SITE CONSERVATION PLAN

Willamette Narrows Natural Area



Camas Cliffs Natural Area | Dec. 2013
Peach Cove Natural Area | May 2014
Rock Island Complex Natural Area | Jan. 2017
Willamette Narrows Forest Natural Area | April 2019
Weber Farm Natural Area | Oct. 2021

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Maps

NOTE: This is a partial document including just Weber Farm Natural Area.

Approvals for Site Conservation Plan

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CHAPTER 5 | WEBER FARM NATURAL AREA

INTRODUCTION

Weber Farm Natural Area is located within the Greater Willamette Narrows naturehood. Perched above the Canby Ferry's landing on the north side of the Willamette River, Weber Farm Natural Area has more than 3,000 feet of river frontage. The site is approximately 213 acres.

PLANNING AREA

Weber Farm Natural Area is 4.5 miles east of Graham Oaks Nature Park, across the river and less than 0.5 miles north of Molalla River State Park and about 1 mile west of Peach Cove Fen and Camas Cliffs. This landscape setting is helpful to understand the value of Weber Farm Natural Area as a stepping stone that links important habitat areas across the southern Metro region.

Table 1 lists Metro acquisitions and State of Oregon lands included in Weber Farm Natural Area.

Table 1: Metro natural area bond purchased land

PROPERTY NAME (PREVIOUS OWNER)	ACRES	BOND YEAR	DATE ACQUIRED	MANAGEMENT
Weber	194	1996	6/5/2000	Metro
State of Oregon (owner)	19	N/A	N/A	Metro (IGA #932556)

Key staff

Elaine Stewart, scientist
Chris Hagel and Adam Stellmacher, lead natural resource specialists
Kristina Prosser and Ryan Jones, natural resource specialists
John Catena and Nathaniel Marquiss, natural resource technicians
Olena Turula, parks and natural areas planner
Ryan Ruggiero, real estate specialist

Key private landowners

Sandelie Golf Club
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West Linn, Oregon 97068
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EXISTING PLANNING DOCUMENTS

A target area assessment for the Willamette Narrows can be found here: M:\PN\Regional Properties\Willamette Narrows TA\Planning.

The target area assessment, completed in mid-2013, identified the following potential conflicts, opportunities and/or concerns for the site:

"Access at Weber Farm Natural Area: Located above the Canby Ferry, this site is under an agriculture lease that automatically renews for a year at a time."

The target area assessment refers to public access; however, no formal access opportunities exist at present. When Metro is ready, at the discretion of Metro leadership, a master planning process can

explore the potential for future public access, which could include pairing habitat establishment/ restoration with public access to one of the state's last ferries and/or the natural features of the site.

SITE DESCRIPTION

The indigenous people of this region lived here for millennia before colonization, actively managing the landscape to support their lifeways. Indigenous people lived, traveled and traded in this area and eventually suffered horrific losses from smallpox and violence brought by colonizers. The working, unofficial name, Weber Farm, comes from the former owners of the dairy farm who sold the site to Metro. About 100 acres are currently leased for crop farming. The fields are about 75 acres at 200 feet elevation and about 30 acres at 80-100 feet elevation. An unnamed stream ("Nan's Creek", informal name after Nan Weber) travels south from beyond Metro ownership to its confluence with the Willamette River. Additional tributaries extend east and west of the creek on Metro property.

The site elevation ranges from river's edge at approximately 60 feet to more than 200 feet. About 50 acres is steep terrain with mixed deciduous-coniferous forest across "Nan's Canyon" and connecting the high bench with the river and ferry landing below. The remaining 160+ acres are more gentle terrain.

Access to Weber Farm Natural Area is by Mountain Road, south of Hoffman Road. A gravel road provides access into the site and to the agriculture fields. The road's condition is reasonably good near Mountain Road (the entry point) but becomes progressively worse going westward and is barely passable down to the lower field in the wet season. A spur road once connected the northwest part of the site, but a severe rain event caused a culvert failure that took out the crossing and parts of the road on each side of Nan's Creek.

