HABITAT MANAGEMENT PLAN

KENDALL YARDS/ GREAT SPOKANE RIVER GORGE

SPOKANE,
WASHINGTON

April 26, 2012

Prepared for:

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List of Acronyms and Abbreviations

The following acronyms and abbreviations are used commonly throughout the report and are provided here for reference.

ADA	Americans with Disabilities Act
BMP	best management practice
CC&R	covenants, conditions, and restrictions
cfs	cubic feet per second
CSO	combined sewer outflows
CT	Centennial Trail
GPS	global positioning system
HMP	habitat management plan
LOS	level of service
PH&S	Priority Habitats and Species
Project	Kendall Yards project
PUD	planned unit development
RHA	riparian habitat area
ROW	right-of-way
SMA	Shoreline Management Act
SMC	Spokane Municipal Code
SMP	Shoreline Master Program
UGA	urban growth area
WDFW	Washington Department of Fish and Wildlife

URS Corporation has prepared this Habitat Management Plan (HMP) to support the 78-acre preliminary plat and planned unit development (PUD) herein referred to as the Kendall Yards project (Project). This HMP has been prepared in accordance with Spokane Municipal Code (SMC) 17E.020.090 and complies with General Condition #28 of the City of Spokane (City) Hearing Examiner's *Findings, Conclusions, and Decision on Applicant's Request for Minor Amendments to the Previous Approval* (File No. Z2006-06-PP/PUD), dated May 27, 2010. Condition #28 specified that the applicant develop an HMP that, in addition to addressing the requirements in SMC 17.020.090, must specifically address the potential effects of development-related lighting and pets on habitat areas and propose mitigation accordingly. Condition #28 also notes that the recommendations of this plan shall become part of the covenants, conditions, and restrictions (CC&Rs) for the development and also part of the rules for the homeowners association.

Per the Hearing Examiner's findings, mitigation proposed herein will be the shared responsibility of the developer and the City of Spokane Parks Department. The developer will implement mitigation along the boundary of the development area concurrent with the various phases of construction. The Parks Department will use mitigation prescribed herein to direct long-term park land conservation.

1.1 PROJECT BACKGROUND

This section provides a summary of the Project, which is being constructed adjacent to City-owned park lands and conservation lands containing riparian habitat. Information about the Project was provided to URS by the developer (Greenstone Homes) and Spokane Parks and Recreation during a meeting on November 16, 2011. Project descriptions and engineering drawings provided to URS are the basis for the assessment of potential impacts in this HMP.

The habitat study area evaluated for this HMP is shown on Figure 1. The habitat study area includes City-owned lands and some small parcels owned by the developer located along the slope areas between the proposed project development area and the Spokane River. The northern habitat study area limits are generally defined by the south edge of the Ohio Street right-of-way (ROW). The Monroe Street Bridge defines the eastern boundary of the habitat study area and a line extending from the south edge of the Broadway Avenue ROW west to the Spokane River defines the northwestern boundary. The habitat study area excludes any other private property south of Ohio Street along Falls Avenue in the Lower Crossing neighborhood.

Greenstone Homes has been approved for a 78-acre PUD along the north rim of the Great Spokane River Gorge generally bounded by Summit Boulevard, Bridge Avenue, Monroe Street, and Ohio Avenue. The Project has been approved by the City of Spokane Hearing Examiner for 1,080 residential units and 700,000 square feet of commercial space. Development of the Kendall Yards includes an extension of the Centennial Trail (CT) non-motorized pathway from where it currently ends beneath the Monroe Street Bridge to where the trail departs from Ohio Street to the south through the City of Spokane's High Bridge Park on the north side of the Spokane River. The project will relocate the current Ohio Street right of way and automobile traffic to a newly constructed Summit Parkway about 300-400 feet to the north and away from the habitat study area. The project will also relocate and place underground numerous overhead

power lines within the Kendall Yards development and along the Ohio Street ROW. Much of this work has already been completed.

The combination of increased population density between the rim of the gorge and the West Central Neighborhood, together with increased public access through the area provided via the future CT extension, has the potential to affect wildlife populations documented within riparian habitat areas along the river. Construction of the new CT segment will occur within the abandoned Ohio Street ROW immediately adjacent to lands owned by City of Spokane Parks and Recreation (Parks) and the developer. The CT is generally located within a 20-60' buffer area between the gorge rim and the development. This section of CT is proposed to be 12 feet wide, with a minimum 3-foot native grass strip on south side (downhill) for drainage and safety. No lighting is proposed along the CT. Trash receptacles will be located at regular intervals along the trail. Additional bump-outs may be constructed along the trail for utilities, benches, and overlooks. Interpretive signage or other features may also be installed but the exact locations have yet to be determined.

The Project will be constructed in phases. The first phase, located between Elm and Maple has been completed and is largely now occupied. A second phase, located between Maple and Monroe has commenced development and will soon complete street and utility improvements. An illustrative plan of the entire development concept is shown in Figure 2, below. Within the initial development area the Ohio Street ROW has been vacated and dedicated to open space and CT development. Automobile traffic has been relocated to Summit Parkway. The relocation of traffic from Ohio Street to Summit Parkway coupled with the dedication of developer owned property south of the vacated Ohio Street ROW was intentionally incorporated into the design plan to move development activity further north, away from the habitat area boundary and the edge of the gorge.

During the first two phases of development, the CT will be constructed between Monroe Street and Elm Street, in part on the vacated Ohio Street ROW. The full connection of the CT between Elm Street and Summit Avenue will occur at a future date as subsequent development phases are constructed. The exact timeline for this development is dependent upon the housing market. Currently, full project build out is estimated at 10 years from the present.

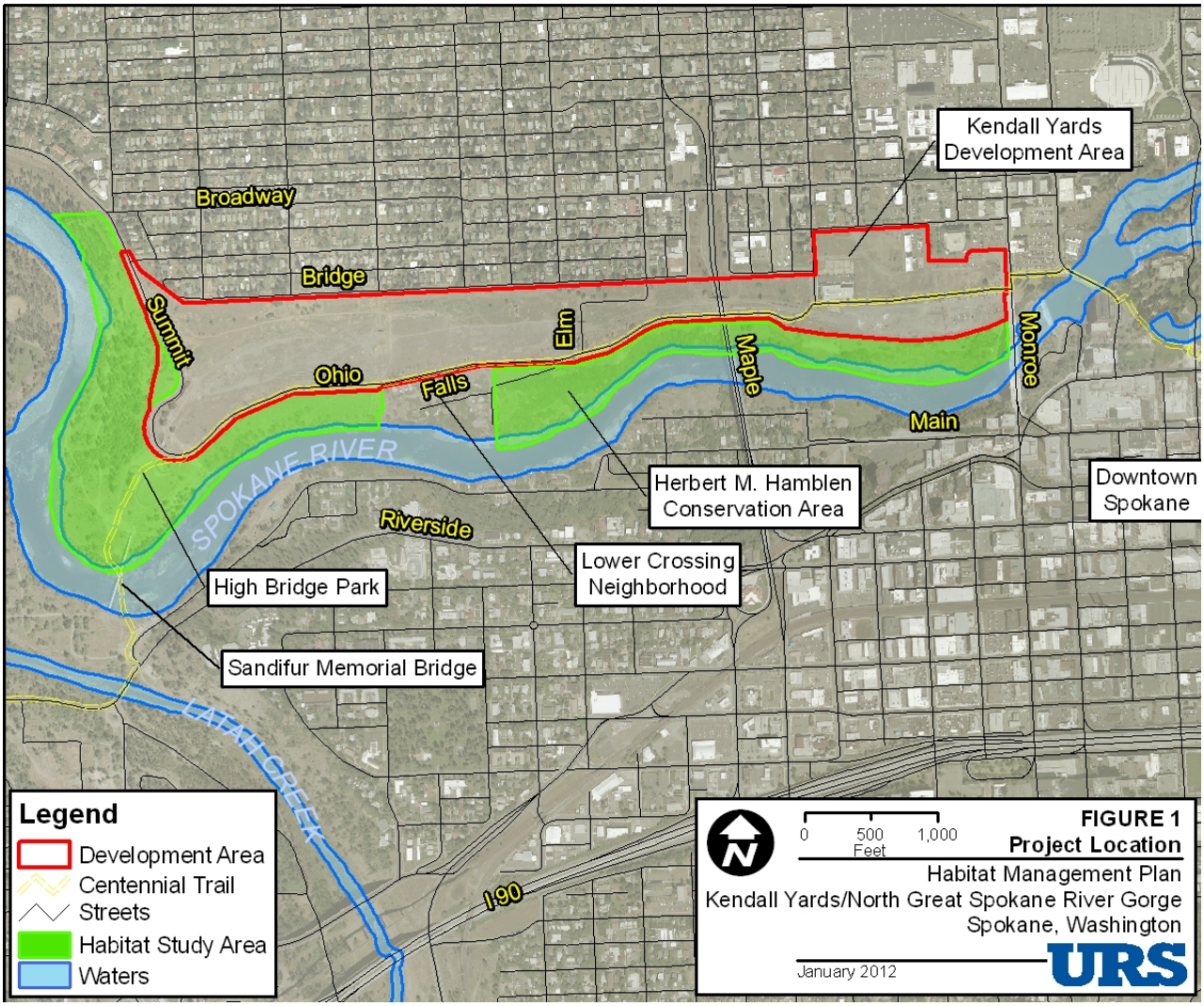

Kendall Yards Development Area
Broadway
Bridge
Summit
Elm
Ohio
Falls
Maple
Monroe
Main
SPOKANE RIVER
Riverside
Herbert M. Hamblen Conservation Area
Downtown Spokane
Lower Crossing Neighborhood
High Bridge Park
Sandifur Memorial Bridge
I-90
Legend
Development Area
Centennial Trail
Streets
Habitat Study Area
Waters
0 500 1,000
Feet
FIGURE 1
Project Location
Habitat Management Plan
Kendall Yards/North Great Spokane River Gorge
Spokane, Washington
January 2012
URS

Figure 2: Proposed Development

(Illustrative Plan from Exhibit I of the Amended Project PUD Application)

1.2 LITERATURE/DATA REVIEW

Documents reviewed for this HMP include:

- City of Spokane Hearing Examiner's *Findings, Conclusions and Decisions on the Preliminary Plat and Planned Unit Development Application for Kendall Yards PUD*
- City of Spokane Shoreline Master Plan Update, *Shoreline Inventory and Analysis Report* (URS 2008a)
- City of Spokane Shoreline Master Plan Update, *Shoreline Restoration Plan* (URS 2008b)
- *Supplemental Final Environmental Impact Statement for the Kendall Yards Planned Unit Development* (Jim Kolva Associates 2006)
- *Great Spokane River Gorge Master Plan,* Appendix D: Habitat Preservation and Restoration Guidelines (MIG 2005)
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PH&S) Data (WDFW 2011)
- *Landscape Planning for Washington's Wildlife: Managing for Biodiversity in Developing Areas* (WDFW 2009)
- *Management recommendations for Washington's Priority Habitats: Riparian* (WDFW 1997)
- *Proper Functioning Condition Stream Inventory & Assessment* (SCCD 2005)
- *Application for Minor Amendment to Approved Kendall Yards PUD and Preliminary Plat* File Number: Z2006-06-PP/PUD
- Various other sources of published information (cited in text)

In addition, local residents, WDFW agency biologists, and Spokane Parks and Recreation staff were interviewed in order to gather firsthand information on existing wildlife uses in the area. Appendix A contains a list of contacts. Mitigation activities that stem from this HMP have been reviewed for consistency with existing preservation and/or restoration plans for the area.

1.3 HABITAT MANAGEMENT PLAN GOALS

This document provides the City with habitat management measures that are intended to compensate for potential habitat impacts on City parkland (the habitat study area) associated with the Project. Compensatory habitat preservation and enhancement measures described in this plan are tied to the City's wildlife habitat protection objectives, per SMC 17E 020.010 (purpose), and recommended habitat mitigation measures (SMC 17E.020.090(C)(i)(iii). The goals of this HMP are to:

1 Preserve existing high quality habitat through impact avoidance and minimization measures.

2 Mitigate for anticipated habitat impacts by enhancing riparian vegetation in sensitive habitat areas expected to be affected by increased recreational uses.

2.0 EXISTING CONDITIONS

This section is intended to document the baseline conditions of the existing habitat study area that would be affected by the proposed development. The following description of existing conditions is based on reviews of published information; interviews with local residents, biologists, and naturalists; and a site visit conducted on November 16, 2011 by ecologist Noah Herlocker and senior wildlife biologist Dr. Jennifer Pretare.

In general, the habitat study area may be defined as a riparian zone with upland slopes that buffer the lower riparian areas. Riparian habitat within the study area contains a combination of physical and biological characteristics that are driven by the presence of the Spokane River. Much of the habitat study area faces south and the upper slopes have little ability to retain moisture. Natural riparian zones have diverse and dynamic characteristics, based on hydrologic, topographic, soil, and vegetative criteria (Kauffman et al. 2001). There is an interface between the terrestrial and aquatic environments in the riparian zone, and both have an influence over the other. Globally, riparian areas are thought to be a "hotspot" of biological diversity. That is, although they occupy a small portion of the landscape, a higher proportion of plant and animal species occur there than in the surrounding uplands (Kauffman et al. 2001). The Spokane River is no exception. In the following section the specific physical and biological characteristics within the habitat study area are described.

2.1 PHYSICAL ENVIRONMENT AND LAND USE

The Spokane River begins at Coeur d'Alene Lake, Idaho and flows west through Spokane where it turns north and then west where it flows into the Long Lake Reservoir just before entering the Columbia River at Little Falls Dam. The drainage basin east of Spokane is about 4,290 square miles, and includes the Coeur d'Alene, St. Joe, and St. Maries Rivers. Flows vary seasonally reaching over 25,000 cubic feet per second (cfs) in the spring to less than 1,000 cfs during the summer (USGS gauge 12422500). Six dams are located on the Spokane River. Post Falls Dam, downstream from Coeur d'Alene Lake, controls Spokane River flows for approximately six months during the summer and fall when flows are less than 5,000 cfs. The river flows through the Rathdrum Prairie, a valley of glacial gravel and silt that is underlain by a large expanse of basalt formation, which outcrops at various locations along the river.

