRCS method and data from the WETS station at the Yakima Airport, the prior period has been wetter than normal. Soils are entisols located in active floodplain on riverine island with seasonal high water channels.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	80	yes	FAC
2.			
3.			
4.			
50% = 40, 20% = 16	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Populus balsamifera*	20	yes	FAC
2. *Salix exigua*	50	yes	FACW
3.			
4.			
5.			
50% = 35, 20% = 14	70	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Phalaris arundinacea*	15	yes	FACW
2. *Rumex crispus*	2	no	FAC
3.			
4.			
5.			
6.			
7.			
8.			
50% = 8.5, 20% = 3.4	17	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum 80	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :	Multiply by:
OBL species	x1 =
FACW species	x2 =
FAC species	x3 =
FACU species	x4 =
UPL species	x5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: particular section of channel has lack of vegetation along banks, less than 5% veg cover

Project Site: East- West Corridor

SOIL

Sampling Point: TP LL 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					sand/ gravel	large cobbles throughout

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Entisol located in active floodplain/riverine island with seasonal side channels

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Stream Gauge at USGA 12500450 Yakima River Above Ahtanum Creek at Union Gap - approximately 2500cfs, 40.30ft gauge height. 10-24-2019

Remarks: no evidence of recent inundation, although aerials indicate nearby lower areas as a high water channel. Standing water observed to south approx 25 feet

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/13/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-88 Wet MM
Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E
Landform (hillslope, terrace, etc.): channel | Local relief (concave, convex, none): convex | Slope (%): 2
Subregion (LRR): B | Lat: 46.610316 | Long: -120.483382 | Datum: NAD83
Soil Map Unit Name: Water | NWI classification: PFO1A
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	60	yes	FAC
2.			
3.			
4.			
50% = 30, 20% = 12	60	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Populus balsamifera*	10	yes	FAC
2. *Salix fragilis*	7	yes	FAC
3. *Alnus viridis*	5	yes	FACW
4. *Prunus virginiana*	3	no	FAC
5.			
50% = 12.5, 20% = 5	25	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Phalaris arundinacea*	25	yes	FACW
2. *Tanacetum vulgare*	3	no	FACU
3. *Hypericum perforatum*	5	no	FACU
4. *unknown*	2	no	-
5.			
6.			
7.			
8.			
50% = 17.5, 20% = 7	35	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 65	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-88 Wet MM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/1	100					loam	
4-9	10YR 3/2	100					loam	
9-14	10YR 3/2	80	7.5YR 4/6	20	C	M	loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/13/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-87 Up MM

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): convex | Slope (%): 2

Subregion (LRR): B | Lat: 46.610373 | Long: -120.483316 | Datum: NAD83

Soil Map Unit Name: Weirman sandy loam, channeled | NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = ____, 20% = ____	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1.			
2.			
3.			
4.			
5.			
50% = ____, 20% = ____	0	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Phalaris arundinacea*	1	no	FACW
2. *Tanacetum vulgare*	3	no	FACU
3. *Agropyron spicatum*	8	yes	NL (UPL)
4. *Bromus tectorum*	5	yes	NL (UPL)
5. *Centaurea diffusa*	5	yes	NL (UPL)
6.			
7.			
8.			
50% = 11, 20% = 4.4	22	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = ____, 20% = ____	0	= Total Cover	
% Bare Ground in Herb Stratum 78	% Cover of Biotic Crust ____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	0	x1 =	0
FACW species	1	x2 =	2
FAC species	0	x3 =	0
FACU species	3	x4 =	12
UPL species	18	x5 =	90
Column Totals:	22 (A)		104 (B)

Prevalence Index = B/A = 4.73

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-87 Up MM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	2.5YR 3/2	100					silt loam	
6-12	2.5YR 3/2	100					sandy silt loam	
12+								Abundant cobble and gravel with multicolored sand

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-90 Wet MM
Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E
Landform (hillslope, terrace, etc.): Depression | Local relief (concave, convex, none): concave | Slope (%): 0
Subregion (LRR): B | Lat: 46.610028 | Long: -120.483480 | Datum: NAD83
Soil Map Unit Name: Water | NWI classification: PSS1/USA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Soils naturally problematic, wetland determination based on vegetation and hydrology.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	70	yes	FAC
2.			
3.			
4.			
50% = 35, 20% = 14	70	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Populus balsamifera*	10	yes	FAC
2.			
3.			
4.			
5.			
50% = 5, 20% = 2	10	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Lepidium latifolium*	20	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 10, 20% = 4	20	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 80	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	100	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-90 Wet MM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					sandy loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Soils are naturally problematic due to riverine deposition. Entisols may not develop redox features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-89 Up MM

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E

Landform (hillslope, terrace, etc.): hillslope | Local relief (concave, convex, none): convex | Slope (%): 4

Subregion (LRR): B | Lat: 46.609960 | Long: -120.483481 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PSS1/USA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Soils naturally problematic, wetland determination based on vegetation and hydrology.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
50% = , 20% =	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Artemisia tridenata*	3	no	NL (UPL)
2.			
3.			
4.			
5.			
50% = 1.5, 20% = 0.6	3	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Bromus tectorum*	50	yes	NL (UPL)
2. *Verbascum thapsus*	10	no	FACU
3.			
4.			
5.			
6.			
7.			
8.			
50% = 30, 20% = 12	60	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = , 20% =	0	= Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	0	(A/B)

Prevalence Index worksheet:

	Total % Cover of :	Multiply by:	
OBL species	0	x1 =	0
FACW species	0	x2 =	0
FAC species	0	x3 =	0
FACU species	10	x4 =	40
UPL species	53	x5 =	265
Column Totals:	63 (A)		305 (B)

Prevalence Index = B/A = 4.84

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-89 Up MM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100					sandy loam	Abundant gravel

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Soils are naturally problematic due to riverine deposition. Entisols may not develop redox features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches): _____
Water Table Present?	Yes	☐	No	☒	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16
Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-92 Wet MM
Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E
Landform (hillslope, terrace, etc.): Toe of slope, depression | Local relief (concave, convex, none): none | Slope (%): 0
Subregion (LRR): B | Lat: 46.606809 | Long: -120.478472 | Datum: NAD83
Soil Map Unit Name: Water | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks: **Soils naturally problematic, wetland determination based on vegetation and hydrology.**

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix spp.*	10	yes	FACW
2. *Populus balsamifera*	40	yes	FAC
3.			
4.			
50% = 25, 20% = 10	50	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Salix spp.*	5	no	FACW
2. *Cornus sericea*	40	yes	FACW
3.			
4.			
5.			
50% = 22.5, 20% = 9	45	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Lepidium latifolium*	15	yes	FAC
2. *Cirsium arvense*	25	yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
50% = 20, 20% = 8	40	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 60	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of :	Multiply by:
OBL species	x1 =
FACW species	x2 =
FAC species	x3 =
FACU species	x4 =
UPL species	x5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-92 Wet MM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100					silt loam	
2-12	10YR 3/1	100					silt loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Soils are naturally problematic due to riverine deposition. Entisols may not develop redox features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-91 Up MM

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): convex | Slope (%): 0

Subregion (LRR): B | Lat: 46.606802 | Long: -120.478520 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Alnus viridis.*	35	yes	FACW
2. *Populus balsamifera*	20	yes	FAC
3.			
4.			
50% = 27.5, 20% = 11	55	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Alnus viridis*	5	yes	FACW
2. *Cornus sericea*	10	yes	FACW
3.			
4.			
5.			
50% = 7.5, 20% = 3	15	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Lepidium latifolium*	30	yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 15, 20% = 6	30	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 70	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :	Multiply by:
OBL species	x1 =
FACW species	x2 =
FAC species	x3 =
FACU species	x4 =
UPL species	x5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP WB6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	25					silt loam	abundant decomposing wood, and colorful duff matter
5-14	10YR 3/2	100					silt loam	abundant cobble and gravel

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-94 Wet MM

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E

Landform (hillslope, terrace, etc.): depression | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): B | Lat: 46.607483 | Long: -120.478860 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐	
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampled Area within a Wetland?** **Yes** ☒ **No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix spp.*	10	no	FACW
2. *Populus balsamifera*	45	yes	FAC
3.			
4.			
50% = 27.5, 20% = 11	55	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Ribes aureum*	3	no	FAC
2. *Cornus sericea*	40	yes	FACW
3.			
4.			
5.			
50% = 21.5, 20% = 8.6	43	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Phalaris arundinacea*	55	yes	FACW
2. *Carex obnupta*	5	no	OBL
3.			
4.			
5.			
6.			
7.			
8.			
50% = 30, 20% = 12	60	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 40	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL Sampling Point: TP-94 Wet MM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					silt loam	
8-14	10YR 3/1	98	7.5YR 4/6	2	C	M	silt loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks: Soils are naturally problematic due deposition and scour from the river. Redox indicators are not always present in entisols.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☒ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 10/12/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-93 Up MM

Investigator(s): Sam Payne, Widener and Associates | Section, Township, Range: 17, 13N, 19E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): convex | Slope (%): 5

Subregion (LRR): B | Lat: 46.607462 | Long: -120.478926 | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes** ☐ **No** ☒
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:10m)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	35	yes	FAC
2.			
3.			
4.			
50% = 17.5, 20% = 7	35	= Total Cover	
Sapling/Shrub Stratum (Plot size:4m)			
1. *Ribes aureum*	45	yes	FAC
2. *Rosa woodsii*	20	yes	FACU
3.			
4.			
5.			
50% = 32.5, 20% = 13	65	= Total Cover	
Herb Stratum (Plot size:2m)			
1. *Lepidium latifolium*	1	no	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = 0.5, 20% = 0.2	1	= Total Cover	
Woody Vine Stratum (Plot size:4m)			
1.			
2.			
50% = _____, 20% = _____	0	= Total Cover	
% Bare Ground in Herb Stratum 99	% Cover of Biotic Crust		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	**66**	(A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: East-West Corridor

SOIL

Sampling Point: TP-93 Up MM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/1	100					loam	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Drift deposits likely from extremely high flood events, not indiciative of usual hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 3/3/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-67 (Wet NN)

Investigator(s): Jason Cade, Widener & Associates | Section, Township, Range: S17 &S20, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain vegetated sand/rock bar | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐			
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☒**	**No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐			

Remarks: Naturally problematic soils- located in main river stem. cobble to surface

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
50% = _____, 20% = _____		= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Salix exigua*	15	yes	FACW
2. _____			
3. _____			
4. _____			
5. _____			
50% = _____, 20% = _____		= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Phalaris arundinacea*	1	yes	FACW
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1. _____			
2. _____			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____	

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒** **No ☐**

Remarks:

Project Site: East- West Corridor

SOIL

Sampling Point: TP-67 (Wet NN)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							Cobble	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Cobble rock to surface

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes	☒	No	☐	Depth (inches):	2
Water Table Present?	Yes	☐	No	☐	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes	☐	No	☐	Depth (inches):	

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 3/3/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP-69 (wet PP)

Investigator(s): Teddi McFall, Widener & Associates | Section, Township, Range: S17 & S20, T13N, T19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): _____

Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PFO1A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☒ No ☐**
Wetland Hydrology Present?	Yes ☒	No ☐		

Remarks: Naturally problematic entisols in active floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	10	yes	FAC
2. *Acer saccharinum*	5	yes	FAC
3.			
4.			
50% = 7.5, 20% = 3	15	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Alnus rhombifolia*	20	yes	FACW
2. *Ribes aureum*	40	yes	FAC
3. *Cornus sericea*	10	no	FACW
4.			
5.			
50% = 35, 20% = 14	70	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
50% = _____, 20% = _____		= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust	_____

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species		x1 =	
FACW species		x2 =	
FAC species		x3 =	
FACU species		x4 =	
UPL species		x5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: East- West Corridor

SOIL

Sampling Point: TP-69 (wet PP)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10 YR 2/2	100					fine sand	
6-20	10 YR 2/2	100					si sand	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Soils naturally problematic entisols located within an active floodplain.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☒ Sediment Deposits (B2) **(Riverine)**
- ☒ Drift Deposits (B3) **(Riverine)**
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

Water Table Present? Yes ☐ No ☐ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project Site: East-West Corridor | City/County: Yakima/Yakima | Sampling Date: 3/3/16

Applicant/Owner: Yakima County | State: WA | Sampling Point: TP 68 (upl PP)

Investigator(s): Jason Cade, Widener & Associates | Section, Township, Range: S 17 & S20, T13N, R19E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): B | Lat: _____ | Long: _____ | Datum: NAD83

Soil Map Unit Name: Water | NWI classification: PFO1A.

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐		
Hydric Soil Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Wetland Hydrology Present?	Yes ☐	No ☒		

Remarks: Problematic soils - cobble to surface

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	20	yes	FAC
2.			
3.			
4.			
50% = _____, 20% = _____	20	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ' r)			
1. *Ribes aureum*	20	yes	FAC
2.			
3.			
4.			
5.			
50% = _____, 20% = _____	20	= Total Cover	
Herb Stratum (Plot size: 5 ' r)			
1. *Verbascum thapsus*	2	yes	FACU
2. *Centaurea diffusa*	1	yes	NL (UPL)
3.			
4.			
5.			
6.			
7.			
8.			
50% = 1.5, 20% = 0.6	3	= Total Cover	
Woody Vine Stratum (Plot size: 5 ' r)			
1.			
2.			
50% = _____, 20% = _____		= Total Cover	
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____		

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of :		Multiply by:	
OBL species	_____	x1 =	_____
FACW species	_____	x2 =	_____
FAC species	_____	x3 =	_____
FACU species	_____	x4 =	_____
UPL species	_____	x5 =	_____
Column Totals:	_____ (A)		_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Project Site: East- West Corridor

SOIL Sampling Point: TP 68 (upl PP)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0+							cobble	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR C)**
- ☐ 2 cm Muck (A10) **(LRR B)**
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: Large cobble to surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) **(Nonriverine)**
- ☐ Sediment Deposits (B2) **(Nonriverine)**
- ☐ Drift Deposits (B3) **(Nonriverine)**
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) **(Riverine)**
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) **(Riverine)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches):

Water Table Present? Yes ☐ No ☐ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of wetland hydrology

APPENDIX B – HYDROLOGIC DATA

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WETS Table

WETS Station: YAKIMA AIRPORT, WA								
Requested years: 1988 - 2019								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0. 10 or more	Avg Snowfall
Jan	39.3	23.9	31.6	1.15	0.62	1.41	4	5.9
Feb	46.6	25.7	36.1	0.80	0.38	0.96	3	3.2
Mar	56.3	30.2	43.2	0.65	0.35	0.80	2	0.7
Apr	64.5	35.5	50.0	0.59	0.35	0.71	2	0.0
May	73.6	43.2	58.4	0.72	0.29	0.88	2	0.0
Jun	80.3	49.3	64.8	0.51	0.18	0.59	2	0.0
Jul	89.5	54.8	72.1	0.19	0.06	0.20	1	0.0
Aug	88.0	53.0	70.5	0.27	0.07	0.25	1	0.0
Sep	79.2	44.7	62.0	0.22	0.09	0.26	1	0.0
Oct	64.2	35.3	49.7	0.63	0.32	0.77	2	0.1
Nov	48.9	27.5	38.2	0.85	0.49	1.02	3	2.6
Dec	37.6	22.5	30.0	1.38	0.65	1.69	4	7.4
Annual:					6.65	8.87		
Average	64.0	37.1	50.6	-	-	-	-	-
Total	-	-	-	7.97			26	19.8

GROWING SEASON DATES			
Years with missing data:	24 deg = 0	28 deg = 0	32 deg = 0
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 32	28 deg = 32	32 deg = 32
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	3/31 to 10/28: 211 days	4/21 to 10/16: 178 days	5/9 to 10/4: 148 days
70 percent *	3/25 to 11/3: 223 days	4/16 to 10/21: 188 days	5/5 to 10/8: 156 days
* Percent chance of the growing season occurring between the Beginning and Ending dates.			

STATS TABLE - total precipitation (inches)													
Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1946									M0.15	0.70	1.18	0.11	2.14
1947	0.41	0.35	0.42	0.23	0.03	1.74	0.53	0.13	0.86	1.83	0.73	0.22	7.48
1948	1.52	0.86	0.29	0.46	2.76	2.10	0.07	0.44	0.64	0.27	1.12	1.34	11.87
1949	0.13	0.88	1.06	0.04	0.14	0.02	T	0.42	0.16	0.13	1.50	0.15	4.63
1950	2.45	1.16	0.72	0.40	0.08	1.60	0.33	T	0.18	2.22	1.21	1.34	11.69
1951	1.87	0.40	0.89	0.14	0.81	2.03	0.13	0.38	0.19	1.08	1.47	0.85	10.24
1952	1.12	0.71	0.13	0.04	0.50	1.48	T	0.38	0.03	0.01	0.52	1.18	6.10
1953	2.67	0.25	0.24	1.09	0.92	0.38	T	0.59	T	0.13	1.18	0.94	8.39
1954	1.98	0.49	0.51	0.03	0.36	0.39	0.03	0.20	0.	0.	1.	0.	6.55

									83	27	13	33	
1955	0.58	0.25	0.69	1.41	0.41	0.41	0.43	0.00	0.48	1.24	2.57	3.22	11.69
1956	3.25	0.81	0.21	T	0.48	1.81	0.02	0.10	0.54	0.35	0.09	0.55	8.21
1957	0.56	0.87	2.63	0.93	1.19	1.26	0.01	0.20	0.98	1.40	0.10	0.83	10.96
1958	1.37	1.84	0.81	0.81	0.59	0.21	0.22	0.16	0.05	0.29	1.14	0.82	8.31
1959	2.03	1.12	0.80	0.05	0.14	0.20	T	0.04	0.52	0.42	0.40	0.35	6.07
1960	0.89	1.43	0.65	0.54	0.87	0.19	0.05	0.25	0.11	0.16	1.55	0.90	7.59
1961	0.55	2.46	2.04	0.86	0.96	0.52	0.25	0.22	T	0.31	0.51	1.27	9.95
1962	0.16	1.48	0.65	0.62	1.09	0.07	0.01	0.33	0.30	1.49	0.79	0.47	7.46
1963	1.42	0.52	0.84	1.62	0.43	0.26	0.69	0.13	0.08	0.05	1.13	1.00	8.17
1964	0.60	T	0.14	0.25	0.03	1.18	0.08	0.20	0.03	0.15	0.70	4.19	7.55
1965	1.33	0.08	0.10	0.48	0.05	0.51	0.27	0.21	0.04	0.06	1.43	1.39	5.95
1966	1.73	0.11	0.81	T	0.10	0.17	0.71	T	0.87	0.41	2.14	0.95	8.00
1967	0.60	T	0.45	1.03	0.16	1.12	T	0.01	0.09	0.21	0.30	0.55	4.52
1968	1.76	0.88	0.11	T	0.47	0.02	0.02	1.71	0.32	0.94	1.32	1.91	9.46
1969	1.52	0.91	0.16	0.27	0.54	0.61	T	0.01	0.32	0.24	0.08	2.28	6.94
1970	3.66	0.49	0.22	0.16	0.06	0.01	0.13	T	0.07	0.54	1.25	1.41	8.00
1971	1.48	T	1.56	0.47	0.54	0.20	0.04	0.14	0.73	0.27	0.97	1.45	7.85
1972	0.88	0.31	1.05	0.09	0.60	1.50	0.04	0.65	0.06	0.12	0.72	1.31	7.33
1973	1.19	0.24	0.01	0.04	0.08	0.02	T	0.01	0.81	1.52	2.83	2.22	8.97
1974	1.67	0.85	1.21	1.46	0.80	0.12	0.18	T	0.02	0.45	0.30	1.14	8.20
1975	2.28	1.16	0.49	0.40	0.23	0.22	0.18	2.10	T	0.79	0.43	0.55	8.83
1976	0.56	0.78	0.70	0.33	0.09	0.69	0.26	0.50	0.13	0.07	T	0.07	4.18
1977	0.13	0.69	0.23	0.01	0.68	0.46	T	1.16	0.89	0.17	0.70	2.80	7.92
1978	2.30	1.30	0.52	0.91	0.28	0.32	0.29	0.38	0.64	0.00	0.94	0.14	8.02
1979	0.91	0.54	0.23	0.14	0.04	0.57	0.04	0.42	0.36	0.74	1.53	1.33	6.85
1980	2.23	1.30	0.29	0.80	0.84	1.12	T	0.29	0.48	0.23	1.00	2.69	11.27
1981	0.95	0.65	0.10	0.01	0.68	0.39	0.29	0.09	0.59	1.16	1.36	2.38	8.65
1982	0.58	1.48	0.34	0.30	0.37	1.70	0.12	0.39	1.08	1.46	0.90	2.15	10.87
1983	1.97	1.59	1.95	0.66	0.30	0.77	0.29	0.44	0.33	0.23	2.77	1.92	13.22
1984	0.13	0.92	1.04	1.05	0.51	1.45	0.13	0.04	0.46	0.16	2.62	0.51	9.02
1985	0.09	0.68	0.62	T	0.46	0.37	0.12	0.03	0.84	0.75	0.92	1.02	5.90
1986	1.82	1.26	0.54	0.05	0.94	0.08	0.25	0.11	2.07	0.38	0.64	0.89	9.03
1987	1.46	0.25	1.44	0.57	0.10	0.05	0.40	T	0.00	0.02	0.68	3.30	8.27
1988	0.68	T	0.21	1.41	0.18	1.00	T	T	0.	0.	1.	0.	5.45