Table 2: Soils present at Weber Farm Natural Area

MAP SOIL SYMBOL	MAP UNIT NAME	DESCRIPTION
86A	Willamette silt loam, 0-3 percent slopes	Nearly a third of the site, these deep, well drained soils originated with glacial lakes. Moderate slow permeability with slow to rapid runoff. Droughty in summer. Dominates the upper agriculture lease field. Prime farmland.
92F	Xerochrepts and Haploxerolls, steep	About 20 percent of Weber Farm Natural Area, these very steep soils are of volcanic origin and well drained. Oak-madrone and mixed deciduous-coniferous forests occur on these soils.
19	Cloquato silt loam	Floodplain soil, well drained and deep. Cottonwood, ash, willow are typical on this soil. Dominates the lower agriculture lease field, about 15 percent of site overall. Prime farmland.
91B	Woodburn silt loam, 3 to 8 percent slopes	Glacial lake soils, deep, well to somewhat poorly drained. Also a component of the upper agriculture field. Prime farmland.
86B	Willamette silt loam, 3 to 8 percent slopes	This soil is on the sloping western side of the upper agriculture field. Prime farmland.
25	Cove silty clay loam	A small percentage overall, this wet soil surrounds the creek and tributaries near the river.
91C	Woodburn silt loam, 8 to 15 percent slopes	This and the next soil series (below) dominate the flatter parts on the northwest part of Weber Farm Natural Area above the canyon.
86C	Willamette silt loam, 8 to 15 percent slopes	Sloped terrain above the canyon on the west/northwest part of the site.
3	Amity silt loam	This soil is a minor component at the northeast part of the upper agriculture field. Prime farmland only if drained.

RECENT MANAGEMENT HISTORY

Some restoration work was funded during stabilization at Weber Farm Natural Area. At least one round of *Hedera hibernica* (ivy) treatment occurred on the steep slopes and canyon areas. In 2006, the northwest area above Nans' Creek was mowed to initiate site preparation for planting. About 20 acres were planted in winter 2007 to replace weedy grasses and knit together the upland forest and shrubs. This unit has been used by off-road vehicle recreationists for years. Once mature, it was hoped that the plantings would discourage that unauthorized use. A multi-year gap in funding for restoration and management resulted in ongoing heavy use by neighbors on ATV and horseback. The loss of access across the creek from the culvert failure in winter 2015-16 (discussed below) renders 45 to 50 acres of the site difficult to access. Development and funding of a forest restoration project allowed resumption of weed control and planting in the area in 2020.

Metro had few resources to manage Weber Farm Natural Area until 2013, when voters approved an operating levy for restoration and maintenance of natural areas. From spring 2014 through spring 2016, land management staff conducted a number of invasive species treatments including targeted sprays on *Rubus armeniacus* (blackberry), *Hedera hibernica* (ivy), *Phalaris arundinacea* (reed canarygrass) and weedy trees. Much of this work prepared the site for planting and interplanting work on steep slopes, including the canyon. From fall 2016 through early 2019, there were two plantings (2017 and 2019) and several maintenance sprays conducted. This work has improved the ecological function and integrity of the canyon and forested areas outside agriculture leases.

Severe storms in winter 2015-16 resulted in exceptional flows and destruction of an access road across Nan's Creek to the upper, northwest portion of the site. Beavers had been partly blocking the upstream end of a 4-foot culvert for years, and the creek provided its own solution. The culvert was bypassed completely and the stream carved an entirely new path. Limited funding was available to pull anthropogenic debris from the stream and re-contour the road and roadsides. As of this writing, the area appears stable in spite of steep banks to the west; it may require rehabilitation in the future.