The Shoreline Inventory and Analysis Report (URS 2008a) divides the Spokane River into six river reaches throughout the city. The reaches are generally defined by changes in river flow characteristics due to dams, natural impoundments, aquifer characteristics, or other similar factors. The habitat study area is within reach number SR-5, which includes the river and a 200-foot shoreline buffer of the river between the Monroe Street Dam and the Latah Creek Confluence (Figure 2). Latah Creek is the only tributary to the Spokane River within the City. There are no other major tributaries associated with the Spokane River upstream of the City. The confluence of Latah Creek with the south bank of Spokane River is located at the western end of the habitat study area (Figure 1).

Reach SR-5 of the Spokane River is characterized by a deep, entrenched gorge cut through late Pleistocene glacial outburst flood deposits including unconsolidated sands, gravels, and cobbles through much of its length. Steep banks characterize the area known as the Great Spokane River Gorge, which includes shoreline areas between Spokane Falls and the river's confluence with Latah Creek. Most of the northern shoreline, within the habitat study area, is difficult to access due to the steepness of the slopes along the gorge. As a result, it retains significant areas of native vegetation (discussed in Section 2.2 below).

The National Resource Conservation Service maps three different soil map units within the habitat study area. Slopes between Monroe and Maple Streets are mapped as Hesseltine very rocky complex, 0 to 30 percent slopes. Slopes west of Maple Street are mapped as Springdale gravelly loamy sand, 30 to 70 percent slopes. Soils in the lower floodplain area north of Sandifur Bridge are mapped as Marble variant sandy loam, 0 to 8 percent slopes. All three of the soils are formed on floodplain terraces and are composed of a mixture of glacial outwash mixed with loess and volcanic ash. These map units are described as well drained to excessively well drained.

Upon these soil map units, historic fill material was placed at the turn of the 20th century in various locations throughout the upper portion of the gorge. The fill was used to create a level area along the upper slope that was historically used as a rail yard which is now the Kendall Yards development area. Fill areas within the habitat study area are generally distinguished by excessively steep slopes composed of loose, unconsolidated materials. Also, basalt outcrops can be seen along the slopes and river edge where the river has exposed the underlying parent material. These areas generally have distinct, sparse, diminutive vegetation due to the minimal topsoil present on the outcrops. According to the National Weather Service weather station at the Spokane International Airport, the area receives an annual average of 16.25 inches of precipitation (WRCC 2009). Temperatures range from an average low of 38°F to an average high of 58°F. The growing season for vegetation is noted as March through October.

Much of the habitat study area is publicly owned and accessible. However, the Lower Crossing residential neighborhood separates the two portions of the habitat study area. This neighborhood creates a break in the riparian corridor that extends to the east and west (Figure 1). Common recreational uses within the habitat study area include jogging/walking and sightseeing, picnicking, and swimming according to the Avista Recreation Facility Inventory and User Surveys Report (April 2004). Other common uses include angling, bird watching, and canoeing/kayaking according to local residents interviewed for this report (Appendix A). This segment of the Spokane River and its shorelines are an important recreational area for the City and the region due to its relatively natural environment (URS 2008a). Most of the recreational uses occur along the existing CT and the lower floodplain area near Sandifur Bridge. This lower floodplain area is also used for unauthorized camping, as indicated by several fire pits, cardboard sleeping areas, and human waste noted in the area. The current conservation areas east of the Lower Crossing neighborhood experience far less public access due to lack of a formal (maintained) trail and steep slopes. However, informal access trails were observed around Monroe and Maple Streets and coming east off of Lower Crossing Road. During the site visit, joggers and dog walkers were noted travelling through the lower floodplain area between the Sandifur Bridge and an informal trail leading back up to Summitt Street and Broadway.

2.2 VEGETATION

Vegetation along the Spokane River can generally be described as ponderosa pine (*Pinus ponderosa*) savanna on the north slopes, Douglas fir (*Pseudotsuga menziesii*)/ponderosa pine mixed forest on the south slopes, and riparian communities dominated by willows (*Salix* spp.), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*) and thin-leaf alder (*Alnus incana* ssp. *tenuifolia)* along the river shoreline. The Lower Spokane River is characterized by thin, continuous riparian communities along the shoreline edge with large, expansive ponderosa pine forest communities interspersed with shrub communities along the upper river banks. Near the top of the banks, the ponderosa pine forest generally transitions into open, arid prairie habitat dominated by bunchgrasses, balsamroots (*Balsamorhiza* spp.), and buckwheats (*Eriogonum* spp.) with scattered western serviceberry (*Amelanchier alnifolia*) and rose (*Rosa* sp.) as well as several non-native and invasive species.

The City of Spokane's Shoreline Inventory and Analysis Report (URS 2008a) included one vegetation sample plot at the west end of the habitat study area, just downstream from the Sandifur Bridge. This plot included ponderosa pine, thin-leaf alder, coyote willow (*Salix exigua*), and western poison ivy (*Toxicodendron rydbergii*). The URS field reconnaissance conducted on November 16, 2011 documented six general vegetation communities within the habitat study area. These are described as follows from the bottom of the slope to the top:

- **Deciduous riparian community**: Located between the lower low water line of the river and approximately 15 vertical feet up the slope, this community includes willows within the seasonally inundated river zone. The willows transition to thin-leaf alder and black cottonwood near the ordinary high water line of the river. The deciduous trees extend to the upper limits of this zone. Common understory constituents include poison ivy, red-osier dogwood (*Cornus sericea*), Douglas hawthorn (*Crataegus douglasii*), and impatiens (*Impatiens* sp.). Absinth wormwood (*Artemisia absinthium*) is a common, non-native understory herb.
- **Ponderosa pine forest**: Located above the riparian vegetation, this community is heavily dominated by ponderosa pine in the forest overstory with minor inclusions of thin-leaf alder and shore pine (*Pinus contorta*). Common understory shrubs includes Wood's rose (*Rosa woodsii*), tall Oregon grape (*Berberis aquifolium*), and common snowberry (*Symphoricarpos albus*). This community is generally found on slopes in the habitat study area but it also exists in the low floodplain area north of the Sandifur Bridge.
- **Deciduous upland forest:** East of the Lower Crossing neighborhood, several former homesites and a road have been purchased by the City and vacated. This area has several ornamental trees remaining, which are intermixed with bitter cherry (*Prunus emarginata*) saplings, elms (*Ulmus* sp.), black cottonwood, black locust (*Robinia pseudoacacia*), and box elder (*Acer negundo*). This community extends east from Falls Street to Elm Street, becoming more intermixed with the riparian zone moving east to Maple Street.
- **Mixed shrubs**: In various patches throughout the corridor, ponderosa pines are present as young saplings loosely interspersed with a variety of native and non-native shrubs. These shrubs include western serviceberry, mallow ninebark (*Physocarpus malvaceus*), red-osier dogwood, apples (*Malus* sp.), and elm saplings. Grasses dominate the herbaceous

stratum between the shrubs. These include bluebunch wheatgrass (*Pseudoroegneria spicata*), quackgrass (*Elymus repens*), cheatgrass (*Bromus tectorum*), and bottlebrush squirreltail (*Elymus elymoides*).

- **Upland prairie/grassland:** At the upper end of the river banks, the woody vegetation gives way to upland grassland prairie. This habitat also extends downslope in various areas where the slopes are especially steep and unstable. This habitat generally has a thin silt soil over talus material. It includes areas that are actively eroding on steep slopes, a recent burn area west of the Lower Crossing neighborhood, and disturbed areas around the CT below Oak Street. Much of this habitat is highly degraded, generally where fill material was historically placed and along the existing Ohio Street ROW and the CT. Native patches are dominated by bluebunch wheatgrass, Idaho fescue (*Festuca idahoensis*), and needlegrass (*Achnatherum* sp.) with minor components of various buckwheats, balsamroots, lupines (*Lupinus* spp.), and various other native constituents. Disturbed areas are largely dominated by spotted knapweed (*Centaurea stoebe* ssp. *micranthos* [=*C. pratensis*]) and cheatgrass. Spotted knapweed is most abundant along the southern edge of the Ohio Street ROW and along the CT through High Bridge Park.

2. 3 WILDLIFE

The habitat study area provides habitat for both resident and migratory wildlife and a connective link for the east-west movement of wildlife along the Spokane River. This connectivity also extends south from Spokane via Latah Creek. The flora and fauna along other portions of the Spokane River, which are connected via this riparian corridor, have been described elsewhere, particularly in the City of Spokane's Shoreline Master Program Update (URS 2008a).

The wildlife that has been documented in the habitat study area is likely a result of a combination of factors, including the existing native habitat and vegetation, and the site's position in the surrounding landscape. Non-native wildlife observed in the habitat study area is influenced by the developed urban environment nearby. Species such as European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), rock pigeon (*Columba livia*), Canada goose (*Branta canadensis*), American crow (*Corvus brachyrhynchos*), raccoon (*Procyon lotor*) and eastern gray squirrel (*Sciurus carolinensis*) may be more common in the habitat study area because of the adjacent urban development.

Native wildlife found throughout the year in the habitat study area is associated with remnants of natural habitats that have been disturbed over time due to their proximity to the city center and past railroad activities. Ponderosa pine forest and the riparian vegetation community traditionally provide habitat for numerous species on a year-round basis. Species that can thrive in small natural areas near urbanization include: bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), great blue heron (*Ardea herodias*), American magpie (*Pica hudsonia*), northern flicker (*Colaptes auratus*), black-capped chickadee (*Poecile atricapillus*), dark-eyed junco (*Junco hyemalis*), bats, coyote (*Canis latrans*), and various deer (*Odocoileus* spp.).

Other wildlife may occur only seasonally as migrants, or wander into the area via the upstream and downstream corridor of the Spokane River and nearby Latah Creek. Downstream of the

habitat study area, larger tracts of forest and undeveloped land are likely a source for some species not seen as frequently in urban areas, such as moose (*Alces alces*), porcupine (*Erethizon dorsatum*), neotropical migrants (passerine birds), and seasonal waterfowl.

The wildlife identified in this report is a result of existing information provided by WDFW, Avista, community groups, individual residents of the area, and Appendix E to the City of Spokane's Shoreline Inventory and Analysis Report (URS 2008a). A list of local residents interviewed for this assessment is included as Appendix A. Table 1 is from the Shoreline Inventory and Analysis Report. It provides wildlife summary information developed by WDFW for reach SR-5. WDFW considers the area near the confluence of Latah Creek and the river to be particularly "rich and productive" because of the confluence of two riparian systems. This area is located just downstream/west of the Sandifur Memorial Bridge and includes a portion of the habitat study area. Wildlife diversity is considered high, with many breeding passerine birds and raptors using habitat there.

Table 1. WDFW Wildlife Summary Information for Spokane River Reach SR-5

Reach	Important Wildlife Communities	Representative Species	Nesting Concentration	Priority Species	Locally Significant Species
SR-5	bats, neotropical birds, aquatic mammals; waterfowl; herpetofauna	Yuma Bat; red-winged blackbird, yellow warbler, willow flycatcher, common yellowthroat, song sparrow, cedar waxwing, mallard, Canada geese; spotted frog	Yuma Bat, hoary bat, silver-haired bat; yellow warbler, red-winged blackbird, common yellowthroat, catbird, vireos, oriole, cedar waxwing, mallards, Northern flicker, downy and hairy woodpecker, osprey, red-tailed hawk	neotropical birds, seasonal waterfowl	bald eagle, peregrine falcon, osprey, red-tailed hawks, bats, and neotropical and resident birds
	Comment: Below the Maple Street dam, this area increases in wildlife diversity until it meets with Latah Creek. The confluence of two riparian systems makes this area very rich and productive. Many raptors, passerine birds, and bats breed, forage, and roost in this area because of the riparian systems and the associated vegetation. Mink have been seen just upriver of the Latah Creek confluence. Peregrines nest on Sunset Bridge, osprey nest along the banks, and bald eagles forage in this area. Many passerine birds breed in this area. Bats can be observed at night along this stretch. Bats appear to use all				

	of the bridges in this area to roost.

Source: WDFW (in Appendix E of Shoreline Inventory and Analysis Report (URS 2008a))

Birds

Spokane Audubon Society has developed a comprehensive list of bird species known to occur along the Spokane River and Latah Creek within the City of Spokane. The list identifies 175 species; it is included in Appendix E to the City of Spokane's Shoreline Inventory and Analysis Report (URS 2008a), which is available online[1]. Species which are fairly common year round include Canada goose, mallard (*Anas platyrhynchos*), bufflehead (*Bucephala albeola*), common merganser (*Mergus merganser*), California quail (*Callipepla californica*), red-tailed hawk (*Buteo jamaicensis*), rock pigeon, mourning dove (*Zenaida macroura*), American magpie, American crow, European starling, dark-eyed junco, red-winged blackbird (*Agelaius phoeniceus*), house finch (*Carpodacus mexicanus*), American goldfinch (*Spinus tristis*), song sparrow (*Melospiza melodia*), cedar waxwing (*Bombycilla cedrorum*), and house sparrow. Another 64 species occur more than occasionally during spring or fall migration periods. The rest of the species listed are considered rare, vagrant, or infrequent visitors to the Spokane River.

The majority of the birds with potential to use habitats in the study area would likely use woody vegetation for foraging, nesting, and cover from predators. Many birds would also likely use the grassland prairie habitats for foraging and hunting, especially since they are near protective forest cover.

Mammals

Mammal species reported by local residents to occur along this section of the Spokane River include the following: adult and juvenile moose, white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), coyote, striped skunk (Mephitis mephitis), yellow-bellied marmot (*Marmota flaviventris*), porcupine, raccoon, American beaver (*Castor canadensis*), mink (*Mustela vison*), river otter (*Lontra canadensis*), weasel (*Mustela* spp.) and eastern grey squirrel. Domestic cats and dogs are also known to use the habitat study area; several were witnessed during the wintertime site visit conducted by URS.