									13	05	12	67	
1989	0.19	1.29	1.71	0.85	0.63	0.05	0.07	0.41	0.09	0.67	0.72	0.21	6.89
1990	1.47	0.11	0.21	0.18	1.13	0.31	0.02	2.00	0.04	0.45	T	0.24	6.16
1991	0.34	0.23	1.16	0.61	0.17	2.53	0.18	0.06	0.08	0.73	1.24	0.28	7.61
1992	0.27	0.62	0.41	0.96	0.04	1.25	0.44	0.25	0.28	0.68	0.98	2.33	8.51
1993	0.91	0.66	0.62	0.50	0.43	0.72	0.58	0.17	0.03	0.07	0.21	1.02	5.92
1994	0.36	1.05	0.04	0.90	1.22	0.66	0.05	0.06	0.09	1.36	0.69	1.27	7.75
1995	3.68	0.32	1.28	1.83	0.62	0.62	0.69	0.14	0.74	0.27	1.54	2.15	13.88
1996	1.31	1.81	0.57	0.22	1.24	0.04	0.48	0.02	0.36	0.55	2.59	5.59	14.78
1997	1.15	0.19	0.60	0.29	0.22	0.89	0.04	0.22	0.24	1.72	1.13	0.19	6.88
1998	1.96	1.43	1.09	0.21	1.20	0.10	0.64	0.03	0.06	0.19	0.83	0.69	8.43
1999	1.37	1.32	0.15	0.14	0.26	0.17	0.64	0.75	T	0.40	0.53	0.27	6.00
2000	1.65	1.01	0.60	0.53	0.54	0.13	0.05	T	0.18	0.32	0.70	0.70	6.41
2001	0.54	0.26	0.47	0.51	0.01	1.03	0.03	0.30	0.14	0.36	1.96	1.12	6.73
2002	0.33	0.84	0.21	0.80	0.69	0.71	0.12	T	0.10	0.09	0.46	3.49	7.84
2003	2.21	0.28	0.36	1.28	0.16	T	T	0.44	0.05	0.20	0.10	2.05	7.13
2004	1.55	1.39	0.44	0.25	0.43	0.57	0.46	1.19	0.15	0.62	0.08	1.12	8.25
2005	1.07	0.15	0.56	0.72	1.17	0.09	0.12	0.09	0.37	0.23	1.60	2.38	8.55
2006	1.81	0.64	0.44	0.59	0.82	0.69	0.06	T	0.55	0.26	1.14	2.56	9.56
2007	0.30	0.84	0.12	0.25	0.32	0.21	0.01	0.12	0.19	0.56	1.50	1.25	5.67
2008	0.81	0.51	0.27	0.13	0.21	0.29	0.05	0.32	0.19	0.44	0.98	0.83	5.03
2009	0.97	0.67	0.84	0.25	0.76	0.52	0.03	0.09	0.43	0.89	0.55	0.97	6.97
2010	1.97	1.01	0.14	0.53	1.46	1.07	0.08	0.05	0.88	0.74	0.83	2.38	11.14
2011	0.61	0.29	1.11	0.32	2.55	0.21	0.46	T	0.07	0.90	0.48	0.34	7.34
2012	1.50	0.78	1.44	0.81	0.16	0.85	0.26	T	0.04	1.01	0.66	2.13	9.64
2013	0.10	0.03	0.77	0.40	2.48	0.39	T	0.19	0.30	0.13	0.38	0.32	5.49
2014	0.30	1.43	0.60	0.46	0.13	0.08	0.06	0.90	0.46	0.86	0.32	0.92	6.52
2015	0.70	0.99	0.73	T	1.80	0.01	0.06	0.01	0.01	0.54	0.64	3.47	8.96
2016	2.31	0.41	1.82	0.27	0.64	0.22	0.22	T	0.17	2.43	0.62	0.87	9.98
2017	2.16	2.40	0.98	1.29	0.55	0.19	0.00	0.22	0.16	0.79	1.25	0.36	10.35
2018	0.90	0.19	0.38	0.75	0.13	0.53	0.00	T	0.01	1.07	0.42	0.68	5.06
2019	1.42	2.41	0.61	0.68	0.77	0.04	0.11	0.75	0.52	M0.51			7.82

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2016-07-22

APPENDIX C – OBSERVED PLANTS

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Plants Observed in Wetlands

Wetland A

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW
Brassica rapa	Field mustard	H	FACU
Iris pseudacorus	Yellow flag iris	H	OBL
Typha latifolia	Broadleaf cattail	H	OBL
Cirsum arvense	Canada thistle	H	FACU
Rosa woodsii	Woods' rose	S	FACU
Rumex crispus	Curly dock	H	FAC
Populus balsamifera	Black cottonwood	S	FAC
Lepidium latifolium	Broadleaved pepperweed	H	FAC
Salix fragilis	Crack willow	S	FAC
Solanum dulcamara	Bittersweet nightshade	H	FAC

Wetland B

Scientific name	Common name	Stratum	Indicator
Robinia pseudoacacia	Black locust	T	FACU
Phalaris arundinacea	Reed canary grass	H	FACW

Wetland C

Scientific name	Common name	Stratum	Indicator
Rosa woodsii	Woods' rose	S	FACU
Phalaris arundinacea	Reed canary grass	H	FACW
Lythrum salicaria	Purple loostrife	H	OBL
Iris pseudacorus	Yellow flag iris	H	OBL
Salix fragilis	Crack willow	S	FAC
Typha latifolia	Broadleaf cattail	H	OBL
Cirsum arvense	Canada thistle	H	FACU
Salix exigua	Coyote willow	S	FACW
Rumex crispus	Curly dock	H	FAC
Populus balsamifera	Black cottonwood	S	FAC
Lepidium latifolium	Broadleaved pepperweed	H	FAC
Euthamia occidentalis	Western goldentop	H	FACW
Arctium minus	Common burdock	H	FACU
Lythrum salicaria	Purple loosestrife	H	OBL
Sonchus arvensis	Perennial sowthistle	H	FACU
Cornus sericea	Redosier Dogwood	S	FACW
Plantago lanceolata	Narrowleaf plantain	H	FAC
Juncus effusus	Soft rush	H	FACW
Schoenoplectus americanus	Chairmaker's bulrush	H	OBL
Ribes aureum	Golden currant	S	FAC
Tanacetum vulgare	Common tansy	H	FACU

Verbascum thapsus	Common mullien	H	FACU

Wetland D

Scientific name	Common name	Stratum	Indicator
Salix fragilis	Crack willow	S	FAC
Salix exigua	Coyote willow	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW
Iris pseudacorus	Yellow flag iris	H	OBL
Lythrum salicaria	Purple loostrife	H	OBL
Solanum dulcamara	Bittersweet nightshade	H	FAC
Rumex crispus	Curly dock	H	FAC

Wetland E

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW
Lythrum salicaria	Purple loostrife	H	OBL
Solidago lepida	Canada goldenrod	H	FAC
Equisetum arvense	Field horsetail	H	FAC
Carex spp.	Sedge	H	NI
Populus balsamifera	Black cottonwood	S	FAC
Typha latifolia	Broadleaf cattail	H	OBL
Clematis ligusticifolia	Western white clematis	H	FAC

Wetland F

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Ulmus pumila	Siberian elm	S	UPL
Phalaris arundinacea	Reed canary grass	H	FACW
Euthamia occidentalis	Western goldentop	H	FACW

Wetland G

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW

Wetland H

Scientific name	Common name	Stratum	Indicator
Cirsum arvense	Canada thistle	H	FACU
Equisetum arvense	Field horsetail	H	FAC
Carex obnupta	Slough sedge	H	OBL
Typha latifolia	Broadleaf cattail	H	OBL
Iris pseudacorus	Yellow flag iris	H	OBL
Schoenoplectus americanus	Chairmaker's bulrush	H	OBL
Solidago lepida	Canada goldenrod	H	FAC
Phalaris arundinacea	Reed canary grass	H	FACW

Juncus effusus	Soft rush	H	FACW
Scirpus spp.		H	NI
Euthamia occidentalis	Western goldentop	H	FACW
Rumex crispus	Curly dock	H	FAC
Polygonum spp.	Smartweed	S	NI
Lythrum salicaria	Purple loostrife	H	OBL
Salix fragilis	Crack willow	S	FAC
Equisetum hyemale	Scouringrush horsetail	H	FACW
Oenothera spp.	Evening primrose	H	NI

Wetland I

Scientific name	Common name	Stratum	Indicator
Typha latifolia	Broadleaf cattail	H	OBL
Cirsum arvense	Canada thistle	H	FACU
Phalaris arundinacea	Reed canary grass	H	FACW
Rumex crispus	Curly dock	H	FAC
Euthamia occidentalis	Western goldentop	H	FACW
Iris pseudacorus	Yellow flag iris	H	OBL
Lythrum salicaria	Purple loostrife	H	OBL
Bidens spp.	Spanish needles	H	NI
Scirpus spp.	Bulrush	H	NI

Wetland J

Scientific name	Common name	Stratum	Indicator
Salix fragilis	Crack willow	T	FAC
Robinia pseudoacacia	Black locust	T	FACU
Phalaris arundinacea	Reed canary grass	H	FACW

Wetland K

Scientific name	Common name	Stratum	Indicator
Robinia pseudoacacia	Black locust	T	FACU
Acer saccharinum	Silver maple	T	FAC
Rosa woodsii	Woods' rose	S	FACU
Salix exigua	Coyote willow	S	FACW
Conium maculatum	Poison hemlock	H	FACW
Symphoricarpos albus	Snowberry	S	FACU
Phalaris arundinacea	Reed canary grass	H	FACW
Lepidium latifolium	Broadleaved pepperweed	H	FAC
Rumex crispus	Curly dock	H	FAC
Tanacetum vulgare	Common tansy	H	FACU

Wetland L

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Ailanthus altissima	Tree of heaven	T	FACU
Salix exigua	Coyote willow	S	FACW

Cornus sericea	Redosier dogwood	S	FACW
Rosa woodsii	Woods' rose	S	FACU
Populus balsamifera	Black cottonwood	S	FAC
Lepidium latifolium	Broadleaved pepperweed	H	FAC
Bassia scoparia	Burning bush	H	FAC

Wetland M

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Robinia pseudoacacia	Black locust	T	FACU
Ribes aureum	Golden currant	S	FAC
Populus balsamifera	Black cottonwood	S	FAC
Carex obnupta	Slough sedge	H	OBL
Typha latifolia	Broadleaf cattail	H	OBL
Phalaris arundinacea	Reed canary grass	H	FACW
Lepidium latifolium	Broadleaved pepperweed	H	FAC

Wetland N

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Cornus sericea	Redosier Dogwood	S	FACW
Populus balsamifera	Black cottonwood	S	FAC
Rosa woodsii	Woods' rose	S	FACU
Phalaris arundinacea	Reed canary grass	H	FACW
Ribes aureum	Golden currant	S	FAC
Lepidium latifolium	Broadleaved pepperweed	H	FAC
Salix exigua	Coyote willow	S	FACW
Euthamia occidentalis	Western goldentop	H	FACW

Wetland O

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Cornus sericea	Redosier Dogwood	S	FACW
Populus balsamifera	Black cottonwood	S	FAC
Rosa woodsii	Woods' rose	S	FACU
Salix exigua	Coyote willow	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW
Hypericum perforatum	Common St. Johnswort	H	FACU
Ribes aureum	Golden currant	S	FAC
Lepidium latifolium	Broadleaved pepperweed	H	FAC
Euthamia occidentalis	Western goldentop	H	FACW
Iris pseudacorus	Yellow flag iris	H	OBL
Typha latifolia	Broadleaf cattail	H	OBL
Lythrum salicaria	Purple loostrife	H	OBL
Dipsacus fullonum	Fuller's teasel	H	FAC
Juncus effusus	Soft rush	H	FACW

Rumex crispus	Curly dock	H	FAC
Conium maculatum	Poison hemlock	H	FACW
Scirpus spp.	Bulrush	H	NI
Carex spp.	Sedge	H	NI

Wetland P

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Salix exigua	Coyote willow	S	FACW
Populus balsamifera	Black cottonwood	S	FAC
Phalaris arundinacea	Reed canary grass	H	FACW
Hypericum perforatum	Common St. Johnswort	H	FACU
Capsella bursa-patoris	Shepherd's purse	H	FACU
Ribes aureum	Golden currant	S	FAC
Lepidium latifolium	Broadleaved pepperweed	H	FAC
Rosa woodsii	Woods' rose	S	FACU
Cornus sericea	Redosier Dogwood	S	FACW
Euthamia occidentalis	Western goldentop	H	FACW
Iris pseudacorus	Yellow flag iris	H	OBL
Typha latifolia	Broadleaf cattail	H	OBL
Lythrum salicaria	Purple loostrife	H	OBL
Dipsacus fullonum	Fuller's teasel	H	FAC
Juncus effusus	Soft rush	H	FACW
Rumex crispus	Curly dock	H	FAC
Conium maculatum	Poison hemlock	H	FACW
Scirpus spp.	Bulrush	H	NI
Carex spp.	Sedge	H	NI

Wetland Q

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Populus balsamifera	Black cottonwood	S	FAC
Rosa woodsii	Woods' rose	S	FACU
Salix exigua	Coyote willow	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW
Carex obnupta	Slough sedge	H	OBL
Alnus rubra	Red alder	S	FACW
Robinia pseudoacacia	Black locust	T	FACU
Ribes aureum	Golden currant	S	FAC
Lepidium latlifolium	Broadleaved pepperweed	H	FAC
Cornus sericea	Redosier Dogwood	S	FACW
Elaeagnus angustifolia	Russian olive	T	FAC
Juncus effusus	Soft rush	H	FACW
Euthamia occidentalis	Western goldentop	H	FACW
Scirpus spp.	Bulrush	H	NI
Carex spp.	Sedge	H	NI

Wetland R

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Elaeagnus angustifolia	Russian olive	T	FAC
Rhus glabra	Smooth sumac	S	FACU
Carex obnupta	Slough sedge	H	OBL
Lepidium latlifolium	Broadleaved pepperweed	H	FAC
Euthamia occidentalis	Western goldentop	H	FACW
Cornus sericea	Redosier Dogwood	S	FACW
Rosa woodsii	Woods' rose	S	FACU
Ribes aureum	Golden currant	S	FAC
Phalaris arundinacea	Reed canary grass	H	FACW
Lepidium latlifolium	Broadleaved pepperweed	H	FAC
Euthamia occidentalis	Western goldentop	H	FACW
Salix exigua	Coyote willow	S	FACW

Wetland S

Scientific name	Common name	Stratum	Indicator
Elaeagnus angustifolia	Russian olive	T	FAC
Cornus sericea	Redosier dogwood	S	FACW
Rosa woodsii	Woods' rose	S	FACU
Euthamia occidentalis	Western goldentop	H	FACW
Salix exigua	Coyote willow	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW
Lepidium latlifolium	Broadleaved pepperweed	H	FAC

Wetland T

Scientific name	Common name	Stratum	Indicator
Rosa woodsii	Woods' rose	S	FACU
Phalaris arundinacea	Reed canary grass	H	FACW
Cirsium arvense	Canada thistle	H	FAC
Populus balsamifera	Black cottonwood	T	FAC
Salix exigua	Coyote willow	S	FACW
Lythrum salicaria	Purple loosestrife	H	OBL

Wetland U

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Populus balsamifera	Black cottonwood	S	FAC
Rosa woodsii	Woods' rose	S	FACU
Cornus sericea	Redosier Dogwood	S	FACW
Salix exigua	Coyote willow	S	FACW
Ribes aureum	Golden currant	S	FAC

Wetland V

Scientific name	Common name	Stratum	Indicator

Polygonum cuspidatum	Japanese knotweed	H	FACU
Salix exigua	Coyote willow	S	FACW
Salix fragilis	Crack willow	S	FAC
Rumex crispus	Curly dock	H	FAC
Centaurea sp.	Knapweed	H	UPL
Linaria dalmatica	Dalmatian toadflax	H	UPL

Wetland W

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Salix exigua	Coyote willow	S	FACW
Rosa woodsii	Woods' rose	S	FACU
Phalaris arundinacea	Reed canary grass	H	FACW
Euthamia occidentalis	Western goldentop	H	FACW

Wetland X

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Salix fragilis	Crack willow	S	FAC
Bromus tectorum	Cheatgrass	H	NL
Rubus armeniacus	Himalayan blackberry	WV	FAC
Rumex crispus	Curly dock	H	FAC
Brassica rapa	Field mustard	H	FACU
Centaurea sp.	Knapweed	H	UPL
Acer saccharinum	Silver maple	T	FAC
Rosa woodsii	Woods' rose	S	FACU
Sonchus arvensis	Perennial sowthistle	H	FACU
Phalaris arundinacea	Reed canary grass	H	FACW
Euthamia occidentalis	Western goldentop	H	FACW
Cirsium arvense	Canada thistle	H	FAC

Wetland Y

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Phalaris arundinacea	Reed canary grass	H	FACW
Rosa woodsii	Woods' rose	S	FACU
Centaurea sp.	Knapweed	H	UPL

Wetland Z

Scientific name	Common name	Stratum	Indicator
Prunus virginiana	Chokecherry	T	FAC
Salix exigua	Coyote willow	S	FACW
Populus balsamifera	Black cottonwood	S	FAC
Rosa woodsii	Woods' rose	S	FACU
Phalaris arundinacea	Reed canary grass	H	FACW
Tanacetum vulgare	Common tansy	H	FACU

Hypericum perforatum	Common St. Johnswort	H	FACU
Xanthium strumarium	Rough cocklebur	H	FAC
Betula occidentalis	Water birch	T	FACW
Salix fragilis	Crack willow	S	FAC
Alnus rhombifolia	White alder	T	FACW
Acer saccharinum	Silver maple	T	FAC
Lythrum salicaria	Purple loosestrife	H	OBL
Bromus tectorum	Cheatgrass	H	NL
Lactuca serriola	Prickly lettuce	H	FACU

Wetland AA

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Populus balsamifera	Black cottonwood	S	FAC
Rosa woodsii	Woods' rose	S	FACU
Agropyron repens	Quackgrass	H	FAC
Carex spp.	Sedge	H	NI

Wetland BB

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Salix lucida	Pacific willow	S	FACW
Clematis ligusticifolia	Western white clematis	H	FAC
Betula occidentalis	Water birch	T	FACW
Salix fragilis	Crack willow	S	FAC
Alnus rhombifolia	White alder	T	FACW
Acer saccharinum	Silver maple	T	FAC
Phalaris arundinacea	Reed canary grass	H	FACW
Tanacetum vulgare	Common tansy	H	FACU

Wetland CC

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Cornus sericea	Redosier dogwood	S	FACW
Betula pumila	Bog birch	S	OBL

Wetland DD

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Salix exigua	Coyote willow	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW

Wetland FF

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Cornus sericea	Redosier dogwood	S	FACW

Robinia pseudoacacia	Black locust	S	FACU

Wetland HH

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Populus balsamifera	Black cottonwood	S	FAC

Wetland II

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Populus balsamifera	Black cottonwood	S	FAC
Linaria dalmatica	Dalmatian toadflax	H	UPL
Centaurea sp.	Knapweed	H	UPL

Wetland JJ

Scientific name	Common name	Stratum	Indicator
Populus balsamifera	Black cottonwood	T	FAC
Salix exigua	Coyote willow	S	FACW
Populus balsamifera	Black cottonwood	S	FAC
Alnus rhombifolia	White alder	S	FACW
Rosa woodsii	Woods' rose	S	FACU

Wetland KK

Scientific name	Common name	Stratum	Indicator
Salix fragilis	Crack willow	T	FAC
Salix exigua	Coyote willow	S	FACW
Centaurea sp.	Knapweed	H	UPL
Rumex crispus	Curly dock	H	FAC
Tanacetum vulgare	Common tansy	H	FACU
Bassia scoparia	Burning bush	H	FAC
Lythrum salicaria	Purple loosestrife	H	OBL

Wetland LL

Scientific name	Common name	Stratum	Indicator
Acer saccharinum	Silver maple	T	FAC
Populus balsamifera	Black cottonwood	T	FAC
Salix exigua	Coyote willow	S	FACW
Populus balsamifera	Black cottonwood	S	FAC
Phalaris arundinacea	Reed canary grass	H	FACW
Hypericum perforatum	Common St. Johnswort	H	FACU
Poaceae spp.	Grass	H	NI
Centaurea sp.	Knapweed	H	UPL
Lythrum salicaria	Purple loosestrife	H	OBL
Cirsium arvense	Canada thistle	H	FACU
Lepidium latifolium	Broadleaved pepperweed	H	FAC
Linaria dalmatica	Dalmatian toadflax	H	NL

Ribes aureum	Golden currant	S	FAC
Salix fragilis	Crack willow	S	FAC
Alnus viridis	Green alder	S	FACW
Prunus virginiana	Chokecherry	S	FAC
Cornus sericea	Redosier dogwood	S	FACW
Rosa woodsii	Woods' rose	S	FACU
Alnus rhombifolia	White alder	S	FACW
Tanacetum vulgare	Common tansy	H	FACU
Carex obnupta	Slough sedge	H	OBL
Verbascum thapsus	Common mullien	H	FACU
Bromus tectorum	Cheatgrass	H	NL
Xanthium strumarium	Rough cocklebur	H	FAC
Euthamia occidentalis	Western goldentop	H	FACW
Schoenoplectus americanus	Chairmaker's bulrush	H	OBL
Juncus mertensianus	Mertens' rush	H	OBL
Carex stipata	Awlfruit sedge	H	OBL
Dipsacus fullonum	Fuller's teasel	H	FAC
Juncus articulatus	Jointleaf rush	H	OBL
Trifolium repens	White clover	H	FACU
Latuca serriola	Prickly lettuce	H	FACU
Hypericum scouleri	Scouler's St. Johnswort	H	FACW
Schoenoplectus acutus	Hardstem bulrush	H	OBL