Table 3: Metro property stewardship classification (acres)

	0 PRE-INITIATION	1 INITIATION	2 ESTABLISHMENT	3 CONSOLIDATION	4 LONG-TERM MAINTENANCE
Oak savanna					
When we bought the property	76	0	0	0	0
Present condition	76	0	0	0	0
Upland forest					
When we bought the property	37	0	54	0	0
Present condition	37	0	54	0	0
Riparian forest					
When we bought the property	2	0	42	0	0
Present condition	2	0	42	0	0

ACCESS AND RECREATION

Public access

There is a trail concept across the site that would be part of the Willamette River Greenway between West Linn and Wilsonville. As with other parts of the Willamette Narrows, the steep terrain on this site would make construction of a sustainable, accessible trail very challenging.

The upper bench, currently in agriculture, is targeted for oak savanna habitat. This part of the site may lend itself to public access, and has the added benefit of its location adjacent to the Canby Ferry. The steep road from the bench to the ferry would make accessible trails difficult but access to nature near the ferry could be a nice amenity and this opportunity was identified in the 2016 System Plan.

Weber Farm Natural Area is considered a Regional Natural Area, where Metro focuses management on restoration and enhancement for fish and wildlife habitat and water quality. Public access would be managed at select locations.

Although not called out as a potential nature park, Weber Farm Natural Area could provide opportunities to experience the Willamette River from land or the Willamette River water trail. From land, Weber Farm Natural Area could offer experiences similar to Graham Oaks and Canemah Bluff nature parks, without disturbing more sensitive areas such as Camas Cliffs and Peach Cove natural areas, which have rare and fragile plant communities. From water, Weber Farm Natural Area could offer a landing point in an area both less sensitive and more accessible to emergency services than Willamette Narrows Forest or Rock Islands Complex. A landing may also provide some relief from habitat impacts to Rock Islands Complex but further study would be needed to understand whether a landing would accomplish these goals.

At the time of this site conservation plan, there is not a plan to develop formal public access at Weber Farm Natural Area nor is there an identified gap in public access to nature in this area. The decision to launch a planning process to explore future access will be made in the future by Metro senior leadership. Oregon Parks and Recreation Department owns land adjacent to Canby Ferry and between Metro holdings and the ferry landing. This part of the site could be important for meeting desired grade for future trails if this site were developed for a nature park or regional trail connection. Per OPRD policy, its lands are open to hunting by the public. Metro manages the OPRD property under intergovernmental agreement, but it is still subject to OPRD policy regarding hunting. It is uncertain whether Metro will continue to manage it and whether it would be desirable to provide public improvements such as trails on it in the future.

Dogs

One of the most difficult management issues for publicly accessible sites is the introduction of dogs by visitors. Research shows that even if dogs stay on the trails, they are perceived as predators by wildlife. The zone of influence of a dog, even on leash, can be several hundred feet on either side of a trail. Because of the potential disturbance to wildlife and wildlife habitat, dogs are not allowed at any Metro natural area, including Weber Farm Natural Area.

Signage

Any future signs developed for the Weber Farm Natural Area should utilize Metro's signage standards manual. The manual addresses each of the three types of signs: regulatory, wayfinding and interpretive and establishes a graphic standard that shall be integrated into an entire sign plan.

Programmatic access (education and volunteers)

Metro has no programs at Weber Farm Natural Area at this time.

Archaeological resources

To date, there have been no formal archaeological investigations conducted on the site. If, during any site investigation, alteration or improvement, an archaeological resource is discovered, Metro shall work with the State Historic Preservation Office to sensitively address the find. If any damage or unlawful use is identified, Metro would partner with the Clackamas County Sheriff to investigate. If significant ground-disturbing activities are planned as part of future restoration or development, at a minimum, basic archaeological review will take place, as well as consultation with tribes to determine if a deeper level is justified.

NATURAL RESOURCES OF SPECIAL INTEREST

The large size of the site provides opportunity to serve as core habitat for wildlife. Much of the existing upland and riparian forest is fragmented by agriculture fields and does not achieve its potential to support area sensitive wildlife. In addition to the forest habitats, the area targeted for oak savanna will be a large enough habitat patch to provide breeding habitat for oak-associated wildlife.

The creek informally called Nan's Creek could provide off-channel habitat and refugia for young salmon during high flows in the Willamette River. Metro will conduct an assessment of conditions and fish habitat opportunities in 2021 or 2022.