It is likely that the riparian habitat surrounding the Spokane River also supports a range of small mammal species, although no specific studies or sightings could be identified as part of this HMP. Likely (although unconfirmed) species, based on habitat preferences and known geographic distribution, might include the following: vagrant shrew (*Sorex vagrans*), yellow-pine chipmunk (*Tamias amoenus*), northern pocket gopher (*Thomomys talpoides*), Great Basin pocket mouse (*Perognathus parvus*), common muskrat (*Ondatra zibethicus*), long-tailed vole

[1] http://www.spokaneplanning.org/docs/SMP/SMP_Inventory_and_Analysis.pdf

(*Microtus longicaudus*), southern red-backed vole (*Clethrionomys gapperi*), house mouse (*Mus musculus*), and deer mouse (*Permyscus maniculatus*) (Eder 2002). These species likely provide a prey base for the larger mammals, raptors, and owls that occur in the habitat study area.

Previous reports have identified this section of the Spokane River as having nesting colonies of three species of bats, including Yuma bat (*Myotis yumanensis*), hoary bat (*Lasiurus cinereus*), and silver-haired bat (*Lasionycteris noctivagans*) (Divens 2011). All of these species are thought to forage over water (lakes, streams, or wetlands) (Eder 2002). Bats likely use all the bridges in the vicinity of the project area for roosting (URS 2008a, Divens 2011). In addition, a maternal colony of Townsend's big-eared bat (*Corynorhinus townsendii*) is known to currently exist under the Sunset Bridge over Latah Creek, approximately 0.4 mile from the edge of the project area at its closest point (Divens 2011). Bats from this and the other bridges may forage within the habitat study area.

The majority of the mammals with known or potential presence in the habitat study area would likely use woody vegetation for foraging and cover. Large mammals and bats would also likely use the grassland prairie habitats for foraging, especially since they are near protective forest cover.

Reptiles and Amphibians

Limited information was available about which species of reptiles and amphibians (herpetofauna) may occur in the habitat study area. The Columbia spotted frog (*Rana luteiventris*) and western toad (*Bufo boreas*) are thought to occur in the vicinity of the project area (Divens 2011). Residents have reported garter snake (*Thamnophis* sp.) and gopher snake (*Pituophis catenifer).* Although unconfirmed, based on the general mapped distribution and known habitat preferences, western skink (*Eumeces skiltonianus)* also has the potential to be present (DNR 2011). The frogs typically inhabit seasonally inundated shoreline areas. The snakes are common in dry habitats with rocky exposures. The skink typically inhabits talus slopes and decaying wood near open water.

Fish

Although the habitat study area is focused on terrestrial, riparian habitat, the interaction between riparian and aquatic habitat is critical. Riparian habitat provides shade, organic matter, support for benthic invertebrates (which fish eat), shoreline stability, and it deters unfettered access to the stream. Therefore, a review of existing literature related to Spokane River's fishery was conducted to determine how the terrestrial habitats support those fish, and how the fish may be affected by habitat impacts associated with the Project.

The Spokane River and Latah Creek provide habitat suitable for resident fish and other aquatic species. Dams constructed both upstream and downstream of the project area prohibit or limit the widespread movement of resident fish within the Spokane River system. In particular, the Spokane River is identified by WDFW as a Priority Habitat for redband trout (*Orncorhychus mykiss*) and westslope cutthroat trout (*O. clarki lewisi*), both of which are identified as a state Priority Species. Within the habitat study area, both species are known to use the Spokane River and Latah Creek for spawning, rearing, and foraging.

An inventory of redband trout spawning habitat in a portion of the Spokane River adjacent to the habitat study area was conducted in 2009 and 2010 (Addley and Peterson 2011). This study identified all potential spawning sites in 2009. In 2010, a complete count of all observable redds was conducted. The study identified 16 spawning patches in the Spokane River adjacent to the habitat study area. In 2010, a total of 65 redds were observed in 5 of those patches, while the other 11 patches had zero redds. One high quality spawning patch (Identification number 73.74R) had 21 redds and is located just downstream of the Monroe Street Bridge on the right bank (looking downstream). Another high quality spawning patch (Identification number 72.42R) contained 27 redds in 2010 and is located just downstream of the Sandifur Memorial Bridge on the right bank. These two spawning patches comprised 74% of all redds in the segment of the Spokane River adjacent to the habitat study area.

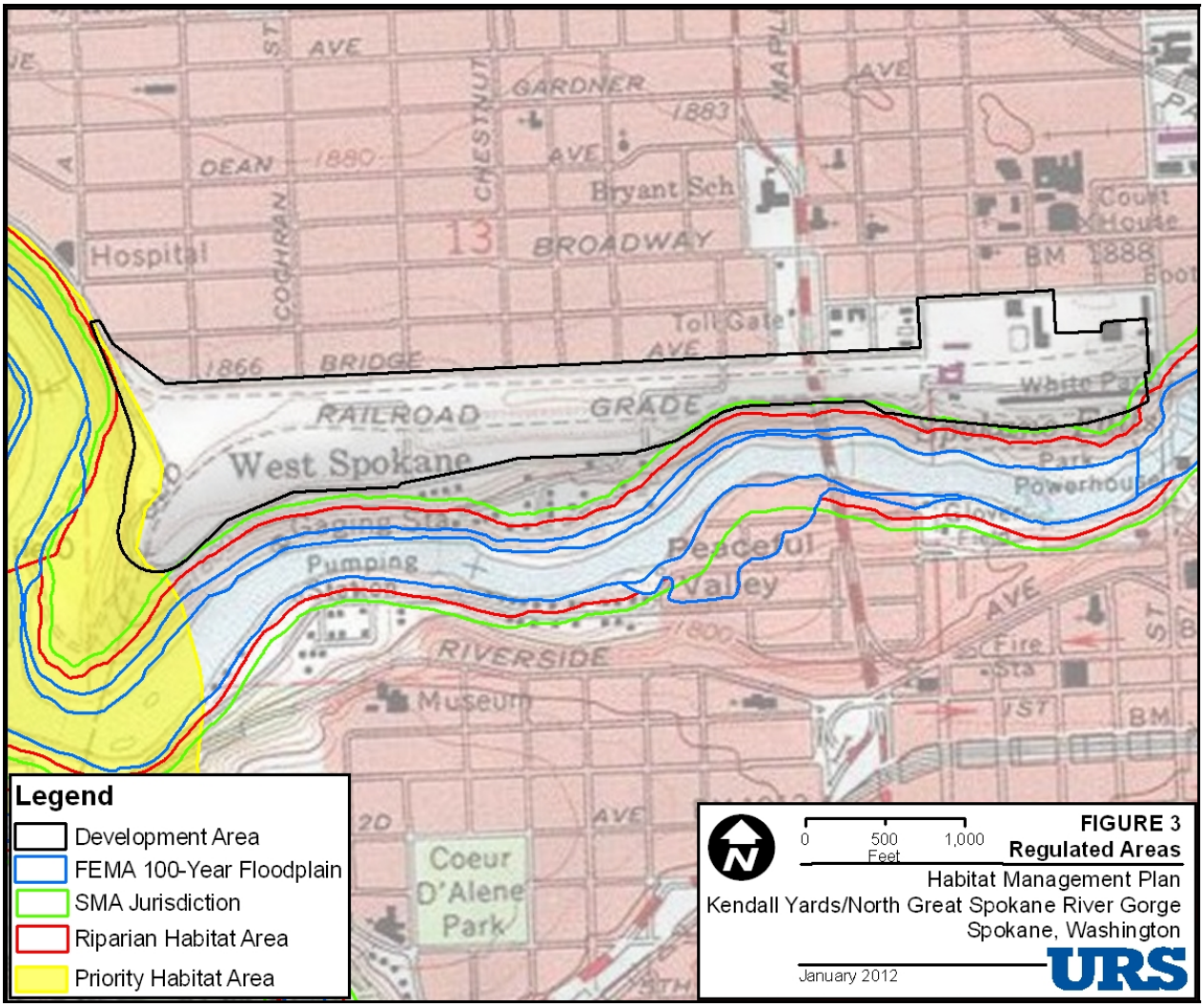
In addition to resident trout, the Spokane River is known to support typical species such as mountain whitefish (*Prosopium williamsoni*), northern pikeminnow (*Ptychocheilus oregonensis*), and a variety of sucker species (family: Catostomidae). Dams on the mainstem Columbia River have precluded access by anadromous fish to the Spokane River. Angling is permitted on the Spokane River, with recreational fisheries stocked for brown trout (*Salmo trutta* morpha *fario*), rainbow trout, and whitefish during the winter.

2.4 REGULATED AREAS

Within the habitat study area, several federal, state and local regulatory designations pertaining to the natural environment are in effect. They are the Federal Emergency Management Agency's 100-year floodplain, Washington PH&S, City of Spokane Riparian Habitat Area Zone, and Spokane's Shoreline Management Act Zone. Each is described in more detail in the following sections and management recommendations made for each regulated area were considered and if appropriate used to develop the mitigation plan.

2.4.1 100-Year Floodplain

The 100-year floodplain, as mapped by the Federal Emergency Management Agency (FEMA) is mapped on Figure 3. No developments are proposed within the 100-year floodplain. Vegetation enhancement would be located within the floodplain but this does not trigger the need for a floodplain development permit as no fill is being added to the floodplain.



2.4.2 Washington Priority Habitats and Species

The Washington Department of Fish and Wildlife maintains a map of identified PH&S locations (WDFW 2011). PH&S is the principal means by which WDFW provides fish, wildlife, and habitat information to local governments, state and federal agencies, private landowners and consultants, and tribal biologists for land use planning purposes (WDFW 2011).

Within the study area, PH&S mapping identifies two priority habitats and four priority wildlife species. "Biodiversity Areas" habitat is mapped around the Latah Creek/Spokane River confluence (Figure 3). This map unit extends up Latah Creek and down the Spokane River but not upstream along the Spokane River, east of the Latah Creek confluence (Figure 3). The boundary of the Biodiversity Areas habitat coincides with the boundary of northwest white-tailed deer and mule deer migration corridor habitat. The PH&S mapping also maps the Spokane River as a priority habitat by means of a centerline along the river. The river provides priority habitat for rainbow trout and west slope cutthroat trout.

WDFW defines a Biodiversity Area as follows: "The area is within a city or an urban growth area (UGA) and contains habitat that is valuable to fish or wildlife and is mostly comprised of native vegetation. Relative to other vegetated areas in the same city or UGA, the mapped area is vertically diverse (e.g., multiple canopy layers, snags, or downed wood), horizontally diverse (e.g., contains a mosaic of native habitats), or supports a diverse community of species as identified by a qualified professional who has a degree in biology or closely related field and professional experience related to the habitats or species occurring in the biodiversity area. These areas may have more limited wildlife functions than other priority habitat areas due to the general nature and constraints of these sites in that they are often isolated or surrounded by highly urbanized lands" (WDFW 2009). A priority corridor is defined as an area with relatively undisturbed and unbroken tracts of vegetation that connect fish and wildlife habitat conservation areas, priority habitats, areas identified as biologically diverse, or valuable habitats within a city or UGA" (WDFW 2009). A summary of the biodiversity area located within the study area is provided together with relevant habitat management recommendations in Table 2, below.

Table 2: Summary of Biodiversity Area Habitat within the Study Area

Site Name	**SPOKANE AND LITTLE SPOKANE BIODIVERSITY AREA**
Wildlife Notes	Nesting and brooding area for waterfowl and western grebes. Wintering bald eagles and waterfowl concentrations. Cavity nesting ducks, pileated woodpecker, accipiter breeding, great blue heron rookery, beaver, otter, mink, moose, deer, cougar, etc.
Management Recommendations	• Keep large, connected patches of undeveloped native vegetation intact. • Encourage and maintain low zoning densities within and immediately surrounding high-value habitat areas. • Encourage maintenance of native vegetation. • Manage road systems to minimize the number of new roads and new barriers to important animal movement corridors. • Plan open space to incorporate high-value habitat and corridors for animal movement. • Zone for higher densities within urban and developed landscapes to avoid sprawl.

Current Washington Natural Heritage Program data was also reviewed for known rare plants and high quality habitats within the habitat study area but none have been documented within two miles of the habitat study site. Individual species identified in the PH&S database are discussed in Section 2.3. Proposed development within the PH&S mapped biodiversity polygon includes construction of a bike/pedestrian pathway along the western edge of Summit Street to tie into the CT from the west. Other developments in the PH&S boundary include trail improvements and habitat enhancements proposed by this plan.

2.4.3 Riparian Habitat Area Zone

Per SMC Section 17E.020.030 (Fish and Wildlife Conservation Areas), Riparian Habitat Areas (RHAs) receive extra protections to conserve and protect the important habitat, slope stability, and shade functions provided by these areas. An RHA is defined by the SMC as an area adjacent to flowing water that contains elements of both aquatic and terrestrial ecosystems. No regulated activities can be undertaken in a fish and wildlife conservation area or associated buffer without additional review. Development within the RHA can trigger the need for an HMP if a Spokane planning official feels that the development may have a negative impact on the RHA. In addition, habitat should be retained in its natural condition to provide ecological function. Trails for pedestrians are not permitted within RHAs unless trail planning is conducted in conjunction with an approved HMP. Under Section 17E.020 of the municipal code, the study area is located within "zone 2(1)." Table 17E.020-4 in the municipal code describes the RHA for this zone as "equivalent to the 100-year floodplain or 130 feet, whichever is greater." The RHA map layer was provided to URS by the City and is shown on Figure 3. Restrictions in place include no improvements of any kind or vegetation removal within 130 feet of the ordinary high water mark, unless invasive vegetation removal is called for in an HMP.

Proposed development within the RHA is limited to a small area of grading and trail construction associated with the CT extension near Monroe Street (Figure 3) and vegetation enhancements described in this plan. Per City code, trails are allowed within an RHA in conjunction with approval of this HMP.

2.4.4 Shoreline Management Act Zone

The State of Washington Shoreline Management Act (SMA), adopted in 1972, includes guidelines, goals, and policies to protect shorelines of the state. Shorelines include lake and marine shores, and streams with a mean annual flow greater than 20 cfs. The Spokane River, Latah Creek, and all shorelands within 200 horizontal feet of either waterway are regulated under the SMA. The SMA is managed within the City by the City's Shoreline Master Program (SMP), which was updated and approved in 2008.

The 2008 update to the SMP provides environmental designations for shorelands along the Spokane River. The entire shoreline jurisdictional area within the study area is designated as an "Urban Conservancy Environment." The purpose of the Urban Conservancy Environment is 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. The management policies for Urban Conservancy Environment specify the following:

- Water-oriented uses should be given priority over non-water-oriented uses.
- Primary uses should be those that preserve the natural character of the area or promote preservation of open space, floodplain, or sensitive lands either directly or over the long term.
- Uses that result in restoration of ecological functions should be allowed if the use is otherwise compatible with the purpose of the urban conservancy environment and setting.