Wetland MM

Scientific name	**Common name**	**Stratum**	**Indicator**
Populus balsamifera	Black cottonwood	T	FAC
Populus balsamifera	Black cottonwood	S	FAC
Salix fragilis	Crack willow	S	FAC
Alnus viridis	Green alder	S	FACW
Prunus virginiana	Chokecherry	S	FAC
Cornus sericea	Redosier dogwood	S	FACW
Ribes aureum	Golden currant	S	FAC
Rosa woodsii	Woods' rose	S	FACU
Phalaris arundinacea	Reed canary grass	H	FACW
Tanacetum vulgare	Common tansy	H	FACU
Hypericum perforatum	Common St. Johnswort	H	FACU
Lepidium latifolium	Broadleaved pepperweed	H	FAC
Cirsium arvense	Canada thistle	H	FACU
Carex obnupta	Slough sedge	H	OBL
Linaria dalmatica	Dalmatian toadflax	H	NL
Bromus tectorum	Cheatgrass	H	NL
Centaurea sp.	Knapweed	H	UPL
Salix exigua	Coyote willow	S	FACW
Prunus virginiana	Chokecherry	T	FAC
Lythrum salicaria	Purple loosestrife	H	OBL
Xanthium strumarium	Rough cocklebur	H	FAC
Euthamia occidentalis	Western goldentop	H	FACW

Schoenoplectus americanus	Chairmaker's bulrush	H	OBL
Juncus mertensianus	Mertens' rush	H	OBL
Carex stipata	Awlfruit sedge	H	OBL
Dipsacus fullonum	Fuller's teasel	H	FAC

Wetland NN

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Cornus sericea	Redosier dogwood	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW
Lepidium latifolium	Broadleaved pepperweed	H	FAC

Wetland PP

Scientific name	Common name	Stratum	Indicator
Salix exigua	Coyote willow	S	FACW
Acer saccharinum	Silver maple	T	FAC
Populus balsamifera	Black cottonwood	T	FAC
Cornus sericea	Redosier dogwood	S	FACW
Phalaris arundinacea	Reed canary grass	H	FACW
Alnus rhombifolia	White alder	S	FACW
Ribes aureum	Golden currant	S	FAC

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APPENDIX D – NRCS WEB SOIL SURVEY DATA

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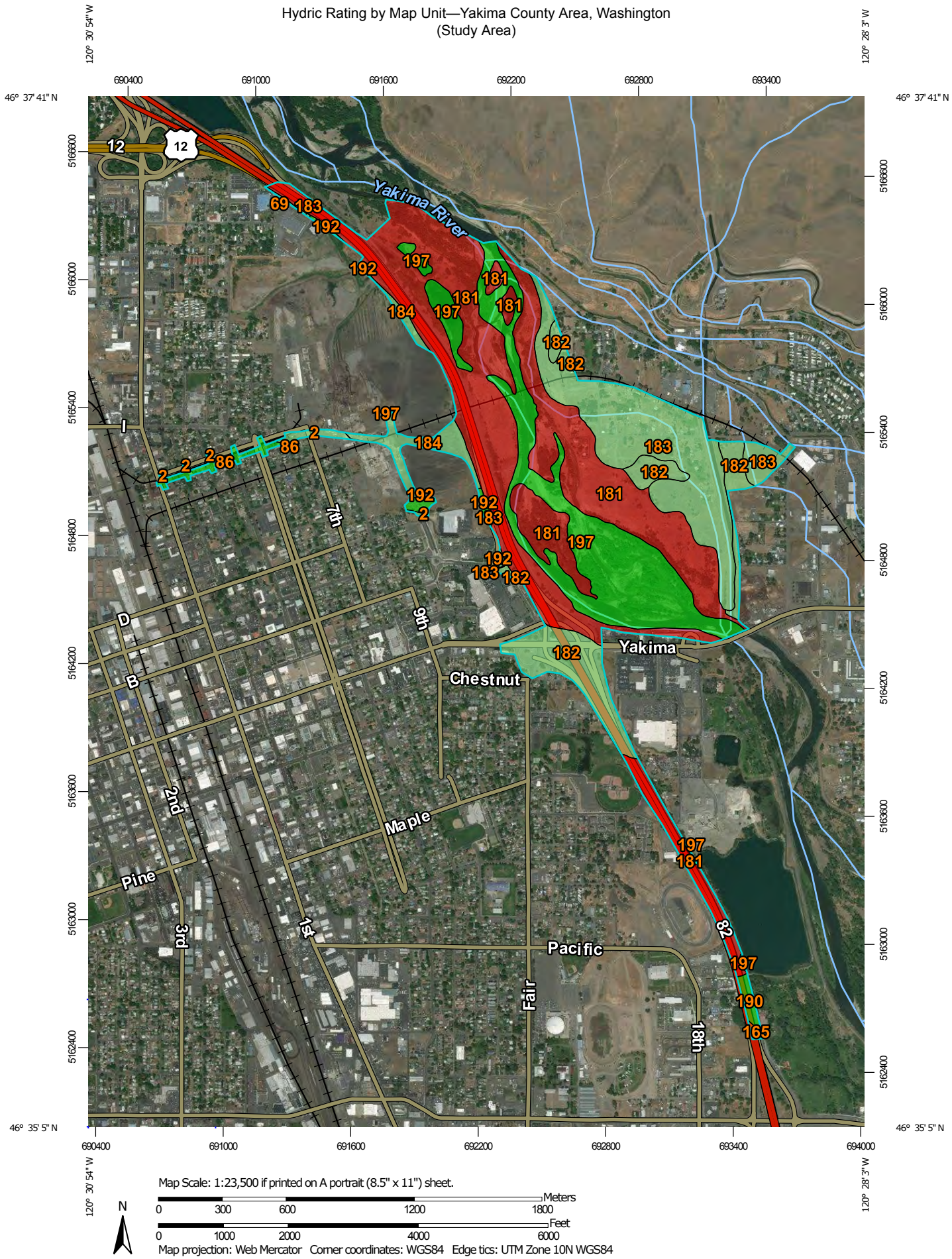
Hydric Rating by Map Unit—Yakima County Area, Washington
(Study Area)



Map Scale: 1:23,500 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 300 600 1200 1800

Feet
0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Yakima County Area, Washington
Survey Area Data: Version 18, Sep 10, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 3, 2014—Sep 21, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2	Ashue loam	10	3.5	0.6%
69	Logy silt loam, 0 to 2 percent slopes	5	0.5	0.1%
86	Naches loam	0	5.1	0.9%
165	Track loam	95	0.7	0.1%
181	Weirman sandy loam, channeled	100	255.9	47.0%
182	Weirman fine sandy loam	5	48.8	9.0%
183	Weirman gravelly fine sandy loam	5	97.8	18.0%
184	Weirman fine sandy loam, wet	5	15.3	2.8%
190	Yakima silt loam	0	3.2	0.6%
192	Zillah silt loam	0	4.0	0.7%
197	Water	0	109.8	20.2%
Totals for Area of Interest			**544.5**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

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APPENDIX E – NATIONAL WETLANDS INVENTORY MAPS

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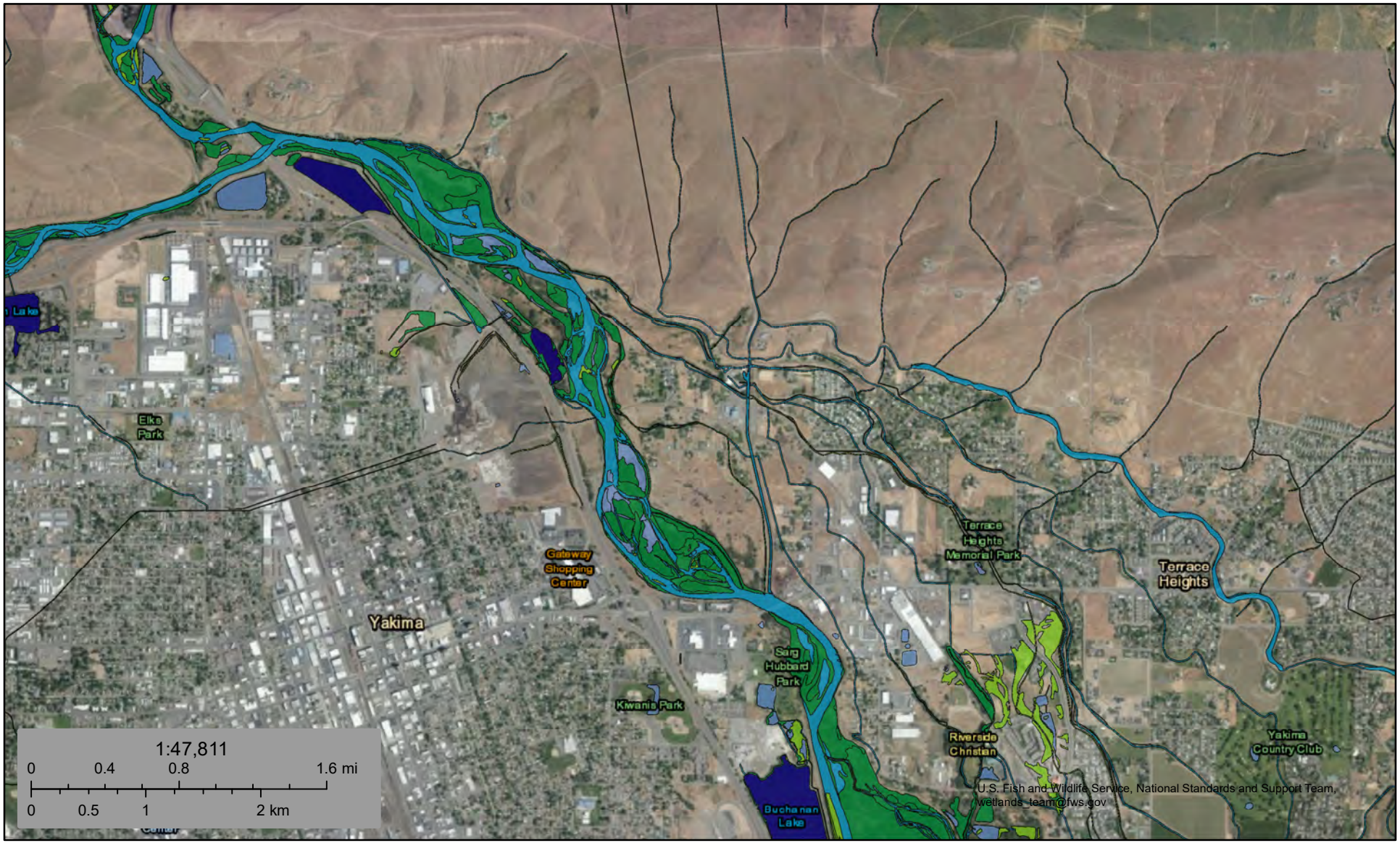
U.S. Fish and Wildlife Service
National Wetlands Inventory

EW Corridor Wetland Survey Area



November 5, 2019

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

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APPENDIX F – WETLAND MAPS

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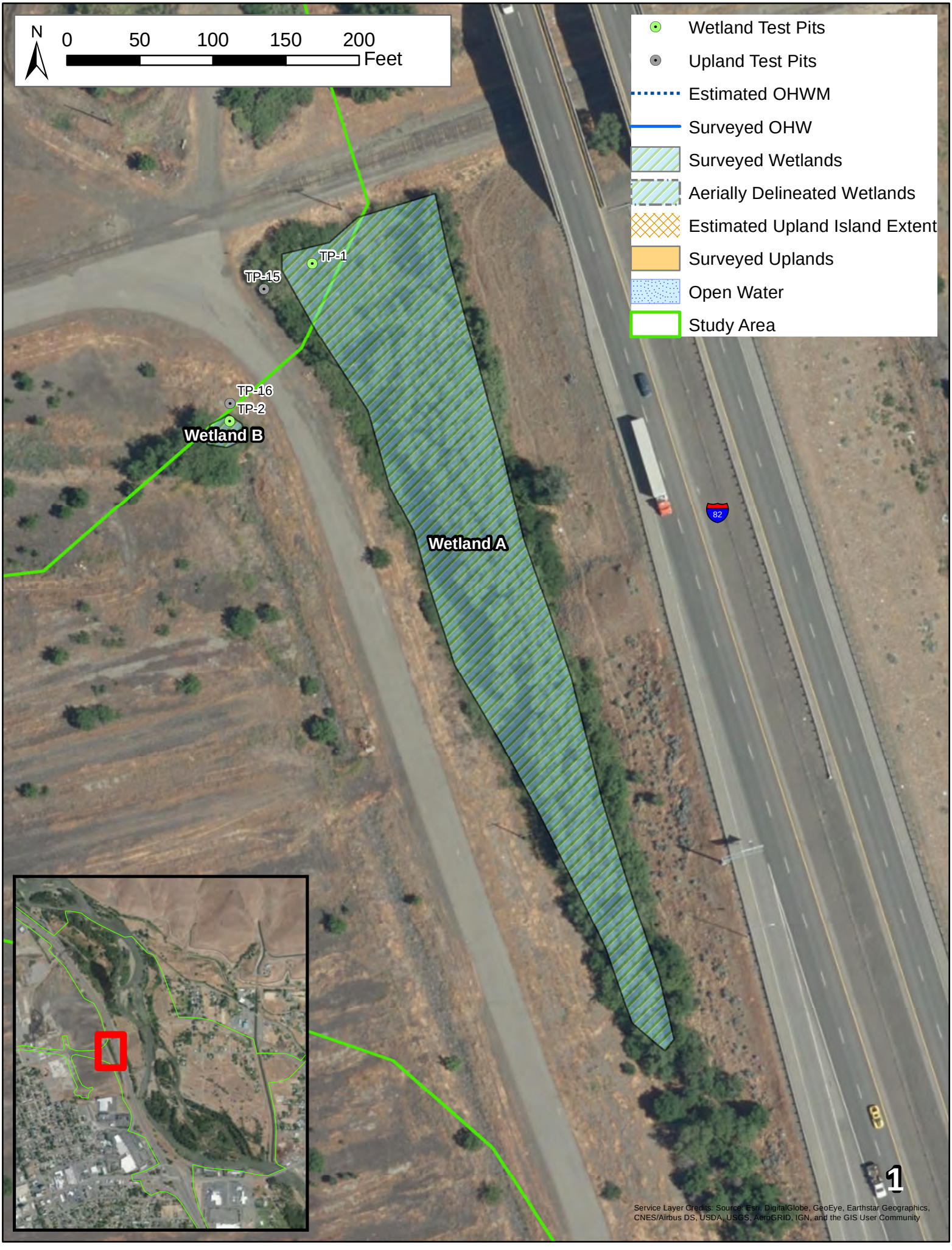
Wetland Maps and Pages

WETLAND	PAGE
A	1
B	1
C	2
D	3
E	2
F	4
G	5,11
H	6
I	6
J	3
K	7
L	8
M	3
N	9,10
O	9
P	10
Q	11
R	10
S	2
T	2
U	10, 13
V	12
W	11
X	12
Y	12
Z	13

WETLAND	PAGE
AA	14, 15
BB	14
CC	10, 13
DD	13
FF	11, 13
HH	13
II	13
JJ	13
KK	8
LL	8
MM	15
NN	7
PP	15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Upland Test Pits
Estimated OHWM
Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
TP-1
TP-15
TP-16
TP-2
Wetland B
Wetland A
82
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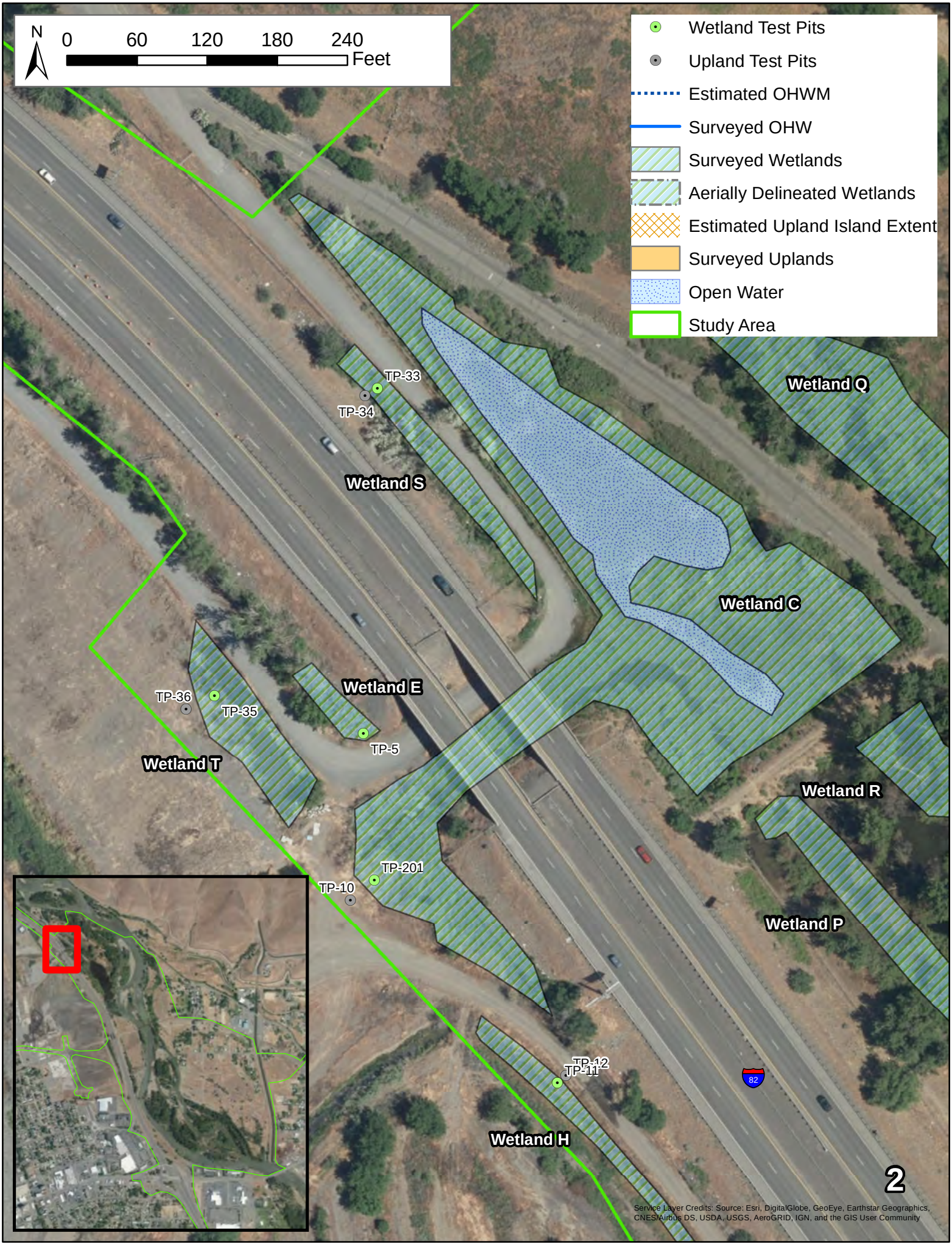
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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Upland Test Pits
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Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
TP-33
TP-34
TP-36
TP-35
TP-5
TP-201
TP-10
TP-12
TP-11
Wetland Q
Wetland S
Wetland C
Wetland E
Wetland T
Wetland R
Wetland P
Wetland H
82
2
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


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Feet
Wetland Test Pits
Upland Test Pits
Estimated OHWM
Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
TP-24
TP-25
Wetland M
82
Yakima Greenway Trail
Yakima River
Yakima River
TP-203
TP-202
Wetland D
TP-18
Wetland J
TP-19
3
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