CONSERVATION TARGETS

There are four conservation targets for Weber Farm Natural Area:

1. Oak savanna
2. Upland forest – mature, and mixed
3. Riparian forest (includes nested target of shrub habitat bordering oak savanna)
4. Native fish (nested target within riparian forest, covered by floodplain connectivity KEA)

CURRENT AND DESIRED FUTURE CONDITION OF CONSERVATION TARGETS

Table 4: Non-technical status and DFC of targets

TARGET	CURRENT CONDITION	DESIRED FUTURE CONDITION
Oak savanna (76 ac.)	Farmed by lessee.	Open oak savanna in good condition with diverse herbaceous plants.
Upland closed forest (87 ac.)	Sweeps for ivy and other problematic weeds on OPRD and part of Metro property (8 ac.) have improved its condition. The forest is understocked and needs interplanting and ongoing weed management. The upper upland forest (46 ac.) is not fully planted and suffers from neighbors' use; restoration work has resumed as discussed in Recent Management History. Approximately 33 ac. are in agricultural production.	Closed canopy, diverse native forest with natural recruitment of native trees and shrubs. Complex, multi-layered canopy structure; provision of snags and down wood for wildlife. Invasive plant occurrences are minor and controlled. Trails from ATVs and horses are absent.
Riparian (44 ac.)	Some of the acreage is in agriculture lease and farmed. Remaining area is in fair to good condition and requires more interplanting and weed management.	The entire riparian unit is fully stocked with native trees and shrubs. It stabilizes the stream banks and shades the creek.
Shrub (nested target) (4 ac.)	A monoculture of blackberry on the east side of the upper agriculture lease area, it serves as a buffer from agriculture disturbance.	A healthy mix of native flowering and fruit producing shrubs provide floral resources for pollinators and mast for wildlife.
Native fish (nested target)	Riparian banks are degraded and sharply cut in areas, and access from the Willamette River for fish is not secure.	Small, failing culvert(s) replaced and fish have access to off channel habitat with shade and high water quality.

Table 5a: Desired condition for oak savanna at Weber Farm Natural Area

CATEGORY	KEA	INDICATOR	INDICATOR RATING				CURRENT RATING	DFC* FOR THIS SCP	LONG TERM DFC
			POOR	FAIR	GOOD	VERY GOOD			
Condition	Native grass and forb presence	Native species richness	<20 native herbaceous plant species with high fidelity to the system types present within the patch	20-39 native herbaceous plant species with high fidelity to the system types present at the patch	40-59 native herbaceous plant species with high fidelity to the system types present at the patch	> 60 native herbaceous plant species with high fidelity to the system types present at the patch	Poor	Poor	Fair
Condition	Native grass and forb abundance	Frequency of native herbaceous species in 1 sq m (11 sq ft) quadrats	<2 native high fidelity herbaceous prairie species occurring with >50% frequency and <9 additional species occurring with at least 10% frequency	At least 2 native high fidelity herbaceous prairie species occurring with >50% frequency and at least 9 additional species occurring with at least 10% frequency	At least 3 native high fidelity herbaceous prairie species occurring with >75% frequency and at least 9 additional species occurring with at least 25% frequency	At least 7 native high fidelity herbaceous prairie species occurring with >75% frequency and at least 15 additional species occurring with at least 25% frequency	Poor	Poor	Fair
Condition	Native forb and grass abundance	Percent cover native forbs and grasses	<20%	20-30%	30-50%	>50%	Poor	Poor	Fair
Condition	Vegetation structure	Canopy cover (5-30%) and architecture of woody vegetation	Total native woody cover is outside the preferred range (5-30%) over more than half the habitat area	Total native woody cover is within the preferred range (5-30%) over 50-90% of the habitat area	Total native woody cover is within the preferred range (5-30%) over at least 90% of the habitat area, but young oak tree recruitment is limited or absent	Total native woody cover is within the preferred range (5%-30%) over at least 90% of the habitat area, and canopy includes appropriate mix of large open-grown trees and younger tree recruitment	Poor	Poor	Very good