The management policies also require that land uses establish standards for shoreline stabilization measures, vegetation conservation, water quality, and shoreline modifications that ensure that new development does not result in a net loss of shoreline ecological functions or further degrade other shoreline values. The policies also request that land uses implement, when feasible, public access and public recreation objectives if significant ecological impacts can be mitigated (City of Spokane 2011a).

A small portion of the Kendall Yards project crosses into the SMA zone (Figure 3) along the proposed CT pathway between Monroe Street and Elm Street. As this development is associated with providing public recreational access, it is consistent with the Urban Conservancy environmental designation management policies in conjunction with the habitat conservation and mitigation measures described in this HMP.

This section describes the anticipated effects of the proposed action to vegetation and wildlife. The proposed mitigation measures recommended by this plan were developed in response to this assessment of potential impacts. Impacts are based on the understanding that construction of Kendall Yards will be phased, and will span across approximately 10 years (current estimate). Occupancy of Kendall Yards residential space will increase throughout that time, though at a rate that is unpredictable because it is market-driven. Impacts as a result of the project are described below in terms of permanent and temporary direct impacts and indirect impacts. Direct impacts are the immediate effects of an action. Indirect impacts are those caused by or resulting from the proposed action that are later in time but still reasonably certain to occur.

3.1 VEGETATION

3.1.1 Permanent Impacts

The Kendall Yards development will have minor direct impact on the native vegetation. Construction of Kendall Yards will occur in an area previously developed for industrial/railroad use and dominated by non-native species and bare ground. At the far eastern end of the development area, the proposed CT extension will require a grade adjustment to connect the existing trail end beneath the Monroe Street Bridge to the Ohio Street alignment within the development area. In order to achieve the desired grade for accessibility required by the Americans with Disabilities Act (ADA), the existing topography will be excavated down along a section of the proposed CT alignment. This grading will result in the loss of one mature ponderosa pine tree, one shore pine tree, and one non-native Scotch pine (*Pinus sylvestris*) tree. Other vegetation within this grading area is primarily non-native grasses and forbs.

At the west end of the proposed development, an extension of the CT and an associated park area would be constructed along the top of the slope through a mapped Priority Habitat area. Although mapped as a priority habitat area, this portion of the project area contains fill material placed to support a historical railroad grade. Vegetation in this area is primarily non-native grasses with dispersed, young ponderosa pine trees. The trail and park amenities (e.g. picnic benches) will be designed in this area to avoid the removal of native trees. Any incidental tree removals would be compensated for by replanting young pine trees in the immediate vicinity at a ratio of three new plantings for each tree removed.

As described in the project description, the proposed CT extension will include a vegetative clear zone along the southern edge of the trail. This clear zone will be mowed seasonally to provide a safe buffer along the trail in the event that a bicycle swerves off the trail. In especially steep areas, the trail, which has yet to be fully designed, will likely incorporate guard rail or fencing. This guard rail may have minor impacts to shrubs and grasses along the edge of the proposed CT. However, it will also provide a deterrent to unmanaged access, which would benefit the habitats along the slope.

3.1.2 Temporary Impacts

No temporary impacts to vegetation are anticipated from the proposed action.

3.1.3 Indirect Impacts

Indirect impacts associated with increased land use intensity are likely to have the most pronounced effect on vegetation. The CT in many areas along the river is a known vector for the transport of non-native vegetation, particularly cheatgrass and spotted knapweed. These species grow in abundance along portions of the trail edge, becoming more diffuse as they spread away from the trail. With increased access and population density, there will be a higher risk of non-native seed transport, which has the potential to disturb vegetation throughout the accessible portions of the habitat study area.

3.2 WILDLIFE

3.2.1 Permanent Impacts

Because construction of Kendall Yards will occur in previously developed areas, little direct removal of wildlife habitat will occur as a result of this project. However, the tree removals associated with grading for the proposed CT connection (discussed in Section 3.1) will result in the permanent loss of habitat available to birds and other wildlife in the habitat study area.

If construction activities and tree felling occur during the nesting season when nestlings lack the ability to disperse, the removal of vegetation can cause direct mortality to birds, small mammals, and other forms of low-mobility wildlife. Adult birds may also abandon nests due to this disturbance. Tree removal prior to or after the nesting period, which ranges from March through August, would minimize the potential for these direct impacts.

3.2.2 Temporary Impacts

Temporary impacts to wildlife habitat as a result of the Kendall Yards development and CT construction may include things such as noise, presence of construction workers and equipment, and lighting.

Wildlife that occurs in the habitat study area may be affected by noise generated during the construction of Kendall Yards and the CT. Animal response to sound levels depends on a number of complicated factors, and has not been well studied in many species of wildlife (WSDOT 2010). Without detailed study, it is impossible to make definitive statements about how the construction associated with Kendall Yards and the proposed CT will impact wildlife. However, some generalizations may be made based on professional judgment. Given the proximity of the proposed CT to the habitat study area (0 to 10 feet), and the narrow limits of the riparian zone, it may be reasonably assumed that most wildlife will at least detect noise from heavy equipment associated with construction when within 400 feet. Because most of the habitat study area is on a slope angled away from the construction area, most noise impacts will be minimal. Injury is only likely in the close range of 20 to 50 feet, yet the higher quality riparian habitat is located along the base of the slopes.

Similar to construction noise, the presence of construction workers and their equipment may also affect wildlife in the habitat study area. Construction workers may cause additional disturbance to wildlife if they travel by foot into the habitat study area during work activities or on breaks. This would increase the area of habitat that may be subject to temporary disturbance. Workers also may increase the amount of available trash if it is not contained. Nuisance wildlife may potentially be attracted to sources of human trash. Nuisance wildlife can displace native wildlife in some circumstances. For instance, European starlings can occur in large flocks and roost in tree cavities otherwise occupied by native cavity nesting birds such as nuthatches, woodpeckers, chickadees, or bats.

At least two nesting platforms for bald eagles and/or osprey are located at the top of the slope above the river on Parks lands, adjacent to the Kendall Yards development. It is likely that raptors would avoid nesting in these locations during active construction phases. Construction is not anticipated to remove any existing nesting platforms.

Construction activities can result in indirect impacts to aquatic resources resulting from improper erosion and sediment controls. Sedimentation in the aquatic environment can render spawning habitats unsuitable/unviable and cause injury to the scales and gills of fish, if prolonged or in high concentration (Bell 1991). Construction of the Kendall Yards project will occur more than 500 feet from the Spokane River and at the top of the bluff north of the river. The distance of the proposed construction from the river should minimize the potential for sedimentation, as the soils and vegetation can act to absorb runoff and filter out sediments. Implementation of standard construction best management practices (BMPs) for erosion control installation and maintenance will further minimize the potential for fugitive sediment migration from the project site to the aquatic environment.

Given the distance between the project area and the resource, it is unlikely that any temporary impacts to fish resources or aquatic habitat could occur as a result of proposed Project construction as long as proper erosion controls are in place and maintained.

3.2.3 Indirect Impacts

Three types of indirect effects to wildlife were evaluated as part of this HMP: changes to ecological systems resulting in altered predator/prey relationships; changes to ecological systems resulting in long-term habitat alteration; and anticipated changes in human activities, including changes in land use (WSDOT 2010). Following is a discussion of indirect impacts that are likely to result from the project. Per condition #28 of the Hearing Examiners Findings, this section also specifically addresses the effects of lighting and pets on habitats adjacent to the Project.

Human Activity

High Bridge Park and the existing CT are regularly visited. During the winter time, visitation is diminished and relatively short term with recreational users generally passing through without stopping. During field reconnaissance, dog walkers, joggers, and bicyclists were noted along the CT and on informal trails through the lower floodplain area north of Sandifur Bridge. Dog walkers and joggers make a circular route down an informal access trail beginning near Broadway Street, traverse through the low floodplain area north of the Sandifur Bridge, and return up the CT towards Summit Street to complete the loop. Through personal communications

with residents, it appears that recreational use increases substantially during the summer months as the area is used for swimming and unauthorized camping.

As a result of the increase in the number of housing units adjacent to the habitat study area, it is anticipated that a higher number of people will choose to walk, run, recreate, or otherwise utilize the habitat study area. In addition, access to the habitat study area will be improved for residents living north of the Kendall Yards development. It appears that at least five access routes will be constructed in a north-south orientation, where today there is no formal pedestrian access through the development site. Additionally, when the proposed CT is constructed, access will be increased for people traveling east-west along the trail, resulting in increased travel through the area.

Different types of wildlife have differing tolerances for interaction with people. Some wildlife species may decline in response to increasing use levels, while other species benefit (Knight and Gutzwiller 1995). Impacts can vary by group size, behavior of individuals and speed of travel. Wildlife can also acclimatize to habitual human activities. An increase in recreational users can cause wildlife to be disturbed and leave the immediate vicinity. Physiological changes in wildlife, such as an increased heart rate or energy expenditure, may follow after interaction with people (Knight and Gutzwiller 1995). Although much harder to quantify, disturbance from humans can lead to wildlife population declines.

An increase in pedestrian visitors has the potential to increase foot traffic on the numerous informal trails in the habitat study area, especially around the existing CT through High Bridge Park. Informal trails increase the erosion and compaction of the ground, the spread of noxious weeds, and often lead to additional trail branching. Pedestrians and animals (discussed more below) may limit the natural recruitment of native plants as a result of trampling. Herbaceous and shrub layers are usually the most affected (WDFW 1997). Invasive weeds spread more readily, and ground dwelling wildlife can be disturbed by pedestrian access. Aquatic and near-shore riparian habitats are especially vulnerable to physical disturbance (WDFW 1997). Water contact recreation can include swimming, angling, canoeing/kayaking, and similar activities. Such activities can increase harassment of aquatic species, displacing them from preferred habitat, interrupting predator-prey dynamics, and causing mortality and/or injury through direct contact.

It was noted by URS biologists that at least four active fire pits exist near the bank of the river in the western half of the habitat study area. It has been reported that homeless people who use the area build the fires (Davis 2011). It is unknown if the Kendall Yards development and/or the proposed CT will have any influence on the number of homeless utilizing the habitat study area. However, it appears that the existing homeless population likely gathers small woody debris from the forested portion of the habitat study area and burns the wood in their fires. URS biologists observed few pieces of woody debris on the forest floor. The loss of woody debris reduces the amount of cover available for small mammals, reptiles/amphibians, and invertebrates in the riparian area. If there is an increase in the frequency or number of fires in the habitat study area, then there may be greater risk for wildfire. Wildfire can alter the vegetation community of the area, and increase invasive weed presence/abundance.

Increases in human presence/development in proximity to the aquatic environment can result in several indirect effects to aquatic habitats and species—including increases in stormwater runoff and wastewater treatment requirements. Increased impervious surface, particularly roads for

vehicular use, result in increases in stormwater generated during precipitation events. Increased stormwater production can result in contribution of sediments and toxic pollutants to the aquatic environment if not treated correctly. Kendall Yards will connect to the City's sanitary sewer system and stormwater will be treated in bioswales and discharged to the ground according to the developer's plans. No direct discharge from the Kendall Yards development to the river is planned. Proper implementation and maintenance of stormwater treatment and detention BMPs reduces the potential risk associated with stormwater generated from Kendall Yards both during and after construction. The installation of infrastructure to convey and treat human waste also has the potential to negatively impact the adjacent habitat areas. However, the PUD is being designed to result in no net increase in CSOs.

Pets

Two house cats were observed in the habitat study area during a site visit by URS biologists. There is no pet census and many people do not license their pets so there are no hard statistics for the number of pets per household in Spokane. However, with the addition of up to 1,080 new housing units that will allow pets, it is expected that the number of domestic cats and dogs within the habitat study area will increase due to construction of the Kendall Yards PUD.

Domestic animals (dogs and cats) can have deleterious effects on native wildlife, especially in urban areas. Domestic cats eat small mammals, birds, reptiles, and amphibians. Birds that nest or forage on the ground are particularly vulnerable to predation by cats. Cats may also affect predator-prey relationships among native wildlife. Cats may compete with other predators such as raptors for food items, thereby reducing their populations. Domestic cats are known to prey on bats (WDFW 2005).

Dogs may chase wildlife or otherwise disturb their resting, foraging or breeding activities. Some birds have shown a stronger fear response to dogs than native predators (Knight and Gutzwiller 1995). Dogs are also inclined to playing or fetching in the water. Increased activity by dogs in the Spokane River may impact habitat for spawning trout at certain times of the year. Fecal matter from dogs can cause pollution in the riparian areas that may impact water quality in the river if pet waste pick up is not strongly encouraged or enforced.

Increased pet use of the aquatic environment may result in increased harassment of aquatic species, displacement from preferred habitat, interruption of spawning and foraging behavior, and increased mortality and/or injury from direct contact. Additionally, pet presence in proximity to the river has the potential to result in water quality contamination and increased vectors for disease resulting from pet excrement.

Lighting

New sources of light from the Kendall Yards development would come from building illumination, car headlights, street lighting, and signage. In general, the lighting will be located within the development, above and away from the vegetated river bank. We have not been provided with any specific lighting plan for the development, so the discussion of potential impact to wildlife provided here is general in nature.

Virtually all species of small and medium sized mammals, with the exception of squirrels, are nocturnal. Potential effects of artificial night light on mammals may include disruption of foraging behavior, increased risk of predation, disruption of biological clocks, and disruption of

dispersal movements and corridor use (Rich and Longcore 2006). In response to natural sources of night light, such as the moon, small mammals have been shown to vary their movements and preferences to darker areas or times. Artificial illumination, which goes on throughout the night, may lead to abandonment of those areas permanently lighted. Lighting may also affect an animal's willingness to move through an area, such as a corridor. Bats, on the other hand have been observed feeding on insects attracted to artificial light sources such as streetlamps (Rich and Longcore 2006). Migrating birds may be disoriented by nighttime illumination.