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50
75
100
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Upland Test Pits
Estimated OHWM
Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
Freeway Lake Rd
82
TP-7
TP-6
Wetland F
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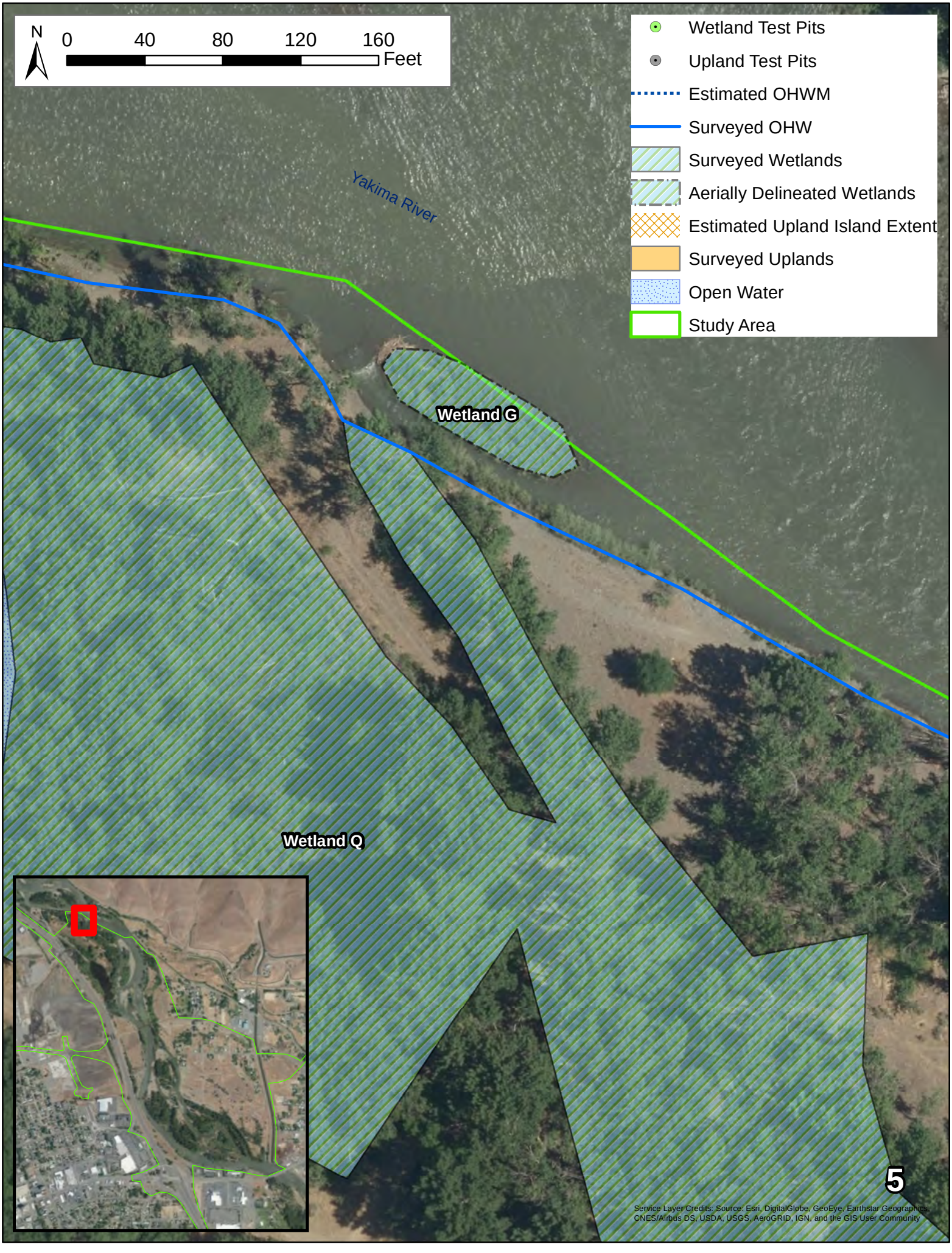
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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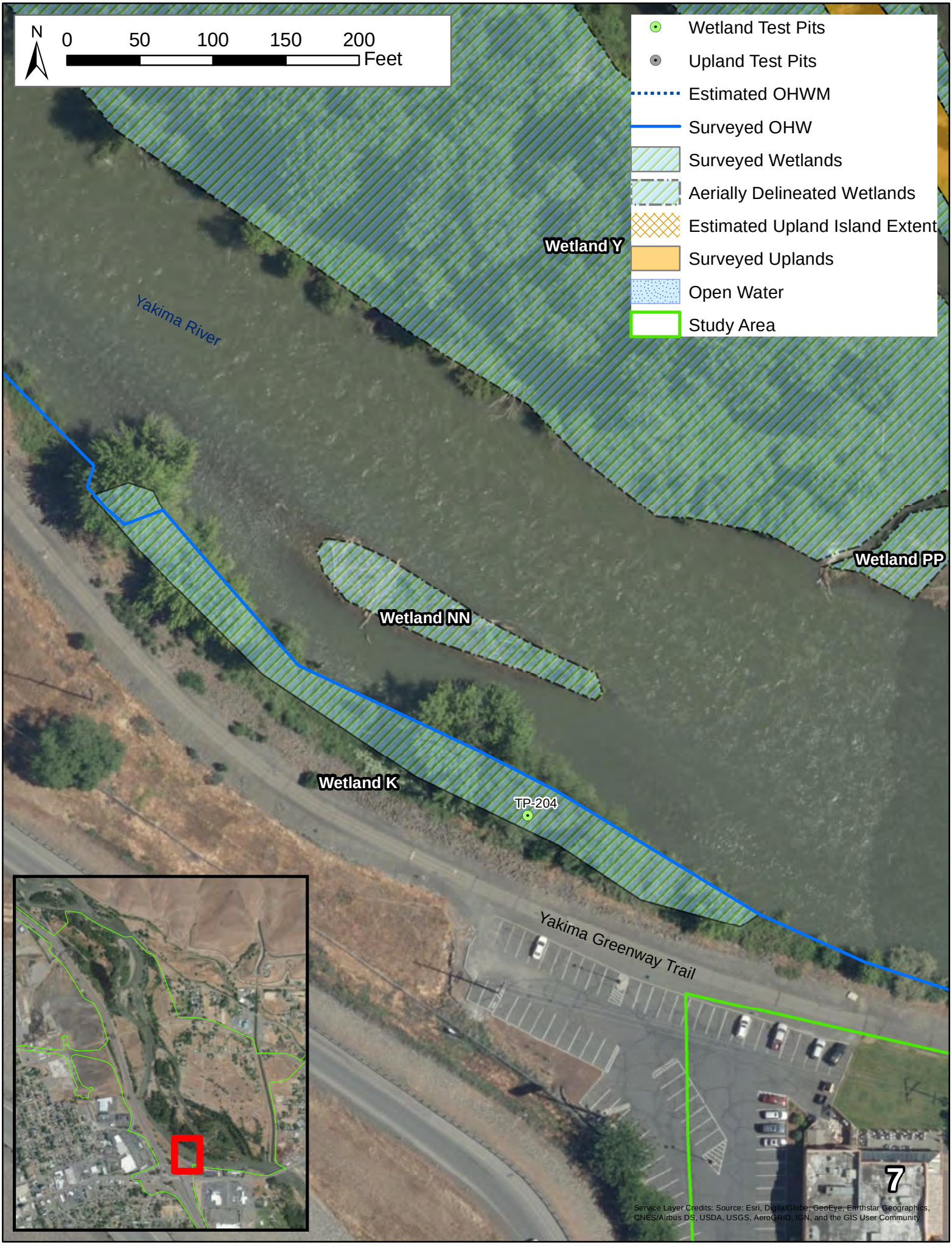
Feet
Wetland Test Pits
Upland Test Pits
Estimated OHWM
Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
Yakima River
Wetland G
Wetland Q
5
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


N
0
80
160
240
320
Feet
Wetland Test Pits
Upland Test Pits
Estimated OHWM
Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
TP-5
Wetland T
TP-201
TP-10
TP-29
Wetland R
TP-30
TP-11
TP-12
82
Wetland P
Wetland H
TP-14
TP-13
Wetland I
6
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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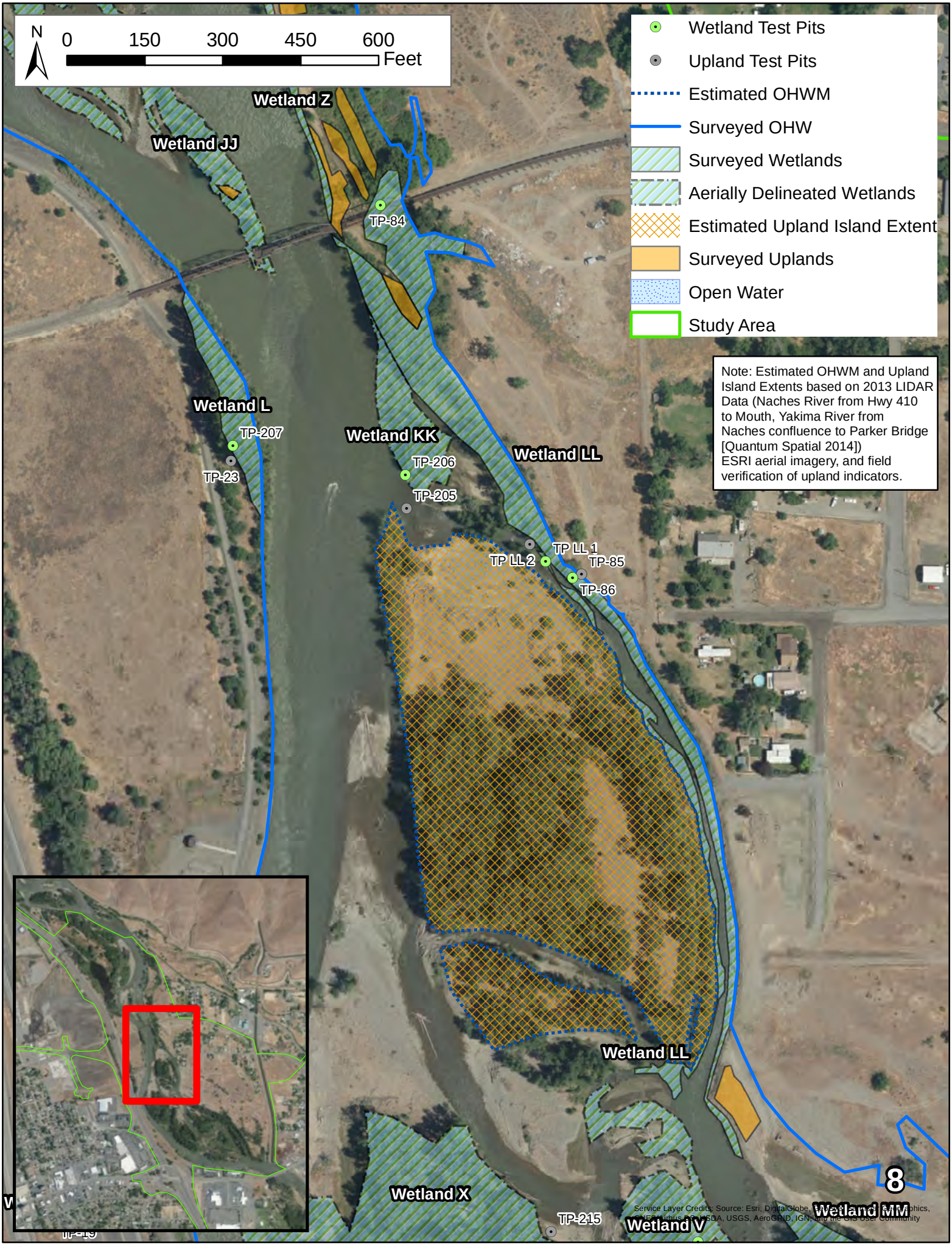
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
Wetland Y
Yakima River
Wetland PP
Wetland NN
Wetland K
TP-204
Yakima Greenway Trail
7
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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Upland Test Pits
Estimated OHWM
Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
Note: Estimated OHWM and Upland Island Extents based on 2013 LIDAR Data (Naches River from Hwy 410 to Mouth, Yakima River from Naches confluence to Parker Bridge [Quantum Spatial 2014]) ESRI aerial imagery, and field verification of upland indicators.
Wetland Z
Wetland JJ
TP-84
Wetland L
TP-207
TP-23
Wetland KK
TP-206
TP-205
Wetland LL
TP LL 1
TP LL 2
TP-85
TP-86
Wetland LL
Wetland X
TP-215
Wetland V
Wetland MM
8
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


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Upland Test Pits
Estimated OHWM
Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
Wetland P
Yakima Greenway Trail
Wetland N
TP-26
TP-27
TP-28
Wetland O
Wetland II
Wetland II
Yakima River
82
Yakima Greenway Trail
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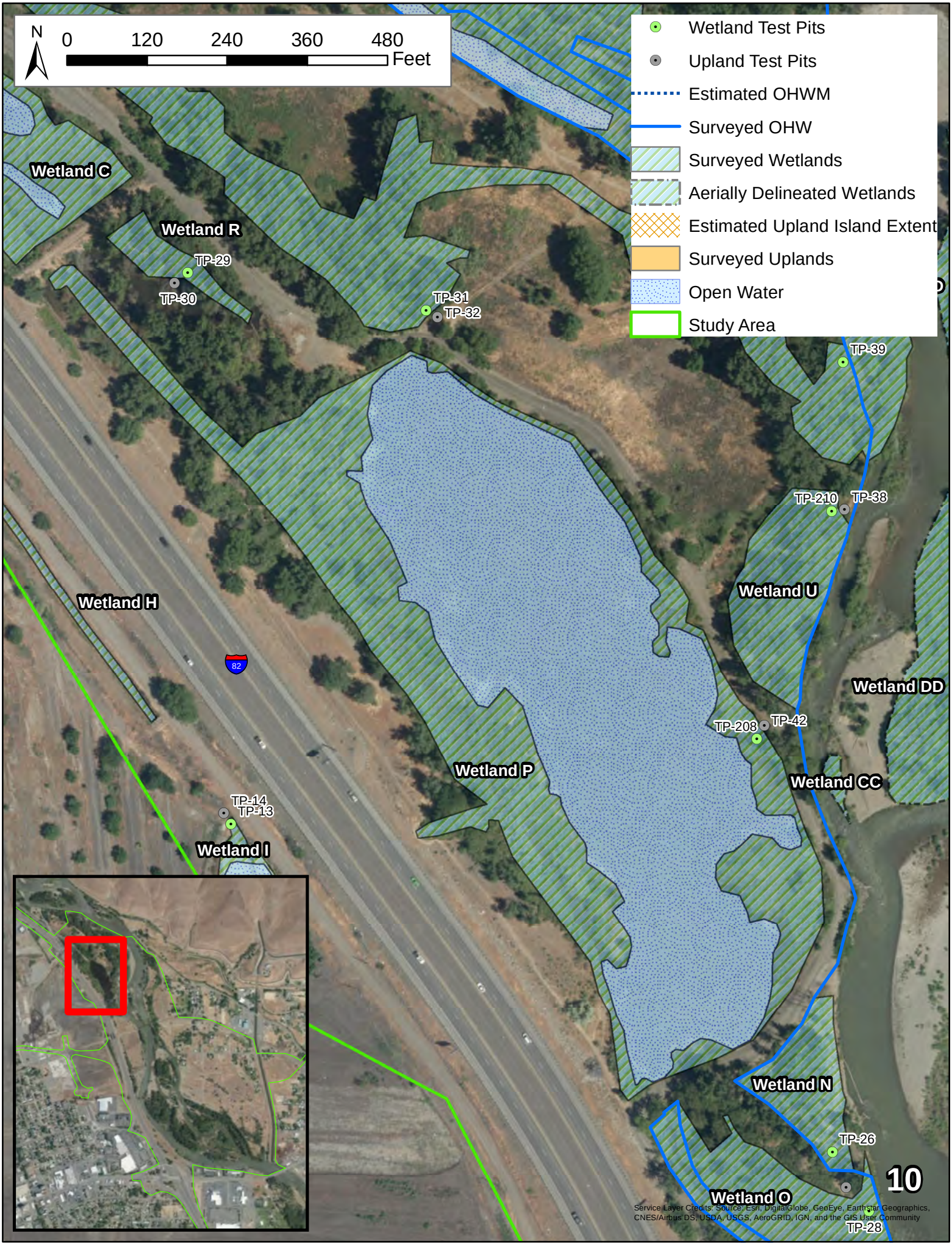
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Surveyed Uplands
Open Water
Study Area
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Wetland R
TP-29
TP-30
TP-31
TP-32
TP-39
TP-210
TP-38
Wetland H
Wetland U
82
Wetland DD
TP-208
TP-42
Wetland P
Wetland CC
TP-14
TP-13
Wetland I
Wetland N
TP-26
Wetland O
TP-28
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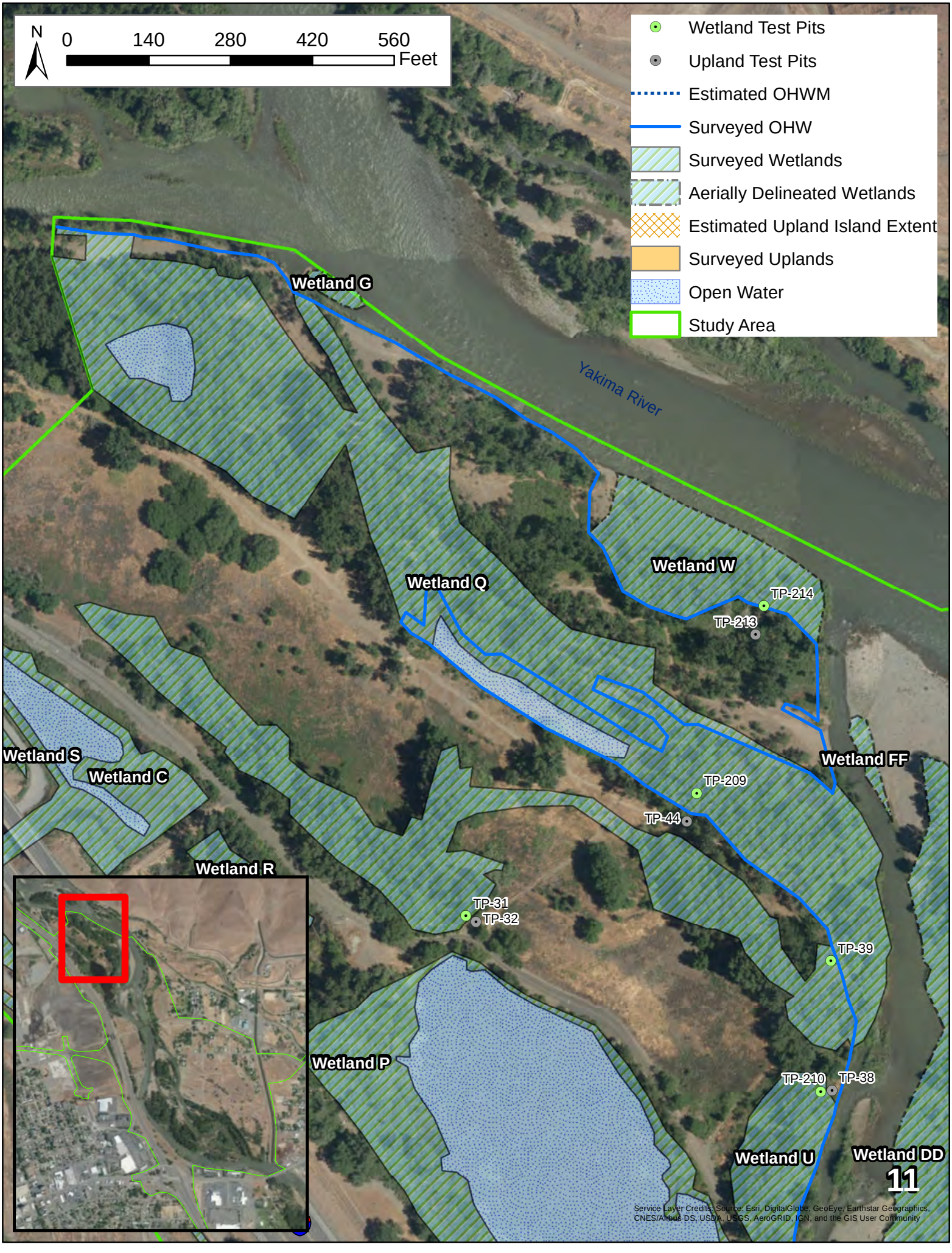
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
Wetland G
Yakima River
Wetland W
Wetland Q
TP-214
TP-213
Wetland S
Wetland C
Wetland FF
TP-209
TP-44
Wetland R
TP-31
TP-32
TP-39
Wetland P
TP-210
TP-38
Wetland U
Wetland DD
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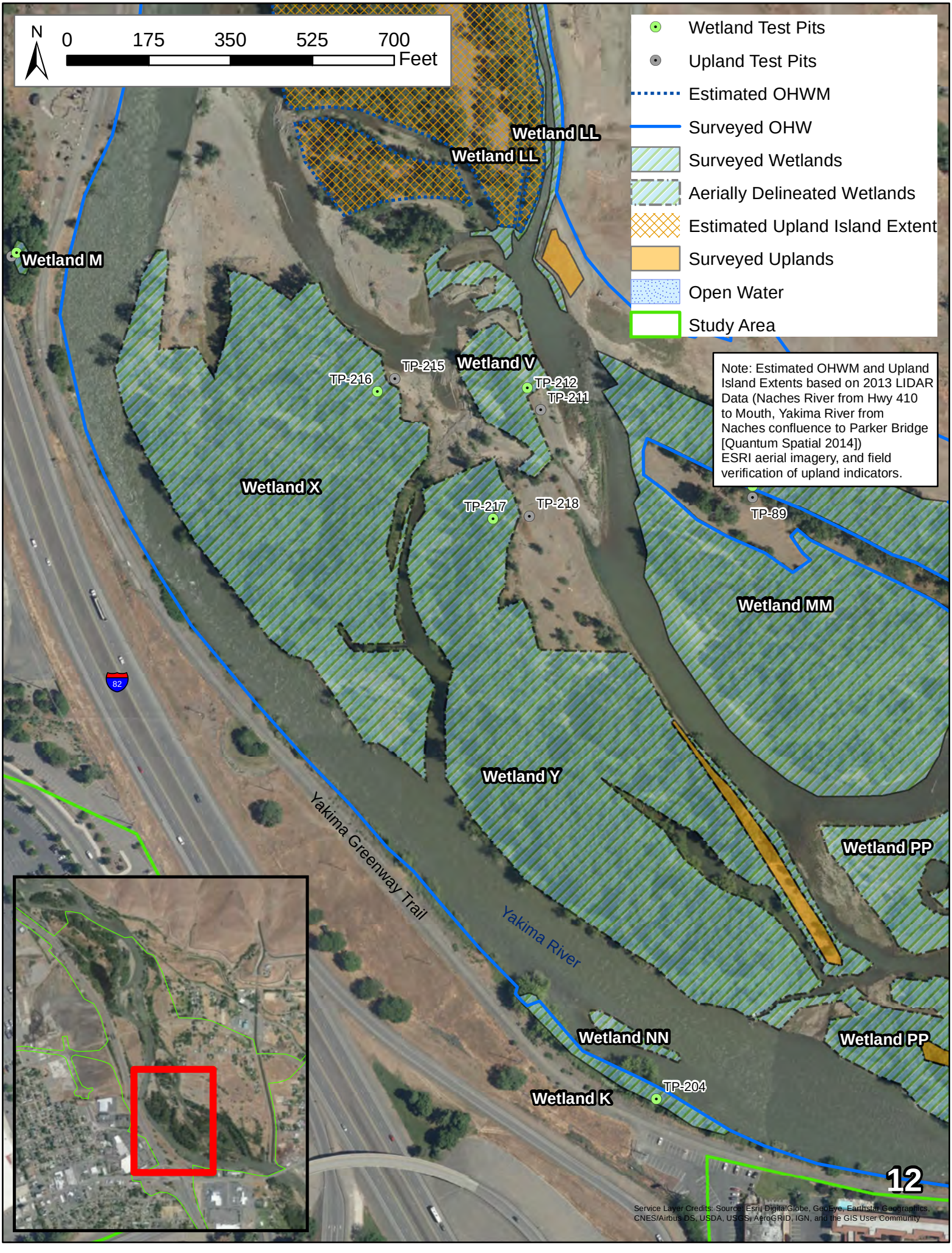
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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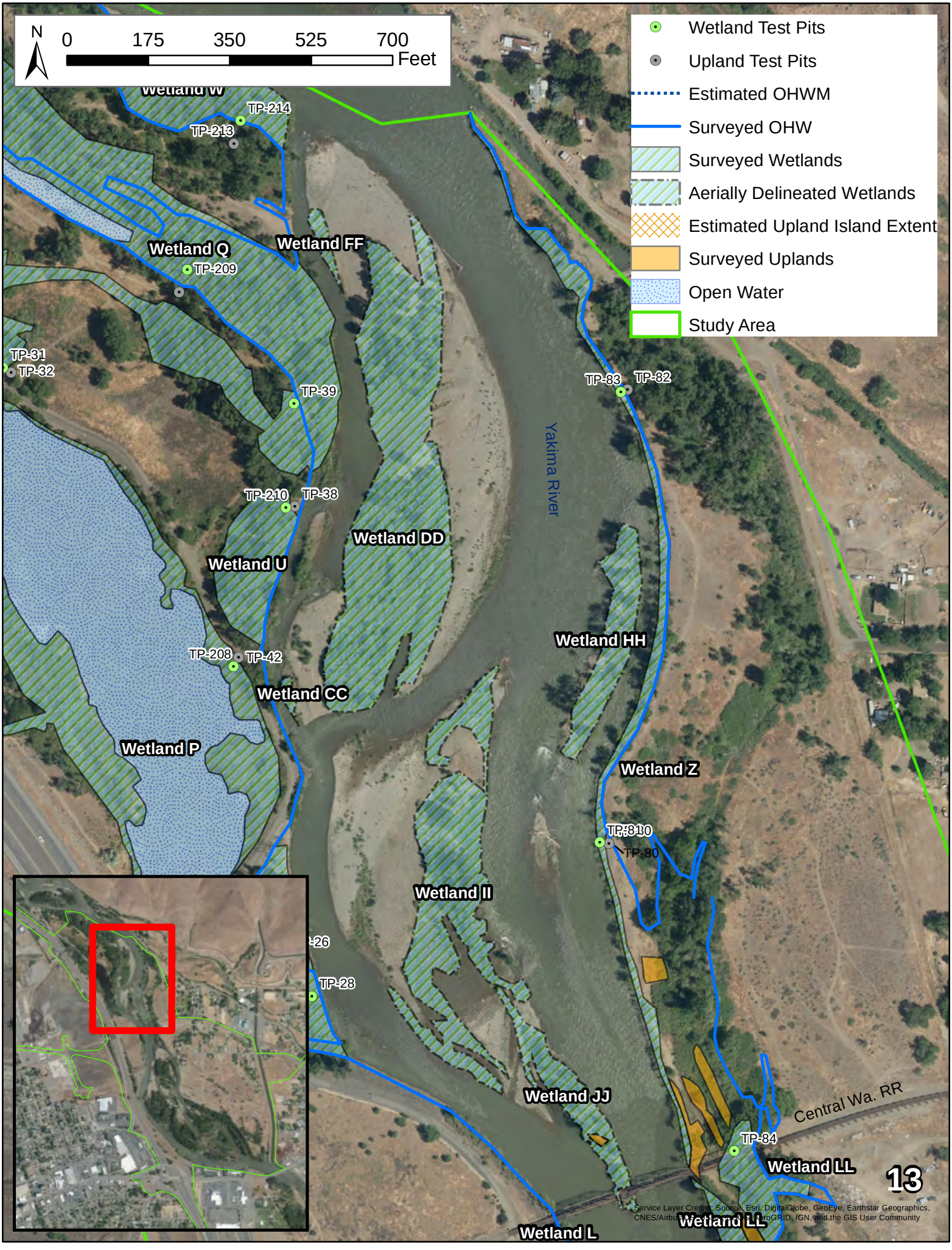
Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
Note: Estimated OHWM and Upland Island Extents based on 2013 LIDAR Data (Naches River from Hwy 410 to Mouth, Yakima River from Naches confluence to Parker Bridge [Quantum Spatial 2014])
ESRI aerial imagery, and field verification of upland indicators.
Wetland LL
Wetland LL
Wetland M
TP-215
Wetland V
TP-216
TP-212
TP-211
Wetland X
TP-217
TP-218
TP-89
Wetland MM
82
Wetland Y
Yakima Greenway Trail
Yakima River
Wetland PP
Wetland NN
Wetland PP
TP-204
Wetland K
12
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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175
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525
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Feet
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Upland Test Pits
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Surveyed OHW
Surveyed Wetlands
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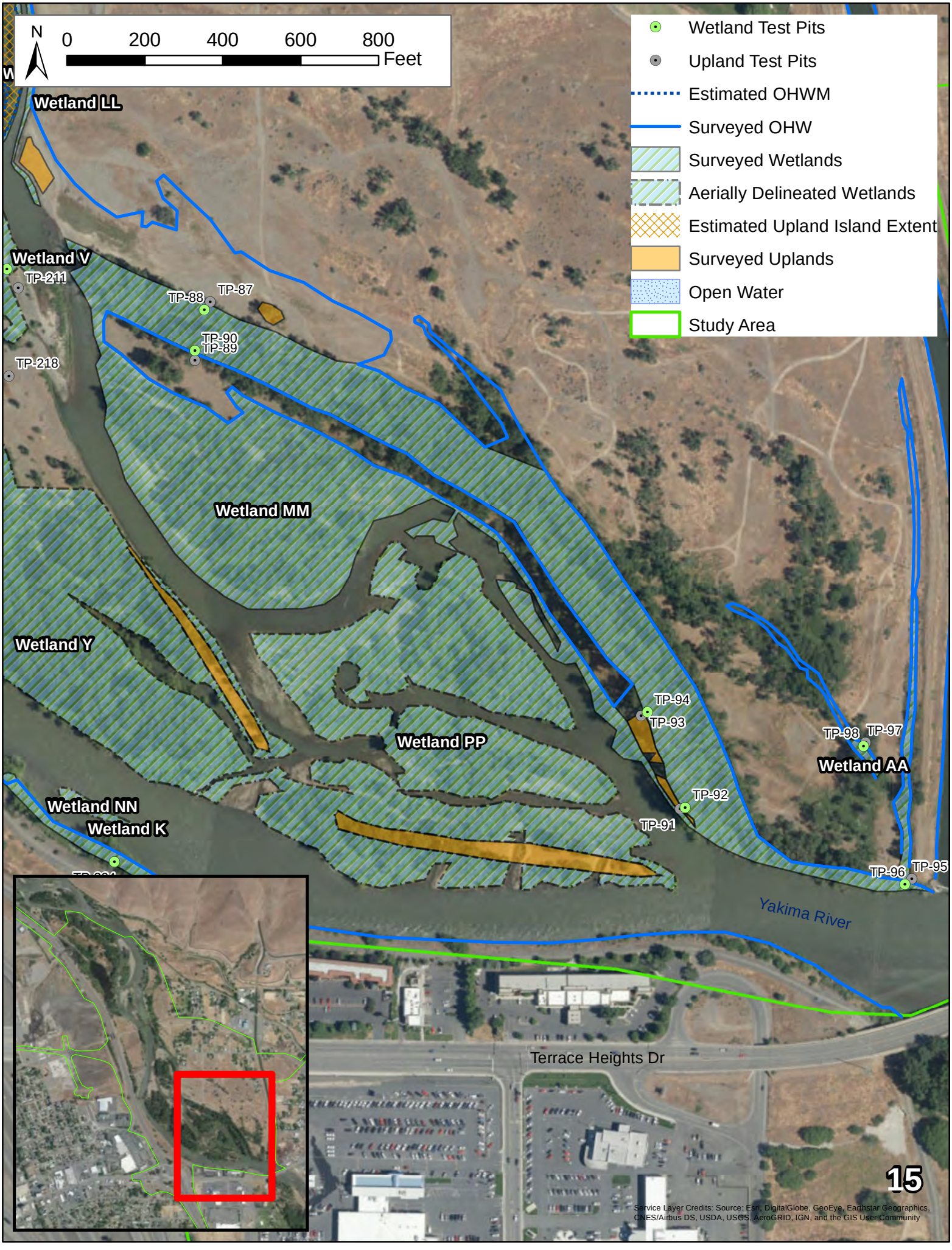
Surveyed Uplands
Open Water
Study Area
Wetland W
TP-214
TP-213
Wetland Q
Wetland FF
TP-209
TP-31
TP-32
TP-39
TP-83
TP-82
Yakima River
TP-210
TP-38
Wetland DD
Wetland U
Wetland HH
TP-208
TP-42
Wetland CC
Wetland P
Wetland Z
TP-81
TP-80
Wetland II
TP-28
Wetland JJ
Central Wa. RR
TP-84
Wetland LL
Wetland L
13
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