Table 5b: Desired condition of riparian forest habitat at Weber Farm Natural Area (including nested target of shrub habitat)

CATEGORY	KEA	INDICATOR	INDICATOR RATING				CURRENT STATUS	DFC* FOR THIS SCP	LONG TERM DFC
			POOR	FAIR	GOOD	VERY GOOD			
Condition (riparian)	Vegetative structure: tree layer	% native tree canopy cover	<20% cover	20-30% cover	30-40% cover	40% or more	Fair?	Good	Very good
Condition (riparian)	Native tree and shrub richness	# native tree and shrub species per 0.4 ha (1 ac)	<5 species	5-10 species	10-15 species	>15 species	Good	Very good	Very good
Condition (riparian)	Standing and downed dead trees	Average # snags and down wood per acre. Large log or snag = 20 in dbh	≤ 1 snag of any size and <5% down wood	2-4 snags ≥ 10 in dbh and 5-10% down wood, including 4 log piles with 6-8 small logs/each (typically 1st thinning)	Average 5-17 snags ≥ 10 in dbh AND 10-20% down wood (any size) AND ≥1 large log per acre, with at least 1 large log per 6 acres[1] (typically 2nd thinning)	≥18 snags ≥20 in dbh and >20% cover down wood in a good variety of size and age classes	Poor	Fair	Good
Condition (riparian)	Floodwater access to the floodplain	Degree of connection between stream/ floodplain during high water events	Extensively disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Moderately disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Minimally disconnected by channel incision, dikes, tide gates, elevated culverts, etc.	Completely connected (backwater sloughs, channels)	Fair	Very good	Very good
Condition (shrub)	Vegetative structure: shrub layer	% native shrub canopy cover	<10% cover	10-25% cover	25-50%	>50%	Poor	Poor	Very good
Condition (shrub)	Native shrub richness	# native shrub species per acre	<2 species per acre	2-5 species per acre	6-9 species per acre	>10 species per acre	Poor	Poor	Good

[1] This is to ensure that all large wood isn't clustered on one portion of the site.

Table 5c: Desired condition for upland forest (OPRD land and Metro owned upper mixed forest) at Weber Farm Natural Area

CATEGORY	KEA	INDICATOR	INDICATOR RATING				CURRENT STATUS	DFC* FOR THIS SCP	LONG TERM DFC
			POOR	FAIR	GOOD	VERY GOOD			
Condition	Native tree and shrub richness	Number of native tree and shrub species per ac	<5 species per ac	5-8 species per ac	8-12 species per ac	>12 species per ac	Fair	Good	Very good
Condition	Vegetative structure: native tree and shrub layer	% native tree and shrub canopy cover (combined)	<25% cover	25-50% cover	50-75% cover	>75% cover	Fair to Good	Good	Very good
Condition	Mature trees	Number and size (dbh) of species such as Douglas fir, western red cedar, western hemlock and grand fir	Mature trees lacking	<3 per ac with dbh >24 in	3-5 per ac with dbh >24 in	>5 per ac with dbh >24 in	Fair to Good	Fair to Good	Very good
Condition	Standing and downed dead trees	Average # snags and down wood per acre. Large log or snag = 20 in dbh	≤ 1 snag of any size and <5% down wood	2-4 snags ≥ 10 in dbh and 5-10% down wood, including 4 log piles with 6-8 small logs/each (typically 1st thinning)	Average 5-17 snags ≥ 10 in dbh AND 10-20% down wood (any size) AND ≥1 large log per acre, with at least 1 large log per 6 acres[2] (typically 2nd thinning)	≥18 snags ≥20 in dbh and >20% cover down wood in a good variety of size and age classes	Poor?	Fair	Very good

[2] This is to ensure that all large wood isn't clustered on one portion of the site.