Habitat mitigation described in this plan is a responsibility to be shared between the developer and the Spokane Parks Department, per the Hearing Examiner's decision on the Kendall Yards PUD. In general, mitigation for direct impacts will be implemented by the developer and mitigation for indirect impacts associated with increased population pressures on wildlife habitats will be implemented in phases by the Spokane Parks Department. A specific cost-sharing arrangement is being developed between the City and the developer to outline specific payment responsibilities.

4.1 MITIGATION FOR DIRECT HABITAT IMPACTS

Mitigation for direct impacts to habitat areas due to development of the Kendall Yards project will be mitigated through a variety of impact avoidance and minimization measures, open space land conveyance, and native vegetation plantings. Construction of the Project, with particular emphasis on the proposed CT improvements, should be done in such a way to avoid or minimize impacts to the adjacent Parks land and the species that occur there. This component of the Kendall Yards project is emphasized because it is geographically closest to Parks land and the Spokane River, and impacts from construction have the greatest potential to result in disturbance to existing vegetation and wildlife occurring within Parks land.

The construction design and schedule for the proposed CT is still pending and, therefore, this plan provides some general construction and design impact minimization measures that may be incorporated into the future trail and landscaping design and construction. In addition to avoidance and minimization measures described in Sections 4.1.1 and 4.1.2 below, mitigation for direct habitat impacts will include open space land conveyance described in Section 4.1.3 and trail-side shrub plantings described in Section 4.1.4.

4.1.1 Construction-Related Minimization Measures

The following measures are proposed to minimize potential construction impacts to the habitat study area. Additional construction measures, not included here, are detailed in construction erosion and sediment control plans, stormwater treatment plans, and sanitary sewer plans. These plans are required by, reviewed by, and approved by the City.

- Construction will implement appropriate and required erosion and sediment control BMPS to prevent fugitive sediment migration to the aquatic environment. These BMPs will be consistent with City of Spokane requirements.
- Tree removal associated with construction of the CT will be confined to the non-breeding season for birds (generally September to April, or as determined by a local qualified biologist).
- Construction lighting will not illuminate areas within Parks land.
- The boundaries of construction activities adjacent to the habitat study area (i.e., CT construction) will be clearly marked ahead of time and maintained throughout construction.

- Temporary staging, laydown, or disposal areas for construction of the CT will be within the footprint of the Kendall Yards development and not encroach on Parks land.
- Trash associated with construction of the CT will be stored in lidded trash cans and removed when full to reduce attraction of nuisance and/or non-native wildlife such as house sparrow, European starling, and raccoon.
- Construction workers will receive a brief tailgate "Environmental Awareness Training" during their first day on the construction site, emphasizing the avoidance of habitat areas (no-work zones).
- Construction equipment will be cleaned and inspected by the operator prior to arriving on site for construction of the CT to reduce the potential spread of noxious or invasive plant species.
- Existing bald eagle/osprey nesting platforms along the proposed CT will not be removed as a result of CT construction.

4.1.2 Design-Related Minimization Measures

The following measures are proposed to reduce the impact from Kendall Yards development by designing the project in a way that minimizes impacts to the adjacent habitat study area. Some measures are already planned for as part of Kendall Yards, other measures are recommendations made to the Parks Department to reduce the potential impacts from the anticipated increased use of the area.

- The Ohio Street ROW will be relocated north, away from the RHA, to the planned Summit Parkway to remove vehicle traffic from the boundary of the RHA/shoreline zones. The proposed CT will replace the existing Ohio Street ROW with a non-motorized pathway. The original Ohio Street ROW to be vacated is shown on Appendix D, Exhibits 1B and 1B2.
- Stormwater generated by the Kendall Yards development will be captured and treated onsite. In addition, untreated stormwater from Monroe Street, which currently discharges directly to the river, may be captured and treated within the Kendall Yards development area, dependent upon the City's schedule for conducting improvements to Monroe Street.
- Kendall Yards residential development (streetlights) and commercial buildings (streetlights and building illumination) will be limited to the minimum needed for safety and reasonable functionality. Floodlights illuminating areas downslope of the CT will not be allowed.
- The Kendall Yards design guidelines and CC&Rs will specify full cut off lighting requirements. No overhead lighting will be installed along the proposed CT, except where the CT is crossed or adjacent to a City street, which will have overhead lighting for traffic safety. Any future safety-related lighting along the CT would be limited to low-level, screened floor-type lights along the trail edge.

- Signage will be placed on both sides of Sandifur Memorial Bridge, above the ordinary high water line of the river, informing citizens of sensitive trout spawning areas nearby. These signs will request that dogs not be allowed in the water during spawning periods. Signs should be placed in a highly visible location near the CT. See Appendix E for example.
- Provide appropriate signage relating to cleaning up pet waste together with pet waste bags to encourage collection and provide disposal receptacles. See Appendix E for example. This pet waste information station should be located along the existing CT where trails diverge to the northwest near the northern terminus of the Sandifur Bridge.
- The City of Spokane will meet with the Kendall Yards HOA to attend a neighborhood meeting in 2014-2015 (or when the initial housing phase reaches 75% occupancy) to discuss riparian habitat sensitivity and encourage the development of a neighborhood volunteer group interested in periodic care of the riparian habitats. Grants available to neighborhood associations and case studies (e.g., Riverwalk) should be discussed.

4.1.3 Trail-side Shrub Plantings and Fencing

Native shrub plantings, "Sensitive Area" signage, and fencing will be provided along the proposed CT to reduce off-trail foot traffic that would impact habitat preservation areas, riparian restoration areas, and erodible slopes. Locations for fencing and native shrub plantings below the proposed CT clear/mowed grass area are identified in Appendix C. Together, the various shrub planting areas along the trail comprise a 0.5-acre area.

Shrub plantings in combination with fencing noted on Appendix C are intended, in part, to minimize off-trail foot traffic, which spreads noxious weeds, disturbs existing vegetation, and results in soil erosion. They are also intended to provide cover for birds, reptiles, and small mammals that forage along the slopes. Table 3, below provides a list of plant species appropriate for this planting area. These suggested plants are based on native plants noted in the vicinity at similar slope positions. These species will require irrigation for the first two years but should then be able to survive without supplemental irrigation. As no irrigation lines are proposed on the south side of the planned CT, irrigation will be provided only during the dry summer months by portable water tank three times a week. Planting in the late fall or winter will help reduce the amount of required irrigation. All plants should be installed with protective planting tubes (e.g., Vexar) to prevent herbivory and damage from maintenance mowing in the adjacent grass strip.

Note that the proposed CT is still undergoing final design. As such, shrub planting zones shown in Appendix C along the future trail are conceptual; they will be located next to the lower edge of the trail's "clear zone" in various locations along the final trail alignment, generally where shown. Areas with slopes greater than 60% or areas with substrates composed of basalt outcrops may be too steep or inhospitable to install shrubs upon. The six-foot-on-center plant spacing is provided for estimating plant quantities. Actual spacing in the field, where identified in Appendix C, should include clumping at approximately 3-feet on center spacing, with gaps between shrub clumps, in a manner that mimics local natural conditions. Large clumps should be strategically placed over existing informal access trails to minimize further degradation to erodible slope areas below.

These plantings will mitigate direct vegetation impacts and impacts associated with increased recreational use due to construction of the CT, as described in Section 3.1.

Table 3: Shrub Plantings

Scientific Name	Common Plant Name	Proportion of Plant Mix	Spacing (ft)
Acer glabrum	Rocky Mountain maple	10	6
Amelanchier alnifolia	Serviceberry	20	6
Crataegus douglasii	Douglas hawthorn	15	6
Physocarpus malvaceus	Mallow ninebark	20	6
Ribes aureum	Golden currant	10	6
Rosa woodsii	Wood's rose	15	6
Sambucus cerulea	Blue elderberry	10	6

4.2 MITIGATION FOR INDIRECT IMPACTS

Mitigation for indirect impacts includes changes in parkland management to focus on conservation objectives; measures to limit dispersed, off-trail foot traffic and pet waste; and strategic vegetation enhancements to make wildlife habitats more resilient to increased land use pressures. These measures will be phased in over a 10-year period concurrent with the anticipated growth in adjacent areas associated with the Kendall Yard development project. Project actions to be performed by the City may be dependent on grants. As such, mitigation for indirect impacts, which are primarily the City's responsibility, if not implemented, will not deter project development so long as the developer has performed their mitigation responsibilities, per Section 4.1 of this plan.

4.2.1 Park Management Reclassification and Conservation Strategy

Consistent with the City's "Urban Conservancy" shoreline environmental designation (SMC 17E 060.650), vegetation conservation standards (SMC 17E 060.230) and the environmental standards for Fish and Wildlife Habitat Conservation Areas (SMC 17E 020), this plan recommends that the City preserve the existing natural landscape integrity to the extent possible. This can be accomplished by avoiding and minimizing future impacts to identified high quality habitat areas, which are shown on the Vegetation Preservation and Enhancement Plan maps in Appendix C. Habitat areas mapped as "Preserve" in Appendix C should receive the highest degree of conservation status.

The management designation for the High Bridge Park area north of the river could be changed to help conserve natural areas within the park. High Bridge Park is currently managed as a "Major Park." There are no specific rules associated with park management programming but Major Park status is generally defined by the department as being larger in size with regional levels of service (LOS). Major Park lands include "destination" amenities and typically a higher level of maintenance.

By changing the management designation of the area north of the Spokane River within High Bridge Park to "Conservation Land," the Parks Department would change their focus to preservation of natural areas within the park rather than allowing recreational developments that are inconsistent with habitat preservation. Conservation Lands can include trails but they have more restrictions on amenities and structures, relative to areas managed as "Major Park" lands. This program change would only affect portions of High Bridge Park within the habitat study area. In the near future, the Parks department hopes to establish a Master Plan for High Bridge Park and surrounding City owned properties. By reference to this HMP, the Master Plan could include specific measures for conservation of high quality, habitat preservation areas noted in Appendix C. This could include reduced informal access in habitat preservation areas and erodible slopes through fencing and signage, native plantings and subsequent plant maintenance, noxious weed maintenance, interpretive signs, and pet rules discouraging in-water play during critical spawning periods. It is expected that future updates to the City's park master plan will require substantial public involvement, in which all aspects of park use, including conservation as well as development of local/regional park amenities, will be discussed and decided upon.

4.2.2 Limiting Dispersed Off-trail Pedestrian Access and Pet Impacts

Due to ease of access via existing trails and relatively level topography, the area northwest of the Sandifur Bridge will receive the greatest recreational use by adjacent populations. This area is also the portion of the habitat study area that is mapped as priority habitat. To minimize habitat impacts within park lands associated with the anticipated increase in recreational users and pet populations, this plan proposes to manage areas within High Bridge Park north of the river to limit dispersed foot traffic and potential pet waste issues.

Impact minimization measures that could be implemented to reduce dispersed travel through the habitat study area includes signage, particularly around known spawning areas, pet waste information kiosks, and dense shrub plantings in areas along the river. Installing dense willows and alders in areas to act as a living fence would limit access to sensitive spawning areas in the river. Signs encouraging the observance of leash laws, providing pet waste bags along trails, and providing receptacles for disposal of pet waste and trash in known recreational use areas would minimize impacts to habitat from increased pet presence. Proposed locations for signage, dense willow and alder plantings, and trash receptacles are shown in Appendix C.

4.2.3 Vegetation Enhancement Plan

Avoidance and minimization measures will help reduce but not completely eliminate habitat impacts associated with increased recreational land use within the habitat study area. Habitat mitigation proposed by this plan is focused on protecting existing high quality vegetation and enhancing strategic areas of degraded vegetation to make local riparian habitats more resilient to increased land use.

Due to its proximity to the urban environment, any new habitat features created for or installed in the habitat study area run the risk of attracting undesirable species such as Norway rat (*Rattus norvegicus*), house mouse (*Mus musculus*) or European starling. In addition, structures containing wood or other combustible material could be utilized by individuals to construct fires. Therefore, habitat structures such as brush shelters or nesting boxes are not emphasized as a way to enhance wildlife habitat in the habitat study area.

Birds and small mammals are the focal species for proposed vegetation enhancements. Enhancements directed at those taxa will also likely improve conditions for other small to medium size wildlife groups. Large mammals may also benefit somewhat from increasing the amount of vegetation available as cover and/or an increase in small mammal prey.

Forest habitat structure and suitability for wildlife can be measured by a wide range of variables, including density and size of trees and shrubs, canopy closure, plant species diversity, herbaceous cover density, and the availability of dead or dying trees (Morrison 2009). On a spatial scale, there is a documented relationship between foliage height diversity and bird species diversity. As foliage layers are added, the number of bird species tends to increase (Willson 1974).

To maximize benefit to the focal wildlife, the vegetation enhancement plan has been developed with consideration for the following points:

- A mosaic of forested and open (herbaceous) communities should be maintained, rather than converting the entire park land to forest. Grassland communities are important foraging grounds for avian species that nest and roost within the riparian forest along the shoreline of the river. Small mammals find cover in dense shrubs and herbaceous vegetation, which in turn can support a population of predators such as raptors or owls.
- There should be an emphasis on selecting native species that will eventually grow to a variety of heights when mature to increase foliage height diversity. Where an area of existing vegetation has limited diversity in foliage height, intersperse new plants that may grow to a different height when mature.
- Gaps within the lower riparian forest area should be filled in to create a continuous band of forest cover for migrating wildlife and microclimate control.
- Some shrubs should be planted in densely clustered thickets to provide additional cover for small mammals, reptiles and invertebrates.
- Some shrubs should be planted which produce berries, to provide an additional food source for wildlife.
- Use of riparian vegetation to limit access to sensitive aquatic habitats (i.e., spawning areas) would also enhance aquatic habitat in general.

Given these points, the following three elements constitute the vegetation enhancement strategy:

- Filling in gaps within the riparian corridor using a variety of plant types to create multi-strata forest cover for wildlife cover, foraging, nesting, and migration.
- Applying herbicide and hydroseeding a recent burn area and a noxious weed fill area with a native grass seed mix to minimize the spread of noxious vegetation associated with increased foot travel through the area along the proposed CT.
- Controlling dense spotted knapweed populations along the existing and proposed CT and informal trails through High Bridge Park north of the Spokane River to minimize further

spread, which is likely with increased use of the park lands as the PUD is built along its upper slopes.