N
0
80
160
240
320
Feet
Wetland Test Pits
Upland Test Pits
Estimated OHWM
Surveyed OHW
Surveyed Wetlands
Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
TP-97
TP-98
Wetland AA
Roza Canal
Wetland MM
TP-95
TP-96
Yakima River
TP-99
TP-100
Wetland BB
Terrace Heights Dr
14
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community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Aerially Delineated Wetlands
Estimated Upland Island Extent
Surveyed Uplands
Open Water
Study Area
Wetland LL
Wetland V
TP-211
TP-88
TP-87
TP-90
TP-89
TP-218
Wetland MM
Wetland Y
TP-94
TP-93
Wetland PP
TP-98
TP-97
Wetland AA
TP-92
TP-91
Wetland NN
Wetland K
TP-96
TP-95
Yakima River
Terrace Heights Dr
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Appendix A4-
Land Use Report

Land Use Discipline Report

East-West Corridor Project

Yakima County, Washington

Prepared by:

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Everett, WA 98208

July 2022

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Acronyms

ADA	Americans with Disabilities Act
BA	Biological Assessment
DPS	Distinct Population Segment
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
I-82	Interstate-82
M-1	Light Industrial
M/RTP	Metropolitan and Regional Transportation Plan
NEPA	National Environmental Policy Act
NHS	National Highway System
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
R-1	Single-Family Residential
R-2	Two-Family Residential
R-3	Multi-Family Residential
R-10/5	Rural-10/5
RD	Regional Development
RM	River Mile
ROW	Right of Way
SAO	Sensitive Area Ordinance
SEPA	State Environmental Policy Act
SCC	Small Convenience Center
SR	Suburban Residential
UGA	Urban Growth Area
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WDFW	Washington State Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation
YCC	Yakima County Code
YMC	Yakima Municipal Code
YVCOG	Yakima Valley Conference of Governments

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Executive Summary

Yakima County is proposing to construct an East-West Corridor in the City of Yakima and unincorporated Yakima County, Washington from North 1st Street and East H Street on the west side of Interstate 82 (I-82) in the City of Yakima to the eastern terminus on the east side of the Roza Canal Wasteway #2 in the community of Terrace Heights. This report includes an analysis of how the Proposed Project compared to the No Build Alternative would affect current and planned land uses and an evaluation of consistency with existing city and regional land use plans and development regulations. The East-West Corridor Project is consistent with, and would assist in implementing, goals and objectives found in the applicable land use plans and regulations. Construction and operation of this project would be compatible with planned development in the study area. The Proposed Project is designed to improve mobility within the City of Yakima and the Terrace Heights Neighborhood, as well as improve emergency vehicle response times, and mobility for non-motorized uses.

Currently, there is only one route connecting the City of Yakima to the growing Terrace Heights neighborhood. The Yakima Ave/Terrace Heights Drive route across the Yakima River has been experiencing increased congested because of the growing population in the City of Yakima and Terrace Heights, as well as increased developments in the Terrace Heights neighborhood such as the Pacific Northwest University of Health Sciences. The Yakima Ave/Terrace Heights Drive route consists of a 4-lane bridge with 2 sidewalks. It has limited space for bicycles and no direct connection to the Yakima Greenway trail which runs underneath the bridge on the western bank.

Upon project completion, the new section of the East-West corridor (Cascade Mill Parkway) will consist of a 5-lane roadway with two vehicular travel lanes in each direction, a center turn lane or median as appropriate, sidewalks and shared use path, curbing, gutters, and illumination. An extension of Bravo Company Boulevard will be constructed north from its current terminus to connect to Cascade Mill Parkway. The section of East H Street from North 1st Street east to North 7th Street will be widened to include an 11-foot wide travel lane in each direction, buffered bike lanes, and an 11-foot wide center turn lane. A new signal will be installed at the intersection with North 1st Street and remaining stop signs along H Street will be removed and placed to stop cross street traffic. The East-West Corridor project will involve the construction of new bridge crossings over the Yakima River and the Roza Canal Wastewater #2, as well as an undercrossing of I-82. The project area is located within the legal geographic area of Sections 17 and 18 of Township 13 North and Range 19 East as well as Section 13 of Township 13 North and Range 18 East.

The East-West Corridor is study area is located on either side of the Yakima River in the City of Yakima and the Terrace Heights neighborhood. The study area includes mostly residential uses, with some business, recreational, and industrial uses. Both the City of Yakima and the Terrace Heights neighborhood have experienced significant growth. Because of this growth, the single crossing between the City and Terrace Heights is experiencing increased congestion. A major purpose of the Proposed Project is to increase mobility for the residents and businesses in the area.

This project also will improve river crossing access for non-motorized users. The multi-use pathway, with a connection to the existing Yakima Greenway trail will allow cyclists and pedestrians top have easier access to either side of the river. Currently, there is no public transportation serving the Terrace Heights neighborhood. The proposed project will provide another roadway across the river where Yakima Transit could potentially establish future routes to service the Terrace Heights community.

The guidance in Chapter 455 of the Washington State Department of Transportation *Environmental Procedures Manual* was used to evaluate the potential land use effects in the study area. The project team compared the existing land uses with the Proposed Project to determine if there would be any changes to land use. The Proposed Project was also compared with the plans and regulations to determine if the Proposed Project would be compatible.

The project team collected and reviewed regional and local plans, regulations, and maps from the City of Yakima and Yakima County to identify the existing and potential future land uses within the study area and evaluate the Proposed Project's relationship to existing plans and regulations and any impacts on existing and future land uses. Plans and regulations reviewed include:

- *Yakima Valley Metropolitan and Regional Transportation Plan 2020-2045*
- *Horizon 2040 Yakima County Comprehensive Plan, June 27, 2017*
- *Yakima Comprehensive Plan 2040, June 2017*

Two alternatives were analyzed, the No Build and the Build condition. The No Build was essentially used as a baseline to compare the project effects to, as under the No Build no activities would be taking place, and the status quo is assumed to be maintained.

This study shows that temporary disruptions may occur during construction, such as traffic delays and increased noise levels. Construction and operation of the Proposed Project would not result in any adverse effects on land use, except of minimal property acquisitions within the Terrace Heights Neighborhood. The Proposed Project is consistent with, and would assist in implementing, goals and objectives found in the applicable land use plans and regulations. The Proposed Project is designed to improve mobility within the City of Yakima and the surrounding urban area by creating an additional crossing of the Yakima River. The long-term benefits to the project include reduced congestion, an additional emergency response route, improved pedestrian facilities, and more efficient travel from the city center to outlying residential areas. Approximately 33.5 acres are being converted to a transportation land use.

Recommended mitigation measures to avoid or minimize adverse effects during construction could include: bringing the existing East H Street corridor up to the current standard before the rest of the corridor can be connected, preparing and implementing a Transportation Management Plan, requiring the contractor to post signs during any lane closures, maintaining local access on all existing roads, and additional plantings along the shoreline to mitigate for any natural vegetation altered or removed. Where possible, disturbed areas will be re-vegetated and or planted according to an approved planting plan.

As no substantial indirect effects are anticipated to occur due to the Proposed Project no mitigation/minimization measures will be necessary to reduce potential indirect effects.

Table of Contents

Figures

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1.0 Introduction

1.1 Purpose of Report

The purpose of this Land Use Discipline Report is to evaluate the East-West Corridor Project for impacts on land use within the study area. The analysis includes a comparison of how the Proposed Project and No Build Alternative would affect current and planned land uses and an evaluation of consistency with existing city and regional land use plans and development regulations. The report also suggests a range of mitigation measures to relieve negative impacts on land use during project construction. Analysis of land use impacts is required under the National Environmental Policy Act (NEPA) for actions sponsored, funded, permitted, or approved by federal agencies. The State Environmental Policy Act (SEPA) requires analysis of a project's impact on the natural and built environment.

1.2 Methods and Data

The guidance in Chapter 455 of the Washington State Department of Transportation (WSDOT) *Environmental Procedures Manual* (WSDOT 2021) was used to evaluate the potential land use effects in the study area. The project team compared the existing land uses with the Proposed Project to determine if there would be any changes to land use. The Proposed Project was also compared with the plans and regulations to determine if the Proposed Project would be compatible.

The study area is defined as roughly the areas surrounding the proposed project. The study area is roughly defined by 1st Avenue to the west, the existing BNSF railway and the project limits to the north, East K Street to the north, Butterfield Road to the east, and between Industrial Rd and the end of Horgan Rd west of Roza Canal to the south. This area was selected as the study area because direct and indirect effects of the Proposed Project, during construction and operation, could occur there.

The project team collected and reviewed regional and local plans, regulations, and maps from the City of Yakima to identify the existing and potential future land uses within the study area, and to evaluate the Proposed Project's relationship to existing plans and regulations and any impacts on existing and future land uses. Plans and regulations reviewed include:

- *Yakima Valley Metropolitan and Regional Transportation Plan 2020-2045*
- *Horizon 2040 Yakima County Comprehensive Plan, June 27, 2017*
- *Yakima Comprehensive Plan 2040, June 2017*

Coordination with the Federal Emergency Management Agency (FEMA), the United States Bureau of Reclamation (BOR), the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), the United States Army Corps of Engineers (USACE), the United States Fish and Wildlife Service (USFWS), the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), and the Washington State Department of Fish and Wildlife (WDFW) has been ongoing.

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2.0 Project Description

2.1 Purpose and Need

The purpose of the proposed project is to reduce congestion and connect the growing neighborhood of Terrace Heights to the City of Yakima (as stated in the Purpose & Need for this project, dated March 22, 2022):

- Provide an alternative Yakima River crossing for east-west travel between the City of Yakima and Terrace Heights.
- Increase mobility, by decreasing travel delay, and relieving traffic congestion at the I-82/Yakima Avenue Interchange and on Terrace Heights Drive and Yakima Avenue.
- Construct the local road corridor which would allow for the consideration of construction of the recommended alternative for an interchange with I-82 identified in the WSDOT I-82/Yakima Avenue/Terrace Heights Drive IJR.
- Provide bicycle and pedestrian facilities including a connection to the Yakima Greenway Trail.
- Serve the existing approved transportation and land use planning along the roadway corridor as documented in the Yakima Valley Conference of Governments (YVCOG) 2020-2045 Metropolitan and Regional Transportation Plan.

The needs for the project include the following (as stated in the Purpose & Need for this project, dated March 22, 2022):

- *Congested Corridor* –The current road network cannot support the growth anticipated in the area under the current comprehensive plan. The Terrace Heights neighborhood lies just to the east of the City of Yakima. The neighborhood, an unincorporated part of Yakima County, has grown considerably over the last five decades, with its population increasing fivefold in the 30 years between 1970 and 2000, to a 2019 total of 8,507. Redevelopment of the Boise Cascade Mill Site consistent with the planned land use in the current City of Yakima Comprehensive Plan is also anticipated to increase traffic demand within the City of Yakima.

  The level of service (LOS) on the Yakima Avenue/Terrace Heights Drive corridor has been getting steadily worse and by 2035 it is expected to have multiple turning movements operating at LOS E or F. LOS is a letter grade corresponding to the amount of congestion a road has when completed to a standard. LOS A is the best or the least congested grade. LOS F indicates failure because the demand for a road is more than its capacity.

  The current LOS along the Yakima Avenue/Terrace Heights Drive corridor has triggered Yakima County's concurrency requirements, which limits new development permits along the corridor. In order to relax the restrictions, the County must either increase the capacity of the existing corridor or divert sufficient traffic volume onto another route. Right-of-way constraints along the existing Yakima Avenue/Terrace Heights Drive route prevent widening of the existing roadway. The future LOS at the Yakima Avenue interchange is also anticipated to cause back-ups onto the I-82 mainline.