Table 6: Stresses and sources of stress at Weber Farm Natural Area

CONSERVATION TARGET	THREAT (STRESS)	SEVERITY	SCOPE	OVERALL STRESS RANK	SOURCE	CONTRIBUTION	IRREVERSIBILITY	OVERALL SOURCE RANK	OVERALL THREAT RANK	COMMENTS
Oak savanna	Loss of habitat structure and function	Very High	Very High	Very High	Agriculture	Very High	Medium	High	Very High	Agriculture lease prevents establishment of savanna.
Upland forest	Lack of recruitment, altered habitat structure of native trees and shrubs	High	High	High	Competition from exotic plants	Very High	Medium	High	High	Ivy and blackberry suppress growth and recruitment of native trees and shrubs. Agriculture lease occupies a third of this target.
Upland closed forest	Lack of dead standing and down trees	Low	High	Low	Interrupted historic processes (i.e., fire)	Medium	Very High	High	Low	Need to recruit large trees and create snags and down wood.
Upland closed forest	Loss of large trees.	Low	Low	-	Competition from invasive plants, especially *Hedera*	Very High	Medium	High	Low	Ivy has been controlled for now but must be repeated every few years.
Riparian forest	Lack of recruitment, diversity of trees and shrubs	High	High	High	Competition from exotic plants	Very High	Medium	High	High	Ivy, blackberry and canarygrass suppress growth and recruitment of native trees and shrubs.
Riparian forest	Lack of dead standing and down trees	Low	High	Low	Interrupted historic processes (i.e., fire)	Medium	Very High	High	Low	Need to recruit large trees and create snags and down wood.
Riparian forest	Loss of large trees	Low	Low	-	Competition from invasive plants, especially *Hedera*	Medium	Very High	High	Low	Continue consistent control of invasive plants.
Riparian forest (fish access)	Loss of habitat connectivity	High	High	High	Roads, culvert(s)	Very High	Medium	High	High	Replace culvert(s).

THREATS AND THEIR SOURCES FOR THE NEXT 10 YEARS

This site conservation plan is intended to focus attention on strategies and actions that are most urgent and needed in the next ten years. Drawing from the tables in the previous section and the climate change considerations that follow, several themes emerge:

1. The agriculture lease should be put on a closure path as soon as possible, since Weber Farm Natural Area is a large site with important potential as anchors of several priority habitats. The lease pre-empts establishment of an important stepping stone of oak savanna that is needed for habitat connectivity in the region. The lower agriculture field forces the riparian area to remain a thin sliver of what it should be for stream health and prevents establishment of contiguous riparian and upland forest that would connect the OPRD and northern Metro-owned portions of the site. Last, the list of pesticides provided by the farmer that may be in use at the site includes several that are harmful to fish and wildlife and therefore at cross purposes to water quality and fish and wildlife habitat goals of the bond that purchased the property.
2. Off-channel habitat for native fish is needed throughout the lower Willamette River, and this site offers thousands of feet of potential habitat. At least one undersized culvert should be replaced, and the upper stream section where a culvert previously blew out during winter storms should be evaluated for rehabilitation.
3. Although many climate change effects are expected to be most prominent in future decades, work that improves and maintains the health of all habitats at Weber Farm Natural Area will position them for better resilience in the future. Continuing riparian restoration and retirement of the lower agriculture field will contribute to cooler stream temperatures and better in-stream habitat structure.

Climate change considerations

Climate change is anticipated to affect summer temperatures and availability of water in summer to all plant communities. Other indirect effects of climate change may include range shifts of plants, some native to North America and some not, and increased competition by these plants. It is possible that climate change may touch every KEA, though effects on some KEAs may be more important than others.

Direct effects that may occur

- Increased summer temperatures contribute to drought stress of trees and shrubs. Western redcedar (*Thuja plicata*) and other species are showing stress and increased mortality across the region. As new information is available on plant responses to climate change, the palette of plants installed during restoration projects will evolve.
- Increased severity of winter rain events contribute to erosion, placing the existing culvert at risk. A severe event caused a culvert failure in upper Nan's Creek, and more such events are anticipated.
- Decreased water availability in summer, with high temperatures, causes plant mortality.