Appendix C contains a map set that identifies proposed preservation and planting areas. Plant species and spacing generally reference the existing high-quality habitat areas observed onsite. Proposed plantings will be installed as follows:

Riparian (Shoreline) Plantings

Shoreline plantings are intended to create a living fence in riparian gaps near the Sandifur Memorial Bridge to minimize access for pets in the river near known spawning areas described in Section 2.3 of this report. In areas noted on Appendix C, Map C-2, shoreline areas will be planted with dense willow cuttings and live stakes. Plants should be installed in staggered rows at four feet on-center spacing per Table 3, below. Live stakes may be pounded in using a wooden mallet to bury a minimum of one third their total lengths. A hand-held power auger may be used to create holes in gravels.

Table 4: Dense Shoreline Plantings

Scientific Name	Common Plant Name	Plant Form	Proportion of Plant Mix	Spacing (ft)
Alnus incana ssp. *tenuifolia*	Thinleaf alder	Tree	10	4
Salix drummondiana	Drummonds willow	Shrub	10	4
Salix exigua	Coyote willow	Shrub	50	4
Salix lasiandra	Pacific willow	Shrub	20	4
Salix prolixa (= *S. rigida* var. *mackenziana*)	Mackenzie's willow	Shrub	10	4

Pine Forest Plantings

The pine forest plant zone is intended to include elements of riparian vegetation, which would be located in the lower portions of the planting areas, and elements of upland forest and shrub communities resembling on-site reference areas. The trees would be installed at a general 16 foot on-center spacing that mimics reference conditions within the preservation areas. Shrubs would be installed at a general spacing of 10 feet on-center but would be installed in clumps to mimic existing conditions in the existing shrub habitats and provide enhanced wildlife habitat for small mammals and birds. The species listed in Table 4 below would create a diversity of plant heights and would include berry-producing vegetation to benefit wildlife. All plants should be installed with protective planting tubes (e.g., Vexar) to prevent herbivory.

Table 5: Pine Forest Plantings

Scientific Name	Common Plant Name	Plant Form	Proportion of Plant Mix by Plant Form	Spacing (ft)
Pinus ponderosa	Ponderosa pine	**Tree**	70	16
Populus balsamifera ssp. *trichocarpa*	Black cottonwood	**Tree**	10	16
Populus tremuloides	Quaking aspen	**Tree**	5	16
Prunus virginiana	Common chokecherry	**Tree**	10	16
Salix scouleriana	Scouler's willow	**Tree**	5	16
Acer glabrum	Rocky Mountain maple	Shrub	5	10
Amelanchier alnifolia	Serviceberry	Shrub	20	10
Berberis aquifolium	Tall Oregon Grape	Shrub	10	10
Berberis repens	Creeping Oregon Grape	Shrub	10	10
Crataegus douglasii	Douglas hawthorn	Shrub	15	10
Physocarpus malvaceus	Mallow ninebark	Shrub	15	10
Ribes aureum	Golden currant	Shrub	5	10
Rosa woodsii	Woods rose	Shrub	5	10
Sambucus cerulea	Blue elderberry	Shrub	5	10
Symphoricarpos albus	Common snowberry	Shrub	10	10

Grassland Prairie Seeding

Grassland prairie enhancement is proposed at two slope areas within the habitat study area that are densely populated with noxious weeds. This enhancement would minimize the spread of noxious weeds associated with increase through traffic along the proposed CT by minimizing a major source of weed seed along the trail. One area noted on Figure C-3 in Appendix C, was recently burned. Invasive vegetation, particularly cheatgrass and spotted knapweed, thrives in burn areas. To prevent an infestation that could be spread by the increased foot traffic in the area, noxious weeds in this area should be treated with herbicide and then hydroseeded with the native grassland prairie seed mix provided in Table 6. Hydroseeding is appropriate for steep slope areas. The hydroseed slurry should contain tackifier and cellulose hydromulch. This also applies to a noted knapweed infestation area observed on a fill slope that is called out on Figure C-4.

Table 6: Grassland Prairie Seed Mix

Scientific Name	Common Plant Name	Seeding Rate (Lbs PLS*/acre)
Achillea millefolium	Yarrow	1.2
Balsamorhiza sagittata	Arrow-leaf balsamroot	2.2
Bromus carinatus	Mountain brome	1.4
Elymus elymoides	Bottlebrush squirreltail	1.4
Eriogonum heracleoides	Wyeth buckwheat	0.5
Festuca idahoensis	Idaho fescue	1.4
Koeleria macrantha	Prairie junegrass	0.1
Lupinus sericeus	Silky lupine	2
Poa secunda	Sandberg bluegrass	1.4
Pseudoroegneria spicata	Bluebunch wheatgrass	4
	TOTAL Lbs/Acre	**13.4**

*PLS= Pure Live Seed.

Vegetation enhancements and associated performance measures and funding options must be coordinated with the City of Spokane Urban Forestry Program.

4.2.4 Noxious Weed Control

Noxious weed control is an important element of this HMP, as increased foot traffic will provide a vector for noxious weeds, which are common along the existing CT upriver from the Project. Noxious weed control will include herbicide applications, where permitted, and potential volunteer weed removing groups, as available. Herbicide application will primarily target knapweed-dominated areas noted in Section 4.2.3, including the existing CT through High Bridge Park. Scattered patches were also noted northwest of the Sandifur Memorial Bridge in proposed riparian enhancement planting areas noted on Map C-2 in Appendix C. Noxious weed control is described in Section 5.3. Additional information is provided in Appendix A of the City of Spokane Shoreline Restoration Plan (URS 2008b).

To mitigate potential adverse impacts to migratory birds, noxious weed treatment will occur in September and vegetation planting will occur in late fall, outside of the typical migratory bird-nesting season, which ranges from March through August.

4.3 SCHEDULE FOR MITIGATION MEASURES

Mitigation for direct and indirect habitat impacts will be implemented concurrent with construction of the Kendall Yards Project, which is currently underway and estimated to continue for a period of ten years from present. Enhancements proposed along the future CT

alignment (fencing, signage, shrub plantings) will be installed concurrent with trail construction. Open space land conveyance will occur prior to 2017. Noxious weed control will occur along completed trail sections immediately following completion of the various construction phases.

For mitigation measures implemented by the Parks Department, park management reclassification, formal trail construction, sensitive area/pet waste signage, and fencing associated with managed trail access will occur first. Proposed vegetation enhancements depicted in Appendix C would be implemented as soon as possible but will likely occur throughout the next ten years as habitat enhancement/restoration grants and public volunteer support are developed. Plants should be installed during the late fall/early winter.

This section provides performance standards that will be used to evaluate the success of preservation and restoration activities. It provides a monitoring plan that describes how the performance of the HMP mitigation measures will be measured relative to the performance standards. It describes a maintenance plan that will be required to ensure successful restoration. This section also includes contingency measures to be adopted in the event that mitigation measures are not performing as intended.

5.1 PERFORMANCE STANDARDS

Goal 1: Preserve existing high quality habitat through impact avoidance and minimization measures.

Performance Standard 1.1: By 2017 the Parks Department will manage the High Bridge Park area north of the river as a "conservation" area and will restrict development in noted habitat preservation areas depicted in Appendix C of this plan.

Performance Standard 1.2: By 2022 the City will install signage in visible locations along the CT to identify "Sensitive Areas" and discourage river access by pedestrians and dogs during spawning periods. Signage will also be posted encouraging the collection and disposal of pet wastes. Pet waste bags and disposal receptacles will be provided at several locations along the trail. Locations of signs, waste bag stations, and trash receptacles are shown in Appendix C.

Goal 2: Mitigate for anticipated habitat impacts by enhancing riparian vegetation in sensitive habitat areas expected to be affected by increased recreational uses

Performance Standard 2.1: Density of native woody vegetation (planted and/or volunteer) will meet or exceed 300 native shrubs and/or trees per acre in the Pine Forest planting zones mapped in Appendix C for a period of two years after the date of initial planting.

Performance Standard 2.2: Planting zones will contain at least five different surviving native woody species by the 2nd year of monitoring. Each of the five different species must account for at least 5% of the total number of living plants within the planted areas.

Performance Standard 2.3: Areal cover by noxious weeds listed on the Washington State noxious weed list (WSNWCB 2009) will together account for no more than 15% of the total areal cover along the CT clear zone (adjacent, parallel 3-foot grass strip) or the grassland prairie seeding areas by 2022.

5.2 MONITORING PLAN

Monitoring will be conducted for two years after each initial planting by City staff or a designated contractor. Funding for monitoring should be included in any grant application or funding proposal. Responsibility for monitoring may be assigned to City staff, restoration project volunteers, or contracted to consulting ecologists, foresters, or botanists that are familiar with vegetation monitoring practices. Monitoring methods will be driven by the performance standards outlined in Section 5.1 above. Data will be collected to assess stem density, species diversity, and noxious weed presence. When data analysis is complete, information on site performance will be summarized relative to performance standards and communicated to the City's Planning Department to document site progress. The data will also be used by the Parks

Planning Department to adapt their management activities, where necessary, based on the monitoring results.

Monitoring methods are tied to the performance standards outlined in Section 5.1 above. Stem density will be measured using randomly selected 30 square meter polygons representing at least 5% of the total planting area. The polygon locations will be randomly selected prior to visiting the field to avoid bias in sampling that could influence results. All stems will be counted within each sample polygon. For each stem, the species and mortality status will be recorded.

The proposed sample design for areal cover estimates will use the line intercept approach. This will be carried out as follows: In the grassland seeding areas, a baseline will be established along one side of a 30 square-meter vegetation monitoring area. From a random starting point within the first 5 meters along the baseline, a series of sample transects will be established at 5–meter intervals. These transects will be aligned perpendicular to the baseline and will extend across the entire 30 square-meter sample area. At two randomly selected locations along each transect a 1-meter square sampling quadrat will be dropped over the existing vegetation and all species within the plot will be recorded along with their representative cover within the quadrat and their native or non-native status. All vascular plant species will be documented by scientific name as described in Hitchcock and Cronquist, *Flora of the Pacific Northwest* (1974), unless updated nomenclature is widely recognized.

Photo-monitoring will also be conducted to capture the annual progress of restoration activities. During the first year of data collection, permanent photo-monitoring stations will be established at representative locations. Monitoring points will be staked using a semi-permanent marker and flagging. Stakes should be tall and conspicuous enough to relocate once vegetation is tall. The photo-monitoring points should also be surveyed by GPS as a backup and for the purpose of tying photographs to a plan view of the site. During each monitoring visit, photos will be taken from each permanent photo-monitoring station to monitor growth and site development.

A monitoring report will be submitted to the City of Spokane Parks and Recreation Planning staff each year that monitoring is required. The report will include information on estimated plant cover based on monitoring data. It will also include general notes on plant condition, survival, and vigor. The report will detail maintenance and relevant plant replacements conducted since the last monitoring report. If the site does not meet performance standards after five years, the City will discuss the issue with WDFW and determine if additional site monitoring is necessary.

5.3 MAINTENANCE PLAN

Following plant installation, planting areas will be maintained for a period of two years. Annual maintenance will include invasive weed control, replanting and/or reseeding areas with heavy plant mortality, mowing around shrubs along the CT to reduce competition for water and nutrients, and removal of browse protection where it is hindering plant growth in later years. Maintenance needs will be documented in the annual performance monitoring reports. The City will review these reports and pass relevant maintenance needs on to maintenance personnel who will visit the sites each summer and winter to carry out the prescribed maintenance activities. Wintertime maintenance will focus on replanting or reseeding areas of bare soil. Summertime

maintenance will focus on non-native vegetation removal and other maintenance activities recommended based on the annual monitoring reports.

Weed control during the monitoring period will mainly consist of limiting the spread of spotted knapweed. Patches of knapweed should be sprayed using herbicide on non-windy days when the herbicide is not subject to wind drift that could harm nearby native vegetation. Herbicides that have proven effective for spotted knapweed control include picloram, clopyralid, clopyralid + 2,4-D, or dicamba. In areas with diffuse, individual knapweed plants, herbicide should be applied using a wicker rather than a sprayer, or plants should be hand pulled to remove roots. Mowing is not a recommended control option for this species as the basal rosette tends to survive and mowing has the potential to spread the seed. Additional options for the control of noxious weeds are provided on the Spokane County Noxious Weed Control Board's website[2]

Unless they pose a safety concern, as determined by the City of Spokane Urban Forestry Program, the park should restrict the removal of "danger trees". Although dead or dying, they provide valuable habitat for birds and bats. If danger trees need to be removed, consider topping them and letting a shorter portion remain in place to develop as a snag.

5.4 CONTINGENCIES

If monitoring results demonstrate that site conditions fail to meet performance standards, contingencies will be implemented. An ecologist familiar with the site and this plan will analyze the causes of poor performance, propose corrective actions, and present a time frame for implementing contingency measures within the text of the monitoring reports. Even if all performance standards are met, corrective actions may still need to be implemented if monitoring reveals problems that could lead to poor performance in future years.

Problems that may occur during the monitoring period and the corrective actions that will likely be taken to solve those problems are described below.

1) **Low plant survival.** If vegetation cover does not meet performance standards in any year of site monitoring, factors limiting plant establishment will be assessed and management actions will be recommended based on this assessment. Contingencies may include plant species substitutions, selection of a different material provider, or transplant of unsuccessful species into more appropriate locations.

2) **Invasion by non-native invasive species.** The emergence of invasive plant species will be treated by aggressive weed control activities before cover by such species approach levels detrimental to the installed vegetation. Control activities include hand-pulling, digging, and/or mowing. If invasive vegetation persistently re-invades any portion of the site during the monitoring period, the cause of re-invasion will be determined and the consulting botanist will recommend management actions.

[2] http://www.spokanecounty.org/WeedBoard/content.aspx?c=1446

The best method for managing invasive species is manual removal of the entire plant, including the root mass. Removal should occur as soon as possible, before the invasive species develops a substantial root mass, which could increase the effort necessary to eradicate the plants. Invasive vegetation that is removed will be bagged in plastic and disposed of at a permitted landfill.

3) **Trampling.** If planted areas are damaged by excessive pedestrian foot traffic, temporary fencing may be installed to discourage off-trail use until plants become established.

4) **Herbivory.** If predation on installed plants by wildlife becomes a substantial source of plant mortality, then it may be necessary to fence off woody plants with a non-galvanized caging material.