- *Emergency Response* – The Yakima River poses a natural barrier to travel between Yakima and Terrace Heights. Historically, east-west traffic in the project vicinity has had only one option to travel between these two locations: the Yakima Avenue/Terrace Heights Drive corridor. A new corridor is needed to provide an alternative redundant route to Terrace Heights during any future closures of the Terrace Heights Bridge as well as an additional route for emergency services.

- *Lack of pedestrian and bicycle connectivity* – Access to the Greenway Trail is limited as it travels between I-82 and the Yakima River. The existing East H Street corridor does not include sidewalks or bike lanes and there is no access for pedestrians to the Greenway Trail from the surrounding residential neighborhood.

2.2 Project/Alternatives

Proposed Project
Yakima County is proposing to construct an East-West Corridor in the City of Yakima and unincorporated Yakima County, Washington from North 1st Street and East H Street on the west side of Interstate 82 (I-82) in the City of Yakima to the eastern terminus on the east side of the Roza Canal Wasteway #2 in the community of Terrace Heights. This corridor will connect with Yakima County's Phase 1 of Cascade Mill Parkway (currently under construction) which will continue to Butterfield Road and North Keys Road. The project would include construction of three separate streets:

- **East H Street** –The existing road would be extended to the east from the current terminus at North 7th Street where it would connect to Bravo Company Boulevard as the road turns to the south. The existing portion from North 1st Street to North 7th Street would be widened. A new signal would be installed at the intersection with North 1st Street.

- **Bravo Company Boulevard** – An extension of Bravo Company Boulevard connecting to East H Street would be constructed which would turn south and connect to the current terminus near Fair Avenue. A roundabout intersection with Cascade Mill Parkway would be constructed along with one additional roundabout intersection to connect to an existing access road to the adjacent properties.

- **Cascade Mill Parkway** –Cascade Mill Parkway would connect to Bravo Company Boulevard at a roundabout intersection and then continue east beneath I-82 and across the Yakima River and Roza Canal Wasteway #2.

The East-West Corridor project will involve improvements to existing roadways, including transforming East H Street from a residential street to a free-flowing arterial between North 1st Street and North 7th Street; the building of new connections and roundabouts; non-motorized facilities including bike lanes, sidewalks, Americans with Disabilities Act (ADA) ramps, crosswalks, and a shared-use path that will connect to the Yakima Greenway Trail; and construction of four bridges: two to carry I-82 over the proposed roadway, one over the Yakima River, and one over the Roza Canal Wasteway #2. This project will also involve restoration and

levee work along the Yakima River floodplain including removal and/or setback of levees and floodplain habitat restoration.

No Build

NEPA requires that the No Build alternative be included and evaluated in this discipline report. This approach is used to establish an existing and future baseline for comparing the effects associated with the Build Alternative.

Under the No Build Alternative, no new corridor would be provided between the City of Yakima and Terrace Heights and access to the Cascade Mill Site would not be provided. WSDOT, the City of Yakima, and Yakima County would continue to perform routine maintenance to keep existing roadways in good operating condition. If repairs or maintenance of the Terrace Heights bridge which require bridge closure become necessary, Terrace Heights residents would have to detour south to the next river crossing at Nob Hill Boulevard, approximately 5 miles. In addition, no floodplain improvements or habitat improvements would be completed.

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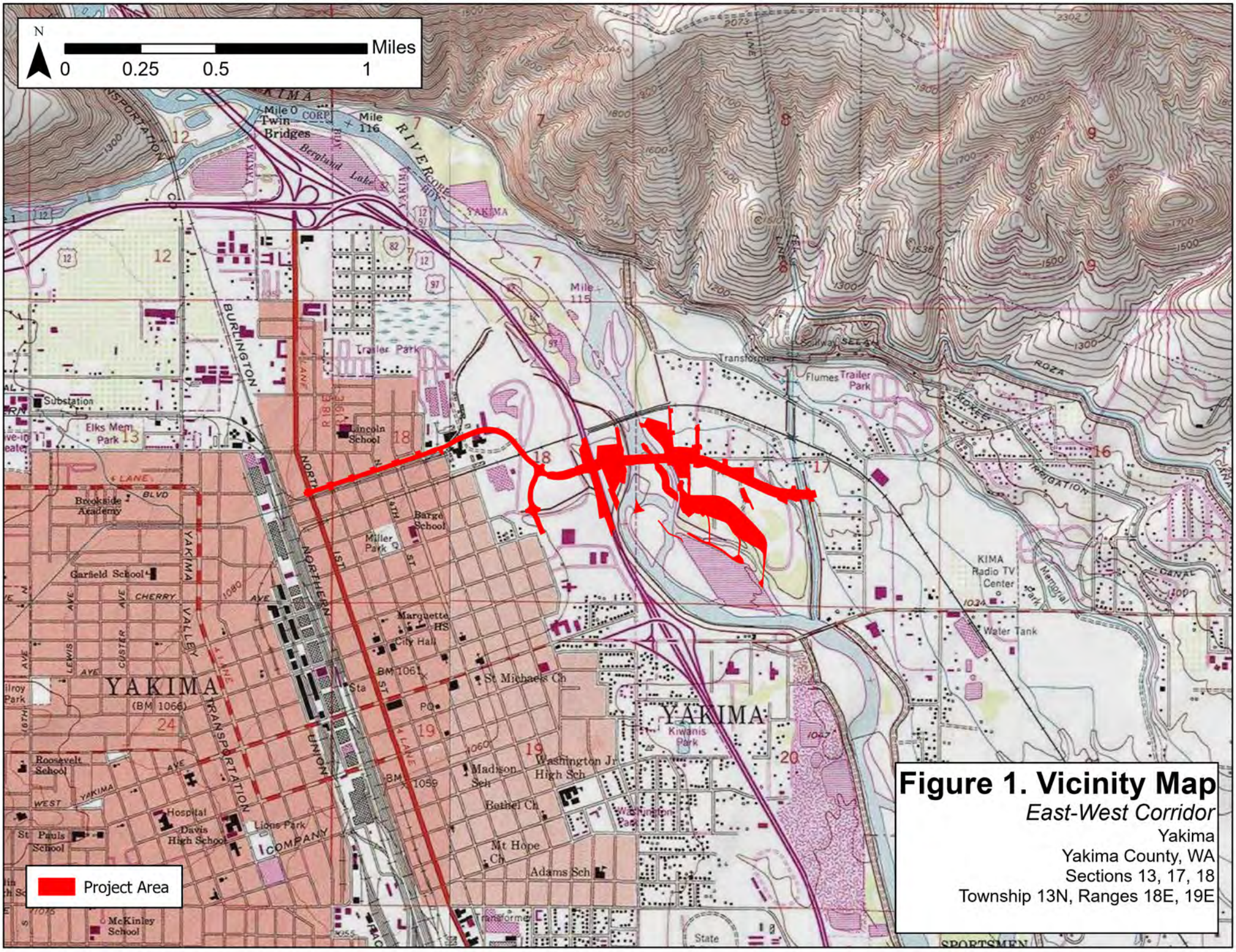
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Project Area
Figure 1. Vicinity Map
East-West Corridor
Yakima
Yakima County, WA
Sections 13, 17, 18
Township 13N, Ranges 18E, 19E

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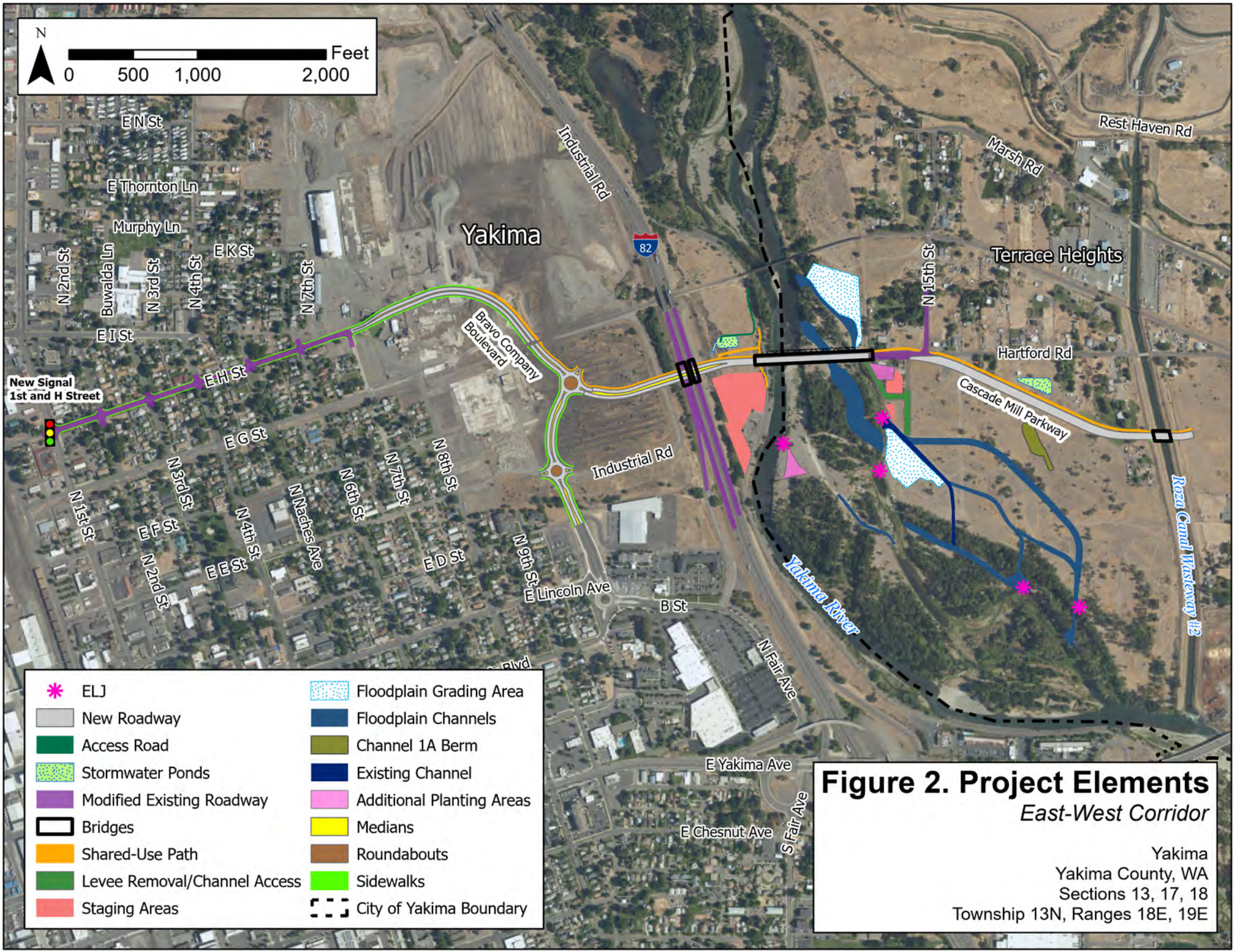
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N 6th St
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E D St
N 9th St
E Lincoln Ave
B St
Industrial Rd
Yakima
82
Bravo Company Boulevard
Industrial Rd
Marsh Rd
Rest Haven Rd
Terrace Heights
N 15th St
Hartford Rd
Cascade Mill Parkway
Yakima River
Roza Canal Wasteway #2
N Fair Ave
E Yakima Ave
E Chesnut Ave
S Fair Ave
ELJ
New Roadway
Access Road
Stormwater Ponds
Modified Existing Roadway
Bridges
Shared-Use Path
Levee Removal/Channel Access
Staging Areas
Floodplain Grading Area
Floodplain Channels
Channel 1A Berm
Existing Channel
Additional Planting Areas
Medians
Roundabouts
Sidewalks
City of Yakima Boundary
Figure 2. Project Elements
East-West Corridor
Yakima
Yakima County, WA
Sections 13, 17, 18
Township 13N, Ranges 18E, 19E

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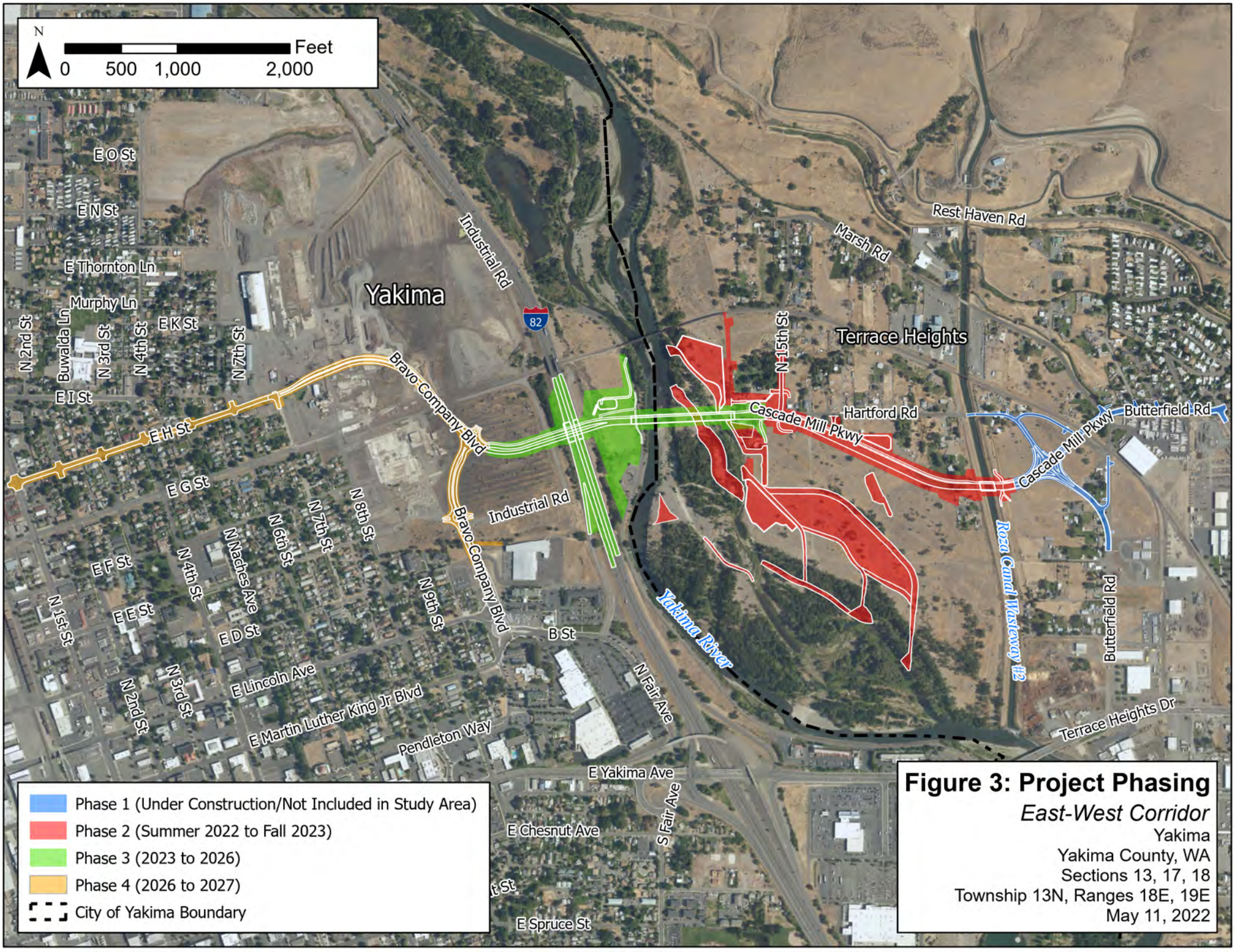

Figure 3: Project Phasing

East-West Corridor

Yakima
Yakima County, WA
Sections 13, 17, 18
Township 13N, Ranges 18E, 19E
May 11, 2022

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3.0 Existing Conditions

3.1 Study Area

The study area is defined as the areas surrounding the proposed project and portions of Terrace Heights to the east. The study area is roughly defined by 1st Avenue to the west, the limits of the Cascade Mill Site and base of the ridge to the north, the Terrace Heights landfill to the east, and E Martin Luther King Jr Boulevard, Terrace Heights Drive, or Roza Hill Drive to the south. This area was selected as the study area because direct and indirect effects of the Proposed Project, during construction and operation, could occur there.

3.2 Zoning

The section of the study area on the west side of the Yakima River is within the city limits of Yakima, therefore Yakima Urban Area Zoning Ordinance (UAZO) zoning regulations apply for this area. The section of the study area on the east side of the river is in unincorporated Yakima County and are subject to the Yakima County Unified Land Development Code (ULDC). Current zoning in the study area consists of the following zones (City of Yakima 2022; Yakima County 2022):

Rural 10/5 (R-10/5)

The rural districts are intended to serve as a buffer between urban lands and resource lands, provide non-resource areas for future urban expansion, limit the costs of providing services to remote or underdeveloped areas, and retain the rural/agrarian character of the County while offering a variety of lifestyle choices for the residents of Yakima County. The Rural-10/5 (R-10/5) zoning district is intended to maintain rural character and provide density incentives to encourage development where fire protection services and access to roads with a paved or other hard surface are available.

Regional Development (RD)

Areas designated for regional development (RD) provide high visibility from the interstate and state highways of the city of Yakima to provide regional commerce, office campus, recreation, large-scale retail, culture, and large multiple mixed uses. Regional development districts have very intensive development and a variety of land uses including retail sales and service establishments, high-density residential development, financial institutions, professional office buildings, hotels, condominiums, and corporation headquarters.

Light Industrial (M-1)

Areas designated as light industrial (M-1) zones are intended to:

- Establish and preserve areas near designated truck routes, freeways, and the railroad for light industrial uses;
- Direct truck traffic onto designated truck routes and away from residential streets; and
- Minimize conflicts between uses in the light industrial district and surrounding land uses.

Light industrial districts provide areas for light manufacturing, processing, research, wholesale trade, storage, and distribution facilities. Uses permitted in this district should not generate noise levels, light, odor, or fumes that would constitute a nuisance or hazard.

Suburban Residential (SR)
Areas designated as suburban residential (SR) provide a variety of residential lifestyles with densities generally ranging from one unit per five net residential acres to seven units per net residential acre. The higher density is reviewed and considered to be permitted when a public water system and the regional sewer system are available, or if these utilities are not available, community water and sewer systems may be allowed after review by Yakima County health district and the City of Yakima. This district is intended to:

- Limit residential density to one unit per five net residential acres in areas where flooding, airport noise, or other environmental constraints make the land unsuitable for residential use at higher densities. Development at a lower density will be reviewed to allow conversion to higher densities once utilities are available or other limiting issues are mitigated;
- Maintain surface and groundwater quality along with the avoidance of potential health hazards, by limiting residential density to one unit per five net residential acres, in areas where public services will not be provided, and the dwelling units have individual wells and septic tanks. Development at a lower density will be reviewed to allow conversion to higher densities once utilities are available or other limiting issues are mitigated;
- Provide the opportunity for suburban residential development, up to three dwelling units per net residential acre, in areas with either public water service or a community sewer system; and
- Allow residential development to seven dwelling units per net residential acre in areas with both public water service and sewer system.

Single-Family Residential (R-1)
Areas designated as a single-family residential district (R-1) are intended to:

- Establish new residential neighborhoods for detached single-family dwellings free from other uses except those which are compatible with, and serve the residents of, this district, which may include duplexes and zero lot lines if established during the subdivision process;
- Preserve existing residential neighborhoods for detached single-family dwellings free from other uses to ensure the preservation of the existing residential character, and serve the residents of this district; and
- Locate moderate-density residential development, up to seven dwelling units per net residential acre, in areas served by public water and sewer system.

Detached single-family dwellings are the primary use in this district. The district is characterized by up to sixty percent lot coverage; access to individual lots by local access streets; required front, rear and side yard setbacks; and one and two-story structures. The density in the district is generally seven dwelling units per net residential acre or less.

This zone is intended to afford single-family neighborhoods the highest level of protection from encroachment by potentially incompatible nonresidential land uses or impacts. Nonresidential uses within these zones are not allowed; except for public or quasi-public uses, which will be

required to undergo extensive public review and will have all necessary performance or design standards assigned to them as necessary to mitigate potential impacts to adjacent residences.

Development exceeding seven dwelling units per net residential acre may be allowed.

Two-Family Residential (R-2)
Areas designated as a two-family residential district (R-2) are intended to:

- Establish and preserve residential neighborhoods for detached single-family dwellings, duplexes and other uses compatible with the intent of this district; and
- Locate residential development with densities up to twelve dwelling units per net residential acre in areas receiving a full range of public services including public water and sewer service, and police and fire protection.

The district is characterized by up to sixty percent lot coverage, access via local access streets and collectors, one- and two-story buildings, some clustering of units, and required front, rear and side yard setbacks. Typical uses in this district are single-family dwellings and duplexes. The density in this district generally ranges from seven to twelve dwelling units per net residential acre. However, development up to eighteen dwelling units per net residential acre may be allowed.

Multi-Family Residential (R-3)
Areas designated as multi-family residential districts (R-3) are intended to:

- Establish and preserve high-density residential districts by excluding activities not compatible with residential uses;
- Locate high-density residential development more than twelve dwelling units per net residential acre in areas receiving the full range of urban services;
- Locate high-density residential development near neighborhood shopping facilities; and
- Locate high-density residential development so that traffic generated by the development does not pass through lower-density residential areas.

This district contains a variety of attached or clustered multi-family dwellings.