Indirect effects that may occur

- Increased risk of wildfire in hotter, dryer summers
- Range shifts by undesirable plants increasing competition
- Disease introductions and/or increased vulnerability to disease

- Loss of synchronicity of plant reproduction and pollinators
- Loss of synchronicity of resident and migratory animals and food sources (e.g., insect hatches)

Increased summer temperatures can be mediated in the upland and riparian forest units by consolidating and inter-planting as needed, as well as regular control of problematic exotic plants. Interior forests are cooler than forest edges and agriculture fields, and will provide better habitat conditions for nesting birds and other wildlife. Healthy riparian areas provide materials for beavers inhabiting Weber Farm Natural Area and support dams that hold water and assist with groundwater recharge.

In upland and riparian forest, plant growth and survival may be affected by increased summer temperatures and reduced water availability in summer. This stress can be abated by monitoring for drought stress and creating snags and down wood as needed to reduce moisture competition.

As discussed in the Willamette Narrows target area assessment, the habitat in this area may provide important macro-refugia and corridors for native plants and animals as they shift their ranges in response to climate change. The long-term conservation of the Narrows, with the addition of nearby "stepping stones" to connect these habitats across the landscape, will help conserve these biota through coming decades.

Table 7: Threats and actions for KEAs of important targets affected by climate change

TARGET	KEA	THREAT	ACTION	NOTES
Riparian and upland forest	Habitat structure and function, stream conditions	Summer drought stress, lack of interior habitat for wildlife, increased stream temperatures.	Reduce other threats in the short term, such as retiring agriculture fields and controlling invasive plants. Track and implement best practices for plant selection for restoration projects.	Connecting and consolidating habitats will position them for resiliency.
Oak and associated species	Habitat presence, structure and function	Agriculture prevents establishment.	Retire agriculture and establish important stepping stone for regional connectivity.	Stepping stones are critical to facilitate range shifts during climate change.

STRATEGIES

The next sections describe strategies designed to address the most urgent threats identified in this SCP. They are grounded in the previous analyses of desired future condition for each habitat and the level of improvement that is achievable in the next 10 years.

High-priority strategies

- Retire agriculture lease and establish oak savanna in upper agriculture field.
- Replace culvert at lower portion of Nan's Creek and evaluate and implement stream bank repairs needed for upper reach where culvert blew out.
- Retire agriculture lease on lower field and establish riparian and upland habitats to integrate the upper bench forest and the OPRD forest, creating a large, intact anchor.
- Develop a strategy for surveying and marking property boundaries. As ice storms and summer droughts create conditions that require fuel load management, Metro needs to know where the boundaries are located.

Medium-priority strategies

- Continue weed control and riparian plantings along Nan's Creek to stabilize stream banks, support beaver population and shade reed canarygrass and other invasive plants. Heavy deer browse in planted areas may require altering the species composition of plants purchased, or even consideration of hunting (perhaps in partnership with the Indigenous people of the region).
- When agriculture lease on upper field is retired, replace 4 acres of blackberry with native shrubs. Due to the type and number of pesticides on lessee's chemical list, avoid establishing this pollinator- and bird-friendly habitat adjacent to active farming.
- Evaluate stocking density of large trees on OPRD parcel for drought susceptibility, create snags and down wood as appropriate.

The following table provides additional details on all strategies.