5) **Lack of sufficient water.** If failure of installed plantings is due to lack of sufficient water, irrigation may be provided to support young growth until roots develop enough to support water uptake.

6.0 SUMMARY AND CONCLUSIONS

The proposed action will involve minor short-term, direct impacts to habitats within the Riparian Habitat, Shoreline, and Priority Habitat planning zones. To mitigate these impacts, the developer will implement construction and design measures to minimize impacts. Proposed minimization measures associated with lighting restrictions are expected to be implemented as CC&Rs. Recommended construction BMPs should significantly reduce the magnitude and frequency of identified direct impacts, if implemented and maintained correctly. Mitigation for direct impacts to vegetation associated with construction of the CT will be provided by installing fencing and shrubs at strategic locations along the proposed CT to minimize traffic on existing informal trails and provide a buffer between recreational uses along the trail and the conservation areas downslope.

Indirect impacts to species and habitats have the potential to be more significant than the direct impacts. Indirect impacts are primarily associated with the potential to exacerbate habitat impact issues known to already exist, especially habitat degradation associated with dispersed foot traffic through park lands. To mitigate indirect impacts, the Parks Department, with support from the developer, will install strategic fencing, plantings, trash receptacles, sensitive area signage, and pet waste kiosks. The Parks Department will also control noxious weeds along the existing CT and Ohio Street ROW to reduce the potential for noxious weeds to spread into the conservation lands as the area experiences additional recreational use. To make the existing riparian habitat more resilient to increased recreational use, the Parks Department will also install native riparian vegetation in strategic locations. These plantings are intended to offset the impact of increased land use intensity by providing additional cover, food sources, nesting habitat, and enhanced migratory corridor conditions. The proposed vegetation enhancements are expected to provide a direct benefit to several native bird and small mammal species. They are also expected to provide minor support for migrating large mammals near the confluence of the Spokane River with Latah Creek. Vegetation enhancements are also expected to minimize further habitat degradation by creating a living fence in areas where off-trail foot traffic would disturb sensitive trout spawning habitat.

The emphasis for riparian habitat enhancements will be on areas around the north side of the Sandifur Memorial Bridge, which is mapped “Priority Habitat” yet also has the highest existing and anticipated recreational use. These areas should be the first to receive vegetation enhancements, as mapped in Appendix C, Figure C-2. Assuming proper implementation of the proposed impact minimization and mitigation measures along a timeline that is concurrent with the phased development schedule, the indirect impacts associated with Kendall Yards should be minimized.

Funding the plant installation, signage, fencing, weed control, maintenance activities, and monitoring efforts may be supplemented through grants. A list of available grants and potential restoration partners is available in the City’s Shoreline Restoration Plan, available online.[3] The amount of financial support provided by the developer for indirect impact mitigation will be determined by a memorandum of agreement to be developed between the City and the developer

[3] http://www.spokaneplanning.org/SMP.html

prior to 2013. Project actions to be performed by the City may be dependent on grants. As such, mitigation items that are the City's responsibility, if not implemented, will not deter project development so long as the developer has performed their mitigation responsibilities, per Section 4.1 of this plan.

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APPENDIX B

Site Photographs

Photo 1: Redband trout spawning area 73.74R just upstream of Sandifur Memorial Bridge.

Photo 2: Redband trout spawning area 72.42R, just downstream of Sandifur Memorial Bridge.

Photo 3: Initial residential development near Falls and Ohio Streets.

Photo 4: Eroding slope at west end of project area where proposed slope break planting structures are proposed.

Photo 5: Recently burned slope area west of Herbert M. Hamblen Conservation Area overlook.

Photo 6: Fire pit near the bank of Spokane River showing existing land use. Human waste observed nearby.

Photo 7: Kendall Yards residences near location of future Centennial Trail along top of river banks north of Monroe Street.

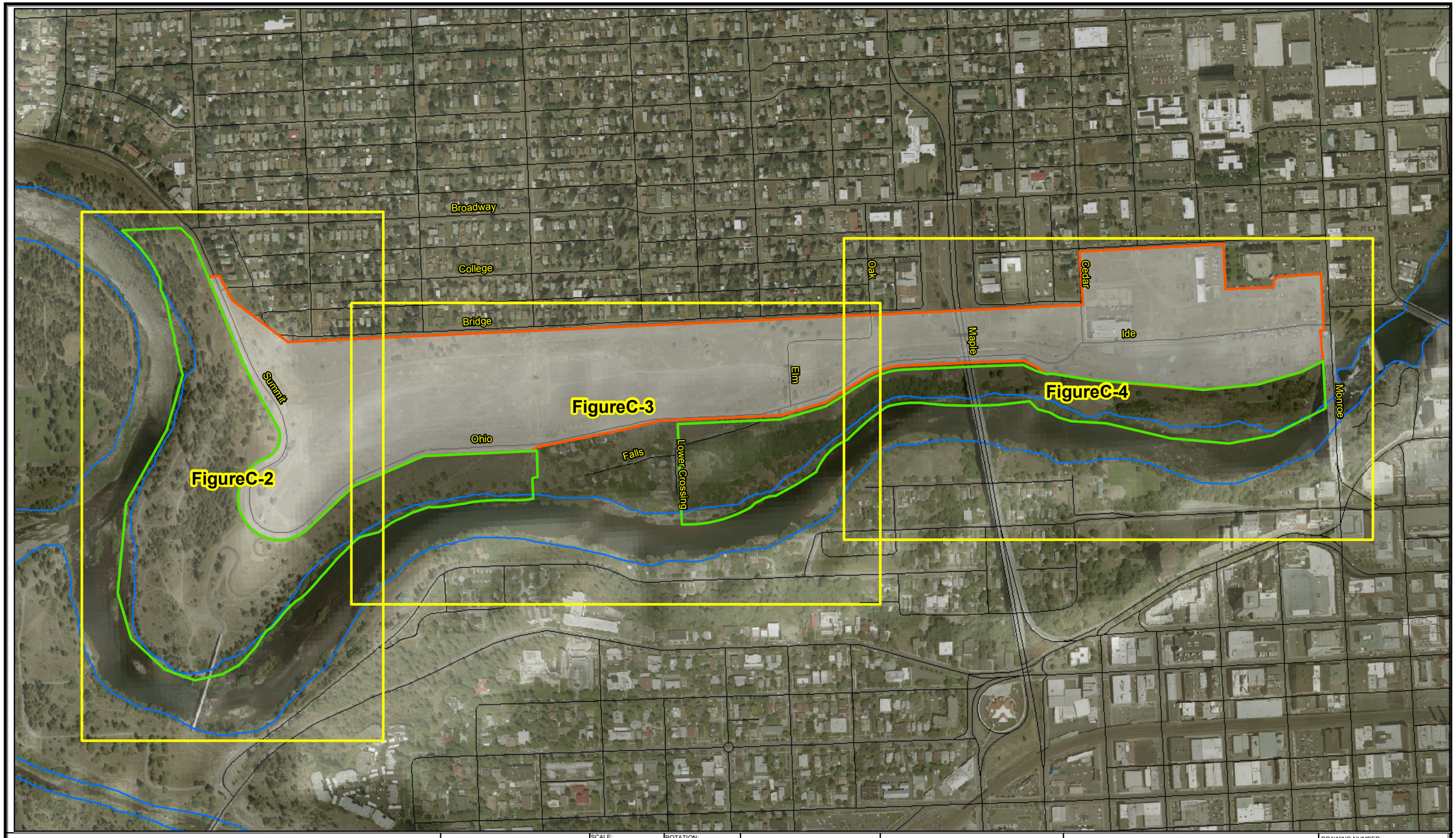
Photo 8: Man-made structure in project area between Maple Street Bridge and Lower Crossings neighborhood.

Photo 9: Informal trail with dog walker west of Summit and Broadway. This trail is used as a loop trail through the lower floodplain area. The HMP recommends making this trail a formal, maintained trail.

Photo 10: Same trail, looking upgradient.

Photo 11: Steep slope with dense knapweed (invasive species) infestation. This area is proposed as a noxious weed treatment and grassland seeding area.

Photo 12: Narrow band of native riparian vegetation along the river bank.



Legend

- DEVELOPMENT FOOTPRINT
- HABITAT STUDY AREA
- SPOKANE RIVER BOUNDARY (OHWL)
- FIGURE INDEX
- STREETS

0 610
Feet

SCALE: 1:6500	ROTATION: 0°
DRAWN BY: NBH	APPROVED BY:
CHECKED BY:	DATE: 1/18/2012

URS
111 S.W. Columbia, Suite 1500
Portland, Oregon 97201
(tel) 503-222-7200
(fax) 503-222-4292

HABITAT MANAGEMENT PLAN

KENDALL YARDS/GREAT SPOKANE RIVER GORGE

APPENDIX C
HABITAT PRESERVATION AND ENHANCEMENT PLAN
(PROJECT OVERVIEW)

DRAWING NUMBER: C-1
GIS FILE NUMBER: 25697556.00001
SHEET:
REVISION:

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HABITAT ENHANCEMENT PLAN

- RESTORE GRASSLAND
- PLANT SHRUBS*
- PLANT WILLOWS
- PLANT PINE FOREST
- HABITAT PRESERVATION

*NOTE: Shurb planting areas with magenta outlines are associated with the developer's mitigation for trail construction. All other areas are associated with the Parks Department's long-range, 10-year plan.

Plant native shrubs along trail to create living fence that provides habitat and discourages foot traffic through erodible slopes

Design future trail drainage away from erosional gully

Plant native trees and shrubs to improve riparian corridor condition

Build fence along trail with "Sensitive Area" signs to reduce foot traffic on erodible slopes and protect shrub plantings (developer's responsibility)

Install and maintain trash can

Install sign notifying dog walkers of in-water restrictions during critical spawning periods and provide pet waste bags

Plant native shrubs to reduce erosive foot traffic and enhance habitat conditions.

Install sign notifying dog walkers of in-water restrictions during critical spawning periods

Install fencing and "Sensitive Area" signage around forest regeneration areas

Install and maintain trash can

Plant dense willows to create a living fence that reduces disturbance in productive redband trout spawning areas.

Ohio

Ohio

Bridge

Broadway

Summit

1860

1850

1800

1760

1730

1720

1710

Legend

- DEVELOPMENT FOOTPRINT
- HABITAT STUDY AREA
- SPOKANE RIVER BOUNDARY (OHWL)
- TAX PARCELS
- 10-FOOT CONTOURS
- PROPOSED TRAIL FENCE
- PROPOSED SIGN
- PROPOSED GARBAGE CAN

0 200 Feet

K:\kendall Yards\HMP.mxd

SCALE: 1:2400	ROTATION: 90°
DRAWN BY: NBH	APPROVED BY:
CHECKED BY:	DATE: 3/31/2012

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HABITAT MANAGEMENT PLAN

KENDALL YARDS/GREAT SPOKANE RIVER GORGE

APPENDIX C
HABITAT PRESERVATION AND ENHANCEMENT PLAN

DRAWING NUMBER: C-2

GIS FILE NUMBER: 25697556.00001

SHEET:

REVISION:

HABITAT ENHANCEMENT PLAN

- RESTORE GRASSLAND
- PLANT SHRUBS*
- PLANT WILLOWS
- PLANT PINE FOREST
- HABITAT PRESERVATION

*NOTE: Shurb planting areas with magenta outlines are associated with the developer's mitigation for trail construction. All other areas are associated with the Parks Department's long-range, 10-year plan.

Spray noxious weeds and hydroseed with native grass mix in recent burn area

Install small fence with gate and "Sensitive Area" sign to allow access to USGS stream gage but limit use of informatl trail through grassland restoration zone

Install small fence and shrubs to discourge use of informal trail (developer's responsibility)

Plant native shrubs along trail in strategic locations to create living fence that provides habitat and discourages foot traffic through erodible slope areas (developer's responsibility)

Install native trees and shrubs to widen riparian corridor

Install native trees and shrubs to enhance edge of conservation area at interface with residential area

Bridge
Ohio
Falls
Lower Crossing
1860
1850
1800
1750
1720

Legend

- DEVELOPMENT FOOTPRINT
- HABITAT STUDY AREA
- SPOKANE RIVER (OHWL)
- TAX PARCELS
- 10-FOOT CONTOURS
- PROPOSED TRAIL FENCE
- PROPOSED SIGN
- PROPOSED GARBAGE CAN

0 200 Feet

SCALE: 1:2400	ROTATION: 0°
DRAWN BY: NBH	APPROVED BY:
CHECKED BY:	DATE: 3/30/2012

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HABITAT MANAGEMENT PLAN

KENDALL YARDS/GREAT SPOKANE RIVER GORGE

APPENDIX C
HABITAT PRESERVATION AND ENHANCEMENT PLAN

DRAWING NUMBER: C-3
GIS FILE NUMBER: 25697556.00001
SHEET:
REVISION:

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HABITAT ENHANCEMENT PLAN

- RESTORE GRASSLAND
- PLANT SHRUBS*
- PLANT WILLOWS
- PLANT PINE FOREST
- HABITAT PRESERVATION

*NOTE: Shurb planting areas with magenta outlines are associated with the developer's mitigation for trail construction. All other areas are associated with the Parks Department's long-range, 10-year plan.