Small Convenience Center (SCC)
Areas designated as Small Convenience Center (SCC) are intended to:

- Serve the day-to-day convenience shopping and service needs of the surrounding neighborhood and minimize undesirable impacts of the center on the neighborhood it serves;
- Provide areas for commercial activities that meet the direct retail shopping and service needs of the consumer community, such as supermarkets, fast food restaurants and drug stores; and
- Accommodate small commercial centers, generally two to five acres in size, where most commercial uses have located in a coordinated manner around a common parking lot and one major commercial approach driveway.

Professional Business District (B-1)
Areas designated as professional business district (B-1) are intended to:

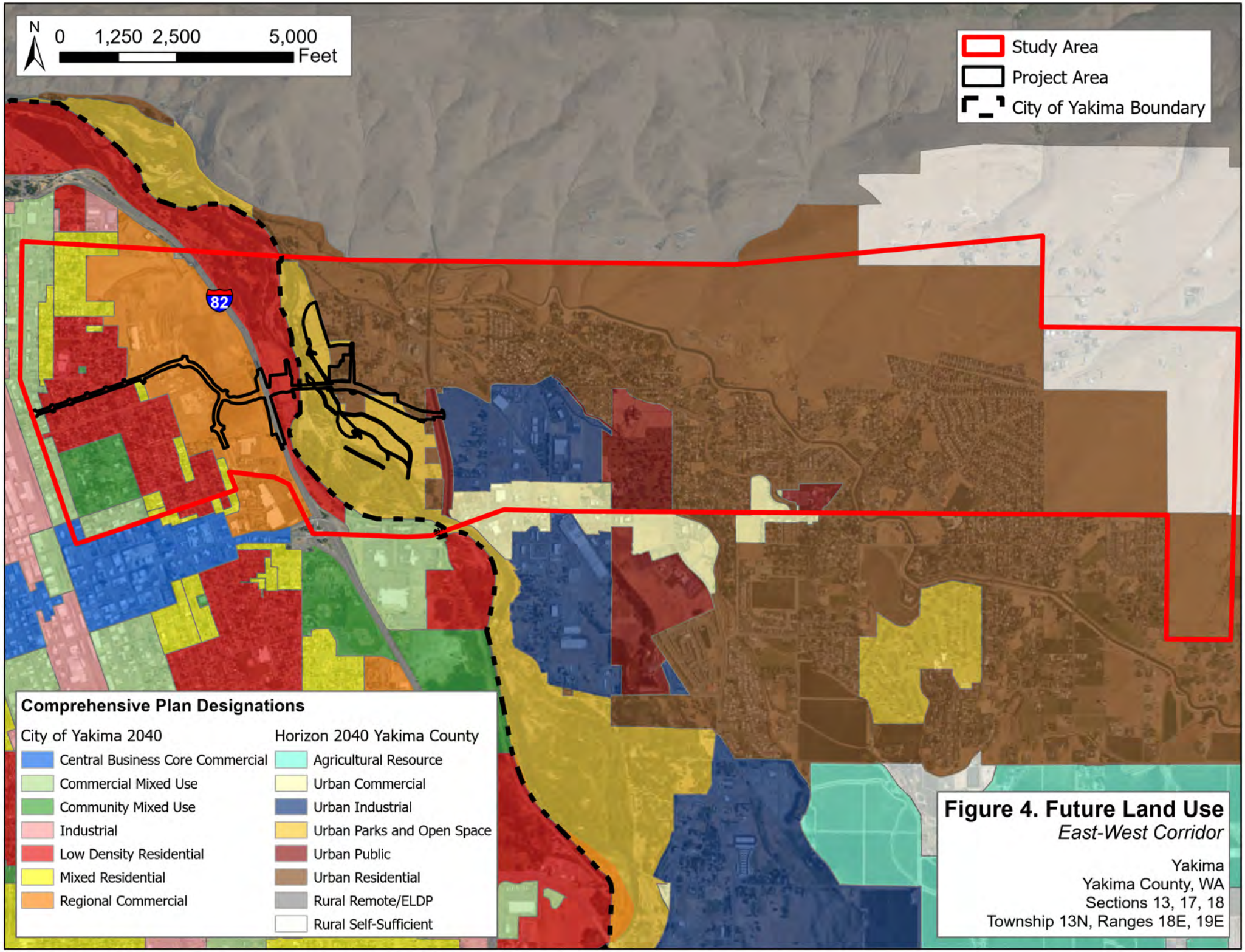
- Establish and preserve areas for professional offices;
- Provide a buffer between commercial clusters and residential neighborhoods; and
- Locate professional offices in areas presently receiving a full range of urban services.

Professional offices and, in some areas, a mix of professional offices and multifamily dwellings are the primary uses in the district.

Generally, the professional business district contains smaller lot or parcel sizes. Residential densities are generally greater than twelve dwelling units per net residential acre. Building coverage may be as high as eighty percent of the site. Sitescreening requirements have been established to soften the visual impact of large buildings and parking lots and to minimize potential nuisances from light, noise and glare. Development standards are intended to accommodate a mixture of high-density residential development and office uses.

General Commercial District (GC)
Areas designated as general commercial district are intended to accommodate wholesale and retail activities with some high-density residential development. This district is primarily located near and along the major arterials as designated in the Yakima urban area comprehensive plan. Like the central business district (CBD), a variety of land uses are permitted. However, the intensity of development is intended to be less than in the CBD district.

Historical Business District (HB)
Areas designated as the historical business district is to recognize existing isolated commercial structures in otherwise residential areas, to allow those structures to be occupied by traditional neighborhood business uses, and to allow these structures to be replaced if destroyed. This district is not intended to allow structural expansion, or expansion of the use onto adjoining lots. It is further intended that this district is not to serve as a small convenience center (SCC). Examples of HB uses are: taverns, small grocery stores, laundromats, and other businesses serving the immediate residential neighborhood around this district. This zoning district is not intended to be allowed to be further expanded or formed.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Study Area
Project Area
City of Yakima Boundary
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Comprehensive Plan Designations
City of Yakima 2040
Central Business Core Commercial
Commercial Mixed Use
Community Mixed Use
Industrial
Low Density Residential
Mixed Residential
Regional Commercial
Horizon 2040 Yakima County
Agricultural Resource
Urban Commercial
Urban Industrial
Urban Parks and Open Space
Urban Public
Urban Residential
Rural Remote/ELDP
Rural Self-Sufficient
Figure 4. Future Land Use
East-West Corridor
Yakima
Yakima County, WA
Sections 13, 17, 18
Township 13N, Ranges 18E, 19E

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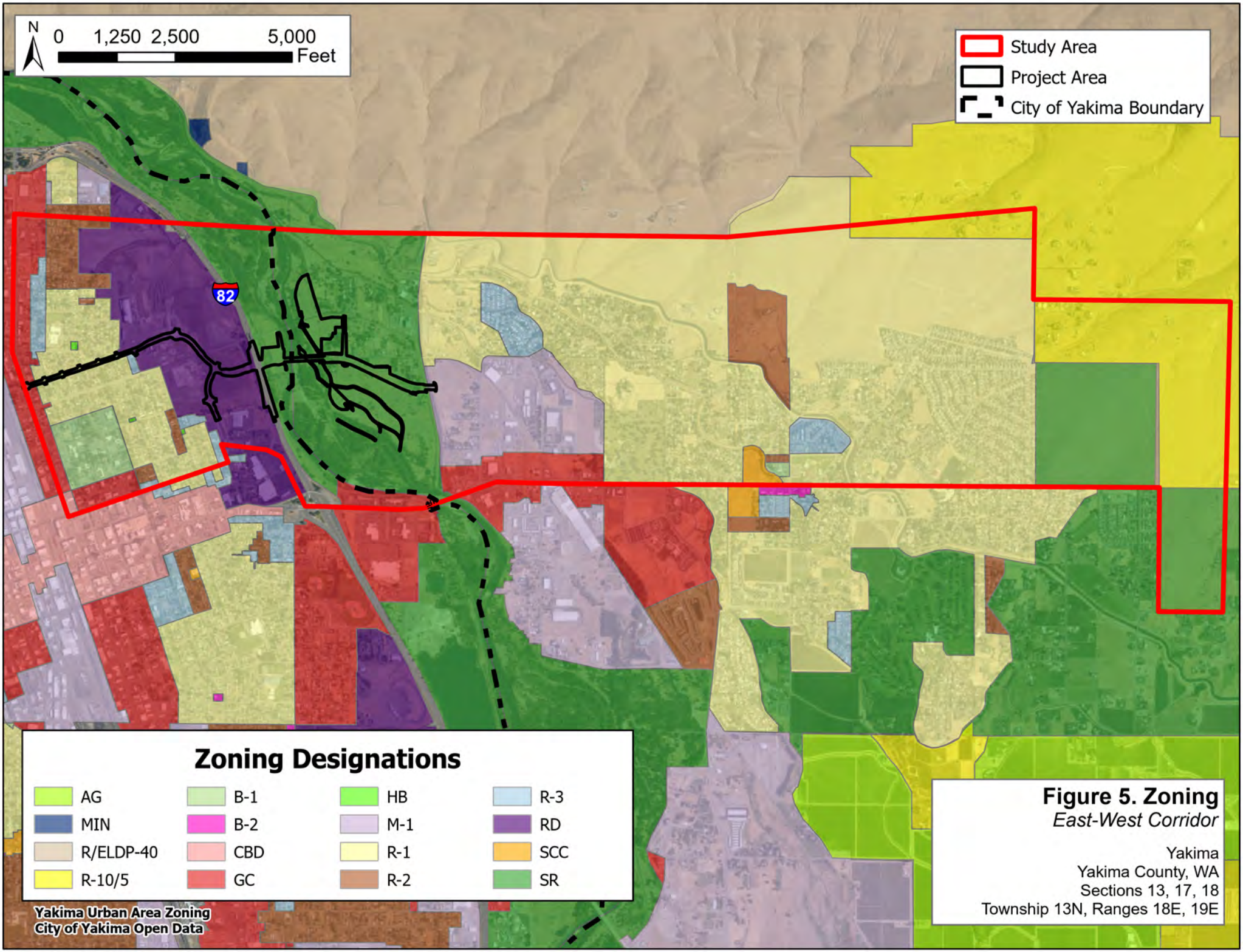

Figure 5. Zoning
East-West Corridor

Yakima
Yakima County, WA
Sections 13, 17, 18
Township 13N, Ranges 18E, 19E

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3.3 Current Land Use, Shoreline, Critical Area, and Transportation Plans

Land use in the study area is regulated through regional and local land use and transportation plans and development regulations for implementing local plans. The project's consistency with regional and City of Yakima land use and transportation plans was determined by evaluating the Proposed Project and by assessing whether these changes support the type of growth and meet the needs of the community, as outlined in the overall land use and transportation plans.

Parks/Recreational Resources and Section 4(f)

The Greenway Trail is travels north-south through the project area between the Yakima River and I-82 and is considered a Section 4(f) resource. The bridge over the Yakima River would cross above the Greenway Trail. The project would provide a new connection to the Greenway Trail for bicycles and pedestrians via a shared use path from Cascade Mill Parkway. Construction would result in temporary closure of the Greenway Trail.

Shorelines

As the proposed project involves a bridge spanning the Yakima River, there are regulated shorelines within the project area. Shorelines are regulated in the City of Yakima by Title 17 of the Yakima Municipal Code (YMC). According to the City of Yakima Shoreline Jurisdiction and Environmental Designations Map, the adjacent shorelines of the Yakima River where the proposed bridge will be built is designated as urban conservancy and floodway/CMZ (Channel Migration Zone) within either the jurisdiction of the City of Yakima or the Urban Growth Area (UGA) (City of Yakima 2021). The proposed bridge over the Yakima River is located at river mile RM 4.2.

Chapter 17.03.020 of the YMC states: "The 'urban conservancy' environment is intended to protect and restore ecological functions of open space, floodplain and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses. Specific criteria for designation of the urban conservancy environment include areas or properties that:

1. Lie in the city limits and urban growth areas;
2. Are planned for development that is compatible with the principles of maintaining or restoring the ecological functions of the area;
3. Are suitable for water-enjoyment uses;
4. Are open space or floodplains; or
5. Are areas that retain important ecological functions which should not be more intensively developed.

Allowed uses for the urban conservancy environment generally include uses which preserve the natural character of the area, and promote the preservation of open space, floodplains or sensitive lands. Uses allowed under this designation should focus on recreation. Commercial, industrial and residential uses should be limited, and when allowed, result in restoration of ecological functions. Public access and recreation objectives should be implemented whenever feasible and significant ecological impacts can be mitigated" (City of Yakima 2021).

The "floodway/CMZ" is intended to protect the water areas, islands, associated overflow channels, and channel migration areas. This environment provides for the movement of the river

within its floodplain, and emphasizes preservation of the natural hydraulic, geologic and biological functions of the city's shorelines that are constrained by biophysical limitations.

The floodway/CMZ designation is assigned to shoreline areas that are within a mapped channel migration zone and/or within a designated FEMA floodway. Commercial, industrial, mining, nonwater-oriented recreation, roads, utilities, parking areas, and residences should generally not be located in the floodway/CMZ environment. Other uses (recreation, resource, etc.) should be carefully limited to protect shoreline functions. Activities that may degrade the value of the floodway/CMZ environment should be limited, and development in hazardous areas should be restricted. Modifications that harden or fix stream banks and channels should be discouraged.

The project will not have substantial adverse modification of the shoreline character and will be enhancing recreational opportunities with improved access to the Yakima Greenway trail along the western bank of the river. Because the bridge crossing is in an area designated as urban conservancy and floodway/CMZ, this project will require a Shoreline Conditional Use Permit. Title 17 contains special use circumstances applicable to this project (City of Yakima 2021):

C. New or expanded roads and railroads shall not be located within a designated stream corridor except where it is necessary to cross the corridor, or where existing development, topography, and other conditions preclude locations outside the stream corridor. Applications for new or expanded roads and railroads shall demonstrate through engineering studies that a shoreline location is the most feasible of the available options.
    1. Construction of roadways or railroads across stream corridors shall be by the most direct route possible having the least impact to the stream corridor.
    2. Roadways or railroads that must run parallel to stream or wetland edges shall be along routes having the greatest possible distance from stream or wetland and the least impact to the corridor.
    3. Roadways or railroads within the stream corridor shall not hydrologically obstruct, cut off or isolate stream corridor features.
D. Material filled from the roadway area to achieve the design grade shall be used as fill where necessary to maintain grade or shall be transported outside the corridor if it contains material unsuited to the current construction project. Spoil, construction waste, and other debris shall not be used as road fill or buried within the stream corridor.
E. Bridges, water-crossing structures, or necessary fill to elevate roadways shall not constrict the stream channel; impede the normal flow of floodwaters, sediment, and woody debris; or cause displacement that would increase the elevation of floodwaters such that it would cause properties not in the floodplain to be flood-prone.
F. Natural stream channels and drainage ways shall be preserved through the use of bridges for crossings, unless the use of culverts is demonstrated to be the only technically feasible means for crossing. The use of bridges shall be the preferred means to preserve natural streams and drainageways. Where bridges are not feasible, large, natural bottom culverts; multi-plate pipes; and bottomless arches shall be used, and shall be designed consistent with the latest guidance from the Washington Department of Fish and Wildlife.

The shoreline along the Yakima River at the project site consists of riparian vegetation and some shrub-steppe vegetation.

Additionally, while the project proposed to alter natural vegetation along the shoreline all such vegetation removal will be mitigated for within currently degraded portions of the shoreline near the project site. Felled trees greater than 8 inches in diameter at breast height (DBH) will be used as large woody debris (LWD) within the wetted channel of the Yakima River where possible and all disturbed areas will be revegetated with appropriate native plant species. 6.9 acres planting within the riparian areas of the Yakima River will provide mitigation for any disturbed riparian vegetation.

The chosen path of the East-West Corridor was selected after careful consideration, based on the following criteria: Mobility / Feasibility / Development Impact/ Neighborhood impact. The East-West Corridor project is consistent Title 17 - Shoreline Master Program Regulations of the City of the YMC.

Transportation Plans

The Yakima Valley Metropolitan and Regional Transportation Plan (M/RTP) 2020-2045 was developed through the transportation planning process. The goals, policies, and strategies herein were subsequently adopted by the Yakima Valley Conference of Governments (YVCOG) Board. These goals and policies will guide and direct the regional transportation planning process for the next 23 years.

Specific regional priorities related to the Proposed Project identified in the Yakima Valley M/RTP 2020-2045 include:

- Optimizing mobility of people and goods on the transportation system supports economic development by reducing delays, improving operations, opening access to new areas of development, and addressing safety issues.
- Expanding the availability and types of transportation choices in and between communities throughout the Yakima Valley is a priority for the region to meet the travel demands and provide access to basic services.

Development of a new east-west arterial in the Proposed Project location is also considered to be a Key Corridor in the Yakima Valley M/RTP 2020-2045.

The Yakima County Horizon 2040 Transportation Element identifies projects and programs needed to support the County's vision and to serve planned growth over the next eighteen years. This document presents the recommended investments and priorities for the pedestrian, bicycle, transit, and motor vehicle systems along with new transportation programs to correct existing shortfalls and enhance critical services.

Specific goals and policies related to the Proposed Project included in the Yakima County Comprehensive Plan include:

Yakima Urban Growth Area Transportation Goals and Policies

Goal (YKT 1): *Develop streets that encourage neighborhood safety and livability*

- Policy YKT 1.2 — Encourage sidewalks on the local streets associated with all new developments.

Goal (YKT 2): *Develop and improve the pedestrian network in the Yakima urban areas*

- Policy YKT 2.2 — Encourage sidewalk or pathway construction on existing streets using public and private funding sources.
- Policy YKT 2.6 — Improve pathway linkages to the Yakima Greenway, Canal Pathway, and other off-street trail systems.

Goal (YKT 3): *Create a street network that encourages safe bicycle connections and routes*

- Policy YKT 3.2 — Improve connections between city streets and the Yakima Greenway and other pathways systems.
- Policy YKT 3.5 — New or rebuilt Arterial Street projects require either dedicated bike lanes or shared lanes.

Goal (YKT 5): *Promote bicycle use for recreation, health, and economic development benefit*

- Policy YKT 5.1 — Integrate bicycle facilities into the Yakima County Project and other special design projects when possible.

Goal (YKT 6): *Address street segments that are projected to have future capacity constraints*

- Policy YKT 6.1 — Maximize existing infrastructure investment by reducing travel demand through increased use of the transit system and other Commute Reduction strategies.

Goal (YKT 14): *Support regionally important transportation projects*

- Policy YKT 14.1 — Plan and support the Arterial Street System in collaboration with Washington State Department of Transportation and other neighboring jurisdictions.
- Policy YKT 14.2 — Support projects that benefit the entire region and do not have negative impacts on the State Highway System.

Goal (YKT 15): *Consider impacts of development upon state and regional facilities*

- Policy YKT 15.1 — Coordinate with WSDOT and neighboring jurisdictions regarding level of service definitions, concurrency requirements, and other impacts.

Goal (YKT 19): *Provide for broad public participation in the development and implementation of the tasks identified in the Transportation Plan Update*

- Policy YKT 19.1 — Conduct information meetings and workshops to receive comments and educate the public on the implementation measures of the Transportation Plan.
- Policy YKT 19.2 — Coordinate with Washington State Department of Transportation, Yakima Valley Conference of Governments, towns and cities within Yakima County in achieving the goals programs of the Transportation Plan Update and broad regional goals.

Terrace Heights Transportation Goals and Policies

Goal (THT 1): *Ensure that convenient access continues to downtown Yakima and the freeways, and minimize traffic congestion.*

- Policy THT 1.1 — Identify future north/south and east/west arterials.

Goal (THT 4): *Ensure residents' safety and "defensible space"*

- Policy THT 4.1 — Provide street lighting along designated arterials.

Environmentally Critical Areas

Chapter 15.27 of the YMC contains standards, guidelines, criteria, and requirements to identify, analyze, and mitigate probable impacts on the city's sensitive areas and to enhance and restore when possible. The City of Yakima's GIS data (City of Yakima 2022) show wildlife priority habitat areas, aquifer high vulnerability areas, and underlying geology. The Cascade Mill site and portions of the residential neighborhood around H Street are mapped as high vulnerability areas for groundwater contamination and the Yakima River and its riparian area are mapped as wildlife priority habitat. Additionally, the Yakima River, within the project area has been designated as critical habitat for both Columbia River distinct population segment (DPS) bull trout and Middle Columbia River DPS steelhead trout (NMFS 2005, USFWS 2010). The critical habitat is designated as a sensitive fish and wildlife habitat area. The project's impacts on these sensitive areas are being addressed in separate discipline reports, the Biological Assessment (BA) (Widener & Associates 2022) and the Wetland Delineation Report (Widener & Associates 2019). No other areas designated as sensitive fish and wildlife habitat areas are present within the study area. Should there be any impacts from the proposed project on sensitive areas, within the study area, minimization measures and/or compensation will be consistent with the requirements of Chapter 15.27 of the YMC.

3.4 Development Trends

Historically, the City of Yakima's economy has been largely dependent on agriculture. Currently the City of Yakima is working to redevelop the downtown area as a community hub for the entire Yakima Valley, as well as redevelopment of currently unused lands like the Boise Cascade Mill site. Much of the population growth in the Yakima Urban Area has occurred in the Terrace Heights Neighborhood. In the last fifteen years, medical students have moved to the area to study at the Pacific Northwest University of Sciences. The proposed project aims to improve multi-modal travel between the City of Yakima and the Terrace Heights.