Table 8: List of proposed strategies

STRATEGY	SOURCES OF STRESS IT ADDRESSES	FOCAL TARGETS/ KEAS AFFECTED	WHY IMPORTANT/ TIMING ISSUES	MEASURE(S) OF SUCCESS	RANK
Establish oak savanna on current upper agriculture lease field	Occupancy by exotic plants, habitat connectivity, stepping stone	Oak savanna and habitat connectivity	Continued deferral of habitat creation delays establishment of needed stepping stone	Planting and establishment complete; diversity and richness	High
Replace lower culvert and evaluate upper reach	Lack of habitat accessibility and connectivity for native fishes	Riparian/native fish; floodwater access to floodplain	Continued delays place lower access at risk of blowout	Assessments done, solutions implemented	High
Establish riparian and upland forest on current lower agriculture lease field	Relieves habitat fragmentation and contributes to large anchor	Riparian and upland forest; diversity and cover of trees and shrubs	Cannot occur until agriculture lease retired	Planting and establishment complete; number of tree/shrub species per acre	High
Riparian habitat improvements	Reduced invasive plant competition, improved groundwater recharge, improved fish habitat	Riparian/native fish; diversity and cover of trees and shrubs	Channel incision will worsen and groundwater levels will continue to drop	Planting and establishment complete; diversity of plants	Medium
Establish early seral habitat patch	Occupancy by exotic blackberry	Upland forest (nested target)	Provide safe food and structure for native pollinators and birds	Agriculture discontinued; diversity of shrubs established	Medium
Address drought stress potential in riparian forest, abate it	Mortality from high summer temperatures, dry summers	Richness, structure, mature trees, standing and down dead trees	Lost mature trees take many years to replace	Appropriate stocking density; snags/down wood per acre	Medium

Strategy ranking:
High: must do within 5 years to protect target viability
Medium: target will persist without it but will degrade over 5-10 years or require additional future management
Low: addresses a non-critical threat or one that is unlikely to threaten target viability within 10 years

SPECIFIC ACTIONS AND FUNDING REQUIREMENTS

Table 9: Specific actions to implement strategies

STRATEGY	TARGET	PRIORITY (HOW SOON)	SPECIFIC TASKS	ESTIMATED COST
Establish oak savanna on current upper agriculture lease field	Oak savanna (76 ac)	High – ASAP	Retire ag lease; prepare and plant site; establish habitat	$300,000
Replace lower culvert and evaluate upper reach	Riparian (nested fish target)	High – ASAP	On-call consultant evaluate, develop solution and cost estimate	$30,000 (on-call consultant); $150,000 (design, permitting, and new culvert construction)
Establish riparian and upland forest on current lower agriculture lease field	Riparian and upland forests (28 ac)	High – ASAP	Retire ag lease; prepare and plant site; establish habitat	$150,000
Riparian and upland habitat improvements	Riparian forest, upland bench (100 ac)	Medium – next 10 years	Continue current weed control and interplanting riparian area; add upland bench area plantings	$200,000
Establish early seral habitat patch	Upland forest (nested shrub target; 4 ac)	Medium – next 10 years	After ag lease retired, treat blackberry and plant with native shrubs providing pollen and mast	$18,000
Address drought stress potential in OPRD forest, abate it	Riparian forest (15 ac)	Medium – next 10 years	On-call consultant evaluate, propose strategy and cost estimate	$20,000 (on-call consultant); $50,000 (arborists/foresters)

MONITORING PLAN

Monitoring for KEAs associated with the four conservation targets is shown in Table 10.

Table 10: Monitoring strategy

TARGET KEA(S)	INDICATOR	METHOD	THRESHOLD FOR ACTION?	FREQUENCY AND COST
Oak savanna, native species richness, frequency, percent cover	Species richness and frequency, relative cover	Walk-throughs	KEA rating below Fair	Annual monitoring and seeding during first 5 years; 3 field days; routine site visits
Riparian forest: richness and structure	Canopy cover, species richness, snags and down wood	Site visits and walk-throughs	KEA rating below Good	Staff time; regular visits during establishment in planting units, comprehensive look every 5 years
Upland forest, mature trees, richness, snags and down wood	Number and size of large trees, number of snags/ down wood per acre	Site visits and walk-throughs	KEA rating below Good	Staff time; regular visits during establishment in planting units, comprehensive look every 5 years
Riparian forest: nested target native fish	Habitat connectivity	Visual inspection when on site	Blockage or blowout	Staff time, incidental to site visits for other work
Upland forest: nested target early seral	Richness and cover of native shrubs	Site visits, visual inspection		Staff time; regular visits during establishment, then every 5 years

CURRENT PARTNERS, PARTNER PROJECTS AND POTENTIAL PARTNERS

Current partners