Maple

Cedar

Ide

Monroe

1850

1800

1750

1730

Treat large infestation of spotted knapweed on fill slope and hydroseed with native seed mix

Plant native shrubs along trail and install fence with "Sensitive Area" signs beyond mowed clear zone to limit foot traffic and buffer slope habitat from CT traffic (developer's responsibility)

Plant native shrubs along trail and install fence with "Sensitive Area" signs beyond mowed clear zone to limit foot traffic and buffer slope habitat from CT traffic (developer's responsibility)

Plant native trees and shrubs in riparian corridor gaps

Legend

- DEVELOPMENT FOOTPRINT
- HABITAT STUDY AREA
- SPOKANE RIVER (OHWL)
- TAX PARCELS
- 10-FOOT CONTOURS
- PROPOSED TRAIL FENCE
- PROPOSED SIGN
- PROPOSED GARBAGE CAN

N

0 200

Feet

K:\kendall Yards\HMP.mxd

SCALE: 1:2400	ROTATION: 0°
DRAWN BY: NBH	APPROVED BY:
CHECKED BY:	DATE: 1/19/2012

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HABITAT MANAGEMENT PLAN

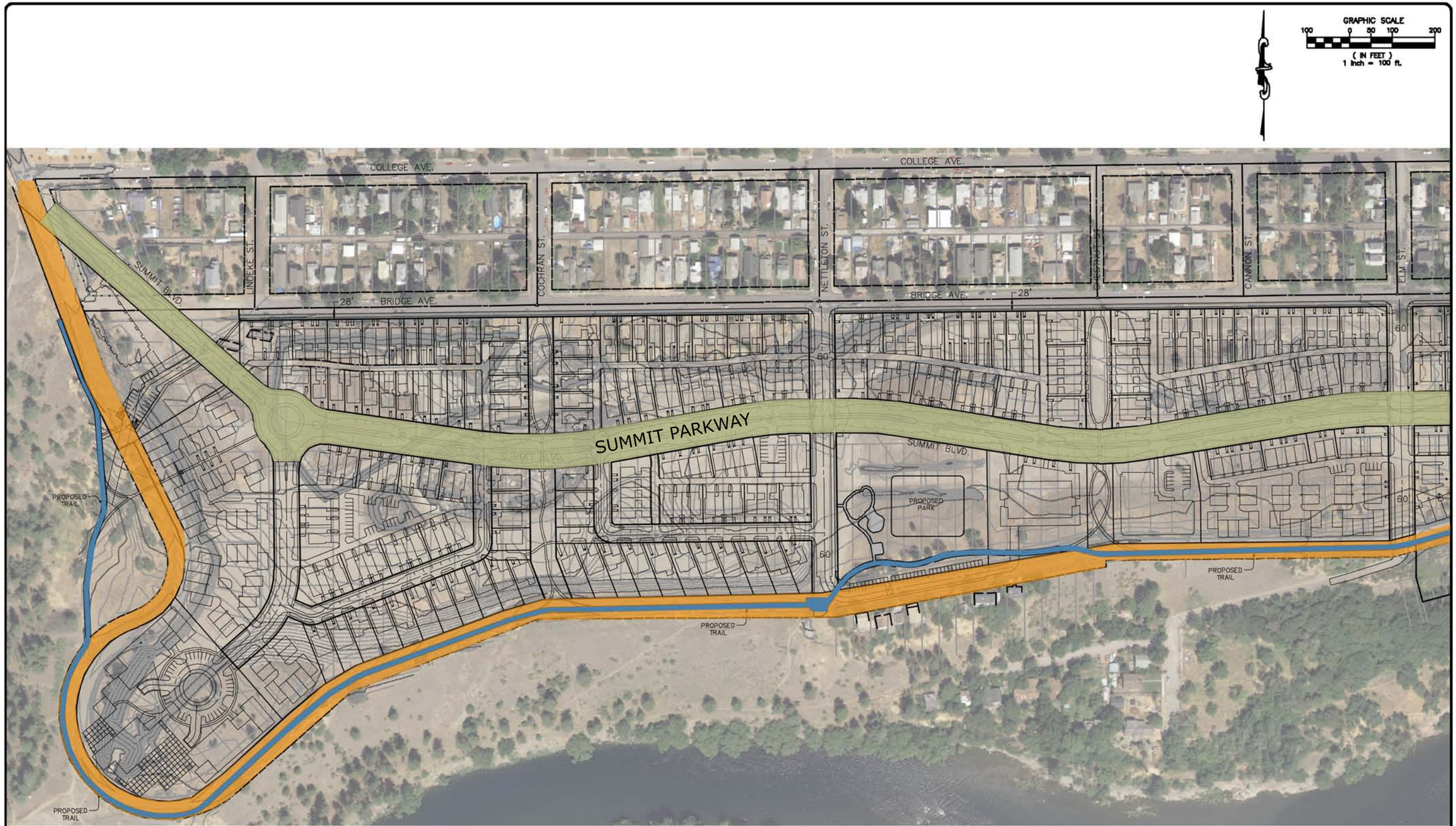
KENDALL YARDS/GREAT SPOKANE RIVER GORGE

APPENDIX C
HABITAT PRESERVATION AND ENHANCEMENT PLAN

DRAWING NUMBER: C-4

GIS FILE NUMBER: 25697556.00001

SHEET: | REVISION:



Centennial Trail
Original Ohio Street ROW
Summit Parkway ROW

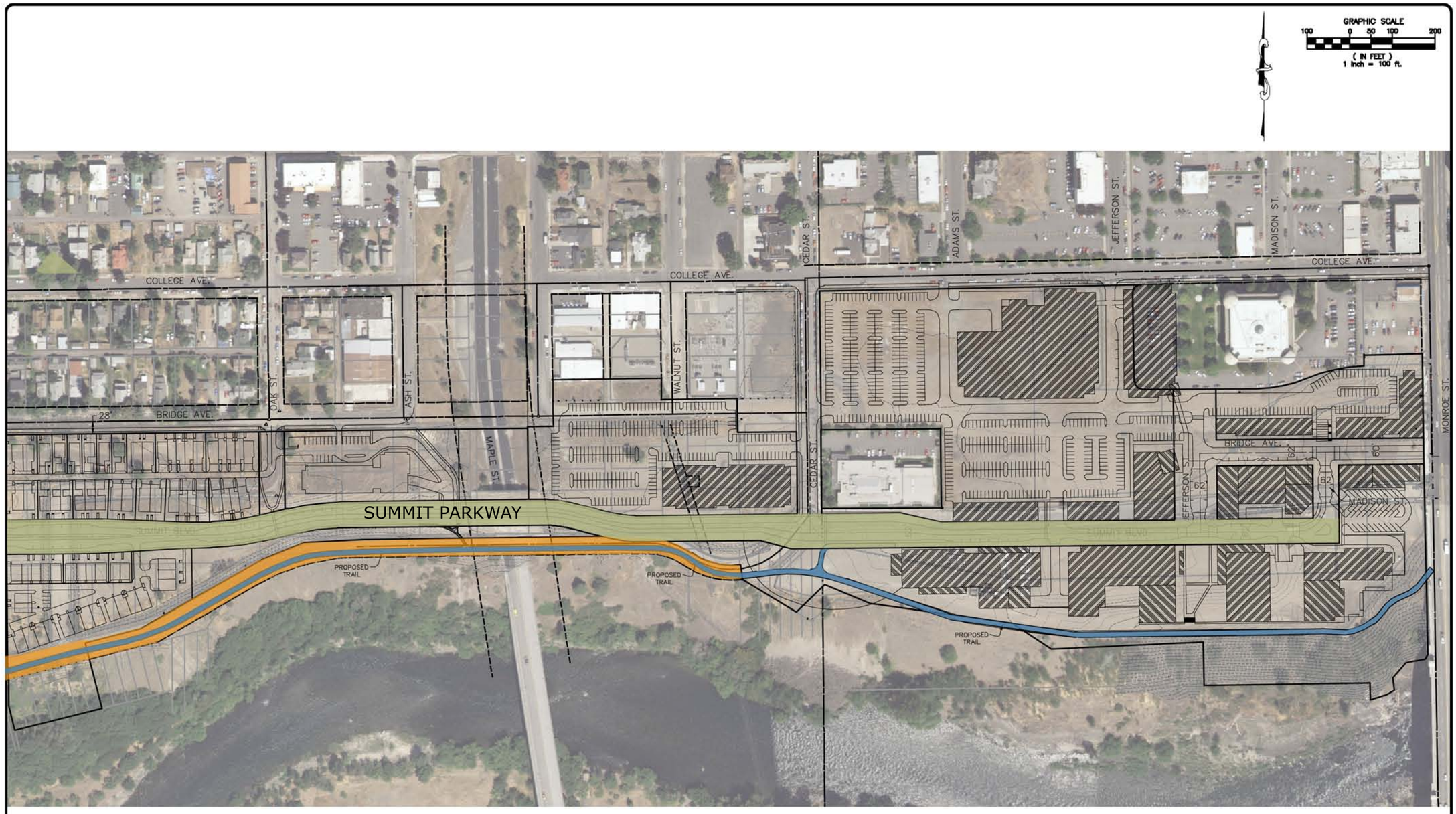
AMENDED PRELIMINARY PUD
FOR
KENDALL YARDS
(A PLANNED UNIT DEVELOPMENT)
CITY OF SPOKANE
SPOKANE COUNTY, WASHINGTON
SHEET 1 OF 2

February 23, 2011

URBAN BY NATURE
KENDALL YARDS

Michael Terrell ■ Landscape Architect
1421 N. Meadowwood Lane, Suite 150
Liberty Lake, WA 99019 - (509) 922-7449

Greenstone



AMENDED PRELIMINARY PUD
FOR
KENDALL YARDS
(A PLANNED UNIT DEVELOPMENT)
CITY OF SPOKANE
SPOKANE COUNTY, WASHINGTON
SHEET 2 OF 2

February 23, 2012

Michael Terrell ■ Landscape Architect
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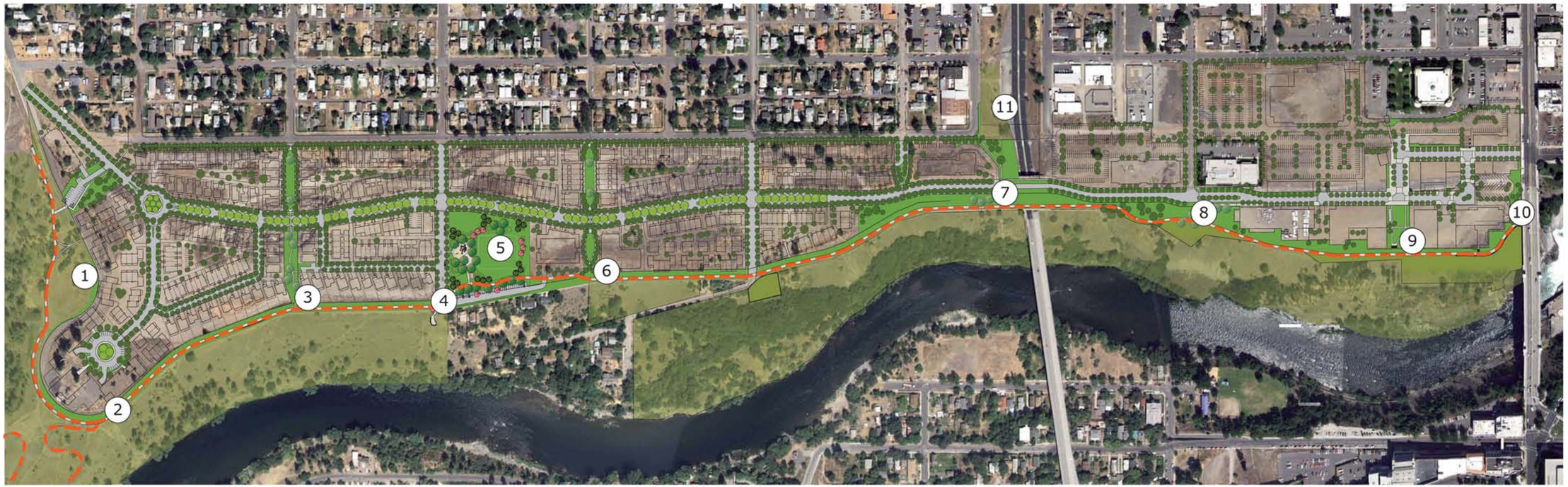
Greenstone



A PARKS & OPEN SPACE PLAN

- PARKING
- INTERPRETIVE ELEMENTS
- WAYFINDING

B SUNSET PARK & TRAILHEAD AT GORGE PARK

- PLAYGROUND
- RESTROOM
- MULTI-USE FIELD

C OLMSTED BROTHERS GREEN AT GORGE PARK

- INTERPRETIVE SIGNAGE
- BENCHES
- ART

D CEDAR GREEN AT GORGE PARK

Kendall YARDS SPOKANE
A Greenstone COMMUNITY

CENTENNIAL TRAIL, PARKS & OPEN SPACE

1. SUNSET PARK & TRAILHEAD AT GORGE PARK
2. HIGH POINT
3. COCHRAN CENTENNIAL TRAIL CONNECTION
4. NETTLETON CORNER & EXISTING HAMBLEN OVERLOOK
5. OLMSTED BROTHERS GREEN AT GORGE PARK
6. CHESTNUT/CENTENNIAL TRAIL CONNECTION
7. NORTH RIM PROMENADE AT GORGE PARK
8. CEDAR GREEN AT GORGE PARK
9. COURTHOUSE MALL VIEW CORRIDOR
10. CENTENNIAL TRAIL CONNECTION
11. WEST CENTRAL ASH STREET IMPROVEMENT

CENTENNIAL TRAIL
PARKS & OPEN SPACE
OPEN SPACE - CITY OF SPOKANE

0 100 200 400

DECEMBER 29, 2009

URBAN BY NATURE
KENDALL YARDS

February 23, 2012

Michael Terrell ■ Landscape Architect
1421 N. Meadowwood Lane, Suite 150
Liberty Lake, WA 99019 - (509) 922-7449

Greenstone

1 Dedicated Parks and Open Space Area 1 = Approximately 24,600 sq. ft.

2 Dedicated Parks and Open Space Area 2 = Approximately 14,800 sq. ft.

3 Dedicated Parks and Open Space Area 3 = Approximately 82,300 sq. ft.

LEGEND

- single-family
- townhouse
- mid-rise
- high-rise
- retail + office
- office + retail
- retail + residential
- hotel + restaurant
- parking garage

0 500'

URBAN BY NATURE

KENDALL YARDS

February 23, 2012

Michael Terrell ■ Landscape Architect
1421 N. Meadowwood Lane, Suite 150
Liberty Lake, WA 99019 - (509) 922-7449

Greenstone

APPENDIX E

Example Signage

Photo 1: Marymoor Park (King County Parks and Recreation) in Redmond, WA signage to protect salmon habitat in the Sammamish River

Photo 2: Example of signage used to protect native plant restoration area, Marymoor Park, Redmond, WA

Photo 3: Example of dog waste bag station and list of dog park rules, Marymoor Park, Redmond, WA. This type of station could be combined with trash can and information on in-water dog restrictions during critical spawning times.

Photo 4: Example of riparian exclusion fencing and signage, Marymoor Park, Redmond, WA