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4.0 Impacts

Impacts may result from many types of effects both during the construction or operation of a Proposed Project. A Proposed Project may result in substantial impacts on land use if the Proposed Project could prevent or severely limit the ability of multiple property owners to use their property for an existing or allowed land use, if the Proposed Project is not consistent with relevant plans and regulations, or if the Proposed Project could induce land use not compatible with existing plans.

4.1 Direct Effects

Direct effects are impacts resulting from the Proposed Project, usually during construction.

Property acquisition in the form of full ROW (right-of-way) acquisitions, partial ROW acquisitions, utility easements, and permanent easements would be required. A total of 44 properties would be impacted by at least one of these acquisitions. A total of 12 parcels would require a full ROW acquisition, half of which are vacant with no developments. Five acquisitions of single-family residences have been competed by Yakima County and structures have been demolished. One additional relocation would be necessary. A portion of the proposed road alignment will occur on federal lands managed by the Bureau of Reclamation. The project will acquire permanent easements on required parcels. Approximately 33.5 acres are being converted to a transportation land use in the form of ROW acquisition or permanent easement. An additional 2.5 acres of utility easements will be necessary. See Figure 6 and Tables 1 and 2 for more details on property acquisitions. Additional acquisitions may be necessary for the completion of floodplain mitigation.

Impacts to Section 4(f) resources will require temporary occupancy. In order to prevent a longer-term closure of the Greenway Trail and ensure the safety of trail users, detours will be provided and overhead protection would be installed to prevent any debris from bridge construction from landing on the trail. Two closures of up to one week in duration will be allowed. All documentation will be prepared in order to ensure Section 4(f) compliance.

Temporary construction effects on users of adjacent properties and the local street system may be caused by noise, dust, glare, traffic delays, and visual disturbance. The severity of these effects depends on the duration and intensity of construction. Traffic disruptions that affect land use may be caused by temporary construction easements and changes in access. Some of the project lies on existing streets, so construction in these areas will experience greater traffic impacts. East H Street, Hartford Rd and Butterfield Rd will experience the greatest traffic impacts during construction. East H Street is currently a narrow local access road with no lane markings which is not adequate for additional traffic. No marked detours would be required, local access would be maintained on all existing roadways throughout construction. Lane closures may be necessary during I-82 bridge construction.

The proposed new roadway will cut through the Cascade Mill site and could potentially eliminate access to some parcels to public roads, particularly remaining areas between the BNSF tracks and Cascade Mill Parkway. Access will be maintained following project completion through the planned roundabouts on Bravo Company Boulevard. One of these roundabouts is designed to connect to an existing access road.

This project will have unavoidable short-term effects on surrounding land uses from construction and construction staging. The project may limit business or enjoyment of outdoor activities or events due to increased noise levels from construction equipment, changes in access to individual properties, increased dust from vegetation removal/grading, and work zone traffic control measures. Staging areas would be located within private property and rights-of-way.

The project proposes to alter natural vegetation along the banks of the Yakima River. However, all vegetation removal will be mitigated to reduce the extent of vegetation alterations and restore degraded parts of the riparian zone. Floodplain mitigation and side channel construction will occur on properties owned by the Department of Transportation and Bureau of Reclamation. This is consistent with the current land use.

No Build Alternative
The No Build Alternative would not produce construction related effects on the study area.

Table 1. Property acquisitions for Phase 4 of the Proposed Project

Parcel	Site Address	Lot Size (SF)	Acquisition Area (SF)	TCE Area (SF)	Utility Easement Area (SF)
19131841001	E St/8th St N Yakima, WA 98901	1,640,470	371,746	178,605	55,858
19131842001	611 N 8th St Yakima, WA 98901	517,493	47,590	43,664	8,940
19131824001	E I St Yakima, WA 98901	50,529	4,177	7,373	1,475
19131831539	Unassigned Address Yakima, WA 98901	165,528	93	4,195	376
19131821003	N 4th St Yakima, WA 98901	3,288,780	77,796	70,201	14,567
19131812001	7th St N/H St E Yakima, WA 98901	2,445,023	203,121	92,404	17,001
N/A	N/A	N/A	0	13,138	10,045

Table 2. Property acquisitions for Phases 2 and 3 of the Proposed Project

Parcel	Site Address	Lot Size (Acres)	Acquisition Area (Acres)	TCE Area (SF)	Permanent Easement Area (SF)
19131841002	E St/8th St N Yakima, WA 98901	7.64	1.96	0	0
19131811002	7th St N/H St E Yakima, WA 98901	45.85	0.01	0	0
19131731009	Hartford/15th St N Yakima, WA 98901	5.76	0	0	52,900
19131723005	I St E/15th St N Yakima, WA 98901	5.58	0	0	7,550
19131732404	1406 Hartford Rd Yakima, WA 98901	0.21	0.21	0	0
19131732421	1406 Hartford Rd Yakima, WA 98901	0.41	0.41	0	0
19131732408	716 N 15th St Yakima, WA 98901	0.19	0.19	0	0
19131732409	716 N 15th St Yakima, WA 98901	0.22	0.22	0	0
19131732420	1412 Hartford Rd Yakima, WA 98901	0.41	0.41	0	0
19131731008	1510 Hartford Rd Yakima, WA 98901	5.04	0.89	9,562	0
19131731409	Hartford/16th St N Yakima, WA 98901	0.20	0.20	0	0
19131731408	Hartford/16th St N Yakima, WA 98901	0.20	0.20	0	0
19131731407	1606 Hartford Rd Yakima, WA 98901	0.39	0.39	0	0
19131731405	Hartford/16th St N Yakima, WA 98901	0.20	0.03	0	0
19131731410	H St E/16th St N Yakima, WA 98901	0.20	0	0	3,448
19131731411	H St E/16th St N Yakima, WA 98901	0.20	0	0	5,178

Parcel	Site Address	Lot Size (Acres)	Acquisition Area (Acres)	TCE Area (SF)	Permanent Easement Area (SF)
19131731412	H St E/16th St N Yakima, WA 98901	0.20	0	0	6,904
19131731413	H St E/16th St N Yakima, WA 98901	0.20	0	0	8,363
19131731414	H St E/16th St N Yakima, WA 98901	0.20	0.20	0	0
19131731415	H St E/18th St N Yakima, WA 98901	0.20	0.20	0	0
19131731416	H St E/18th St N Yakima, WA 98901	0.20	0.20	0	0
19131731417	H St E/18th St N Yakima, WA 98901	0.20	0	0	8,543
19131731418	H St E/18th St N Yakima, WA 98901	0.20	0	0	8,543
19131731419	H St E/18th St N Yakima, WA 98901	0.20	0	0	8,543
19131731420	G St E/16th St N Yakima, WA 98901	3.92	0	0	19,756
19131731013	1804 Hartford Rd Yakima, WA 98901	2.43	0.20	0	0
19131731012	18th St N/Hartford Rd Yakima, WA 98901	12.01	0	0	49,181
19131731011	18th St N/Hartford Rd Yakima, WA 98901	2.40	1.52	0	0
19131731004	713 Horgan St Yakima, WA 98901	1.11	0.40	0	0
19131742017	Unassigned Address Yakima, WA 98901	4.05	0.03	0	0
N/A	N/A	N/A	1.23	10,291	0
19131742009	S Hartford Rd Yakima, WA 98901	1.17	0.31	0	0
19131723405	1411 Hartford Rd Yakima, WA 98901	1.69	1.69	0	0
19131723012	1507 Hartford Rd Yakima, WA 98901	1.56	0.16	3,732	0
19131723404	810 N 15th St Yakima, WA 98901	2.86	0.05	3,607	0
19131723004	827 N 15th St Yakima, WA 98901	6.79	1.89	0	0
19131723007	826 N 15th St Yakima, WA 98901	0.51	0.01	0	0

Bureau of Reclamation Parcels

N

0 250 500 1,000 Feet

Bureau of Reclamation Parcels
Parcels
Full Acquisition
Full Permanent Easement
Partial Acquistion
Partial Permanent Easement
County Owned Parcels
DOT Owned Parcels
Project Alignment
Boise Cascade Mill Parcels With ROW Aquisition

21003
12001
24001
42001
41001
11002
23004
23005
23404
23405
23012
23011
31009
41002
9
32421
32420
7
8
1
3
31407
14
2
4
5
16
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15
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31013
31008
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31420
10. 31419
11. 31418
12. 31417
13. 31416
14. 31405
15. 31415
16. 31413
31004
31011
42009
31012
42002
42014

Marsh Rd
Roza Canal Wasteway #2
Hartford Rd
N 8th St
Industrial Rd
Bravo Co Blvd
B St
E Lincoln Ave
N Fair Ave
82
Yakima River

Parcel #
East of River 191317-XXXXX
West of River 191318-XXXXX

Floodplain mitigation acquisition to occur on undeveloped County & DNR Land. Acquisitions not shown here as they are still being finalized.

Figure 6: Property Acquisition
East-West Corridor
Yakima
Yakima County, WA
Sections 13, 17, 18
Township 13N, Ranges 18E 19E

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4.2 Indirect Effects

Indirect effects are defined as effects caused by the Proposed Project that are later in time or farther removed in distance, but still reasonably certain to occur. The project would be consistent and compatible with existing zoning and land use plan.

No building moratoriums are in place; no land use changes are anticipated to result from the project (other right-of-way acquisitions necessary to build the project); no known developments are contingent upon the completion of the proposed project; nor are any land use changes tied by permit condition to the proposed project.

The Proposed Project will; however, result in increased traffic within the zone of influence[1]. Traffic along the new corridor will increase due to the diversion of traffic from Terrace Heights Drive to the new route. The project will not create new sources of traffic; however, it will result in increased traffic along the existing H Street Corridor as well as creating new roadway through the Boise Cascade Mill Site which is anticipated to be developed in the future. It will also reduce traffic along the Yakima Avenue/ Terrace Heights Drive corridor.

Land use development compliant with the comprehensive plan could potentially occur faster in Terrace Heights following project completion as compared to the No Build Alternative. See Figure 7 for the area with an increased rate of development as anticipated by Yakima County Planning. The current level of service (LOS) along the Yakima Avenue/Terrace Heights Drive corridor has triggered Yakima County's concurrency requirements, which require public facilities are sufficient to support the planned development without decreasing levels of service below the minimum standards (Yakima County 2017). Should the County not act on this in the next 20 years, the rate of development in the Terrace Heights neighborhood could be slowed. This would limit development in an area that experienced a 33.3% population growth between 2000 and 2010 and is anticipated to grow in population by 20.43% in the next 10 years (pers. comm. Brett Sheffield). The County must either increase the capacity of the existing corridor or divert sufficient traffic volume onto another route. The construction of the East-West corridor will allow for traffic diversion necessary to avoid a slowing of development.

Undeveloped land adjacent to the Yakima River and in the floodplain within the Terrace Heights neighborhood is either owned by the United States Bureau of Reclamation, Yakima County, or Washington State for the purpose of preserving and/or restoring the floodplain and riparian habitat (Yakima County 2019). Because much of the area adjacent to the project corridor is unlikely to be developed, the project is anticipated to maintain the rate of land use development compliant with the comprehensive plan along the project corridor in Terrace Heights. See Figure 7.

[1] The zone of influence is defined by the area in which changes in traffic patterns due to the Proposed Project which may potentially result in a change in land use. The zone of influence may; therefore be affected by indirect effects associated with future development as a result increased stormwater from impervious surfaces or vegetation removal associated with future projects.

A future I-82 interchange improvement is planned which would include connections to Cascade Mill Parkway. While this interchange is expected to connect to the East-West corridor, the Proposed Project will improve mobility from Terrace Heights and provide reductions in congestion along the Yakima Avenue/Terrace Heights Drive corridor, even if no other improvements are made to the I-82 Interchange. The I-82 interchange will require its own NEPA review.

The East-West corridor is proposed to cut directly through the Boise Cascade Mill site. The roadway will allow access to this area. The project will maintain exiting access to the surrounding properties through two roundabout intersections on Bravo Company Boulevard. Development of the Boise Cascade Mill site has also been discussed in conjunction with the Proposed Project as remediation for the contaminated site is required for both this project and any future developments. The potential Boise Cascade Mill site development is not directly connected to this project as the feasibility of development is more reliant on the construction of the I-82 interchange. As such, its potential construction is not an indirect effect and will be discussed below in section 4.3 Cumulative Impacts.

The Proposed Project would not induce a change in land use designation. No change in zoning or amendment to an existing land use plan would be required. By improving mobility in the study area, the Proposed Project is anticipated to increase the rate of development in Terrace Heights. The project will prevent the Yakima County concurrency requirements from hindering growth and allow the current rate of development to continue with land uses allowed by zoning.

No Build Alternative

The No Build Alternative would not change existing land uses within the study area; however, the rate of development could potentially be hindered by future traffic congestion.

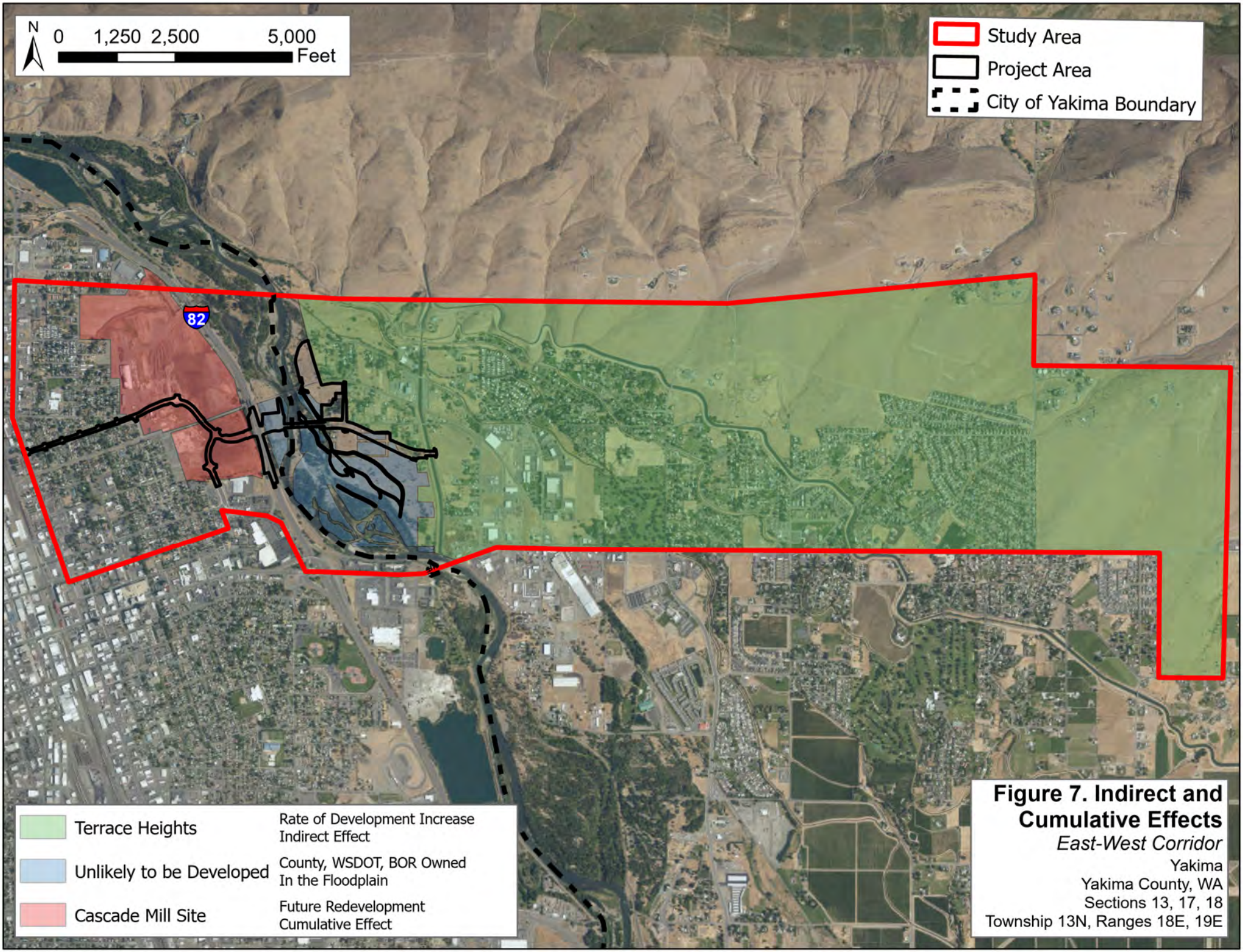

Figure 7. Indirect and Cumulative Effects

East-West Corridor

Yakima

Yakima County, WA

Sections 13, 17, 18

Township 13N, Ranges 18E, 19E

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4.3 Cumulative Effects

Cumulative effects are those effects of future state, local, or private (not federal) activities that are reasonably certain to occur within the action area of the proposed project. Per the Federal Highway Administration (FHWA) guidance, a cumulative effects analysis is discipline specific and generally performed for the discipline, in this case land use, directly affected by the action (such as a transportation project) under study.

While no specific plans have been made, it is anticipated that the Boise Cascade Mill site will be developed. While the East-West Corridor will provide a direct route from the Terrace Heights neighborhood, it is the potential I-82 interchange that will bring in sufficient people to justify the development.

The City of Yakima has discussed the possibility of developments such as an auto mall, general retail, light industry, an office park, and education facilities (City of Yakima 2017a; 2019). While the East-West corridor will provide access to these proposed developments, they are separate proposals, and the East-West corridor's purpose is connecting the City of Yakima and Terrace Heights regardless of any proposed developments. The proposed development is included in the City of Yakima's comprehensive plan and will comply with current zoning and comprehensive planning designations. The zoning designation for the mill site is Regional Development (RD), and the comprehensive plan designation is Regional Commercial (City of Yakima 2017a; 2022).

The potential development of the Boise Cascade Mill site will likely require extensive cleanup of site due to the site's historic use and its status on WSDOE's Confirmed and Suspected Contaminated Sites List (CSCSL) (WSDOE 2021b). The Boise Cascade mill operated as a sawmill and lumber manufacturer from the early 1900s until 2006. During that time there were numerous spills and accumulation of toxic materials with few cleanup efforts (Barr 2019). Currently, the site has confirmed soil contamination from benzene, halogenated solvents, metals, diesel, gasoline, other petroleum products, and polycyclic aromatic hydrocarbons; confirmed groundwater contamination from halogenated solvents and metals; and suspected soil contamination from polychlorinated biphenyls (PCBs) (WSDOE 2021a).

The future commercial development planned at the Boise Cascade Mill site is a potential cumulative effect, however it will undergo its own, separate, environmental review.

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5.0 Consistency with Land Use Plans and Implementing Regulations

5.1 Federal

Construction of the East-West Corridor is consistent with the following FHWA goals (National Goals and Performance Management Measures 2012):

- To achieve a significant reduction in congestion on the National Highway System (NHS);
- To improve efficiency of the surface transportation system; and
- To enhance the performance of the transportation system while protecting and enhancing the natural environment

5.2 State

WSDOT South Central Region staff has participated with the City of Yakima and Yakima County in several planning studies which indicate this project will significantly improve the transportation system in Yakima Urban Area. With the cooperation of the WSDOT, the City of Yakima and Yakima County completed a thorough evaluation of alternative projects aimed at improving mobility between the City of Yakima and the Terrace Heights Neighborhood (BergerABAM 2011, Lochner 2012).

5.3 Regional

As mentioned in Section 3.3, the project is consistent with the Yakima Valley M/RTP 2020-2045. Specifically, the project will improve transportation efficiency, provide faster travel routes for emergency vehicles, and provide more opportunities for non-motorized transportation.

5.4 City and County

As mentioned in Section 3.3, the project is consistent with the Yakima County Horizon 2040 Comprehensive Plan as well as the City of Yakima Comprehensive Plan 2040.

The Proposed Project will construct sidewalks and a 14-foot trail to connect to the existing pedestrian/non-motorized network and provide better access to areas of business and residential growth outside of the city center. Pedestrian and bike facilities would provide access to the Greenway Trail via Cascade Mill Parkway and bike lanes provided on H Street and Bravo Company Boulevard are consistent with the City of Yakima's Bicycle Master Plan (City of Yakima 2017b).

As previously mentioned in Section 3.3, shorelines in the City of Yakima are regulated by Title 17 of the YMC. The project will not have substantial adverse modification of the shoreline character and is in compliance with the YMC as any vegetation altered/removed as part of the project action will be mitigated for within currently degraded portions of the shoreline near the project site.

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6.0 Mitigation

6.1 Direct Effects

Required mitigation/minimization measures to avoid or minimize adverse effects during construction could include:

- The existing East H Street corridor must be brought up to current standards before the rest of the corridor can be constructed to minimize congestion impacts to the surrounding neighborhood and provide the necessary capacity for additional traffic.
- Prepare and implement a Transportation Management Plan (TMP), requiring the contractor to post signs during any required lane closures. Local access will always be maintained on existing roads.
- Erosion control best management practices (BMPs), such as silt fences, straw bales (certified weed free) and catchbasin liners will be installed before any earthmoving activities take place and would be maintained throughout construction.
- Where possible, disturbed areas will be re-vegetated and or planted according to an approved planting plan.
- Any natural vegetation altered/removed along the shoreline will be mitigated for within currently degraded portions of the shoreline near the project site.

6.2 Indirect Effects

As no substantial indirect effects are anticipated to occur due to the Proposed Project no mitigation/minimization measures will be necessary to reduce potential indirect effects.

6.3 Consistency with Land Use Plans and Implementing Regulations

The Proposed Project would support and be consistent with adopted plans and regulations, no mitigation would be required during project operation.

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7.0 References

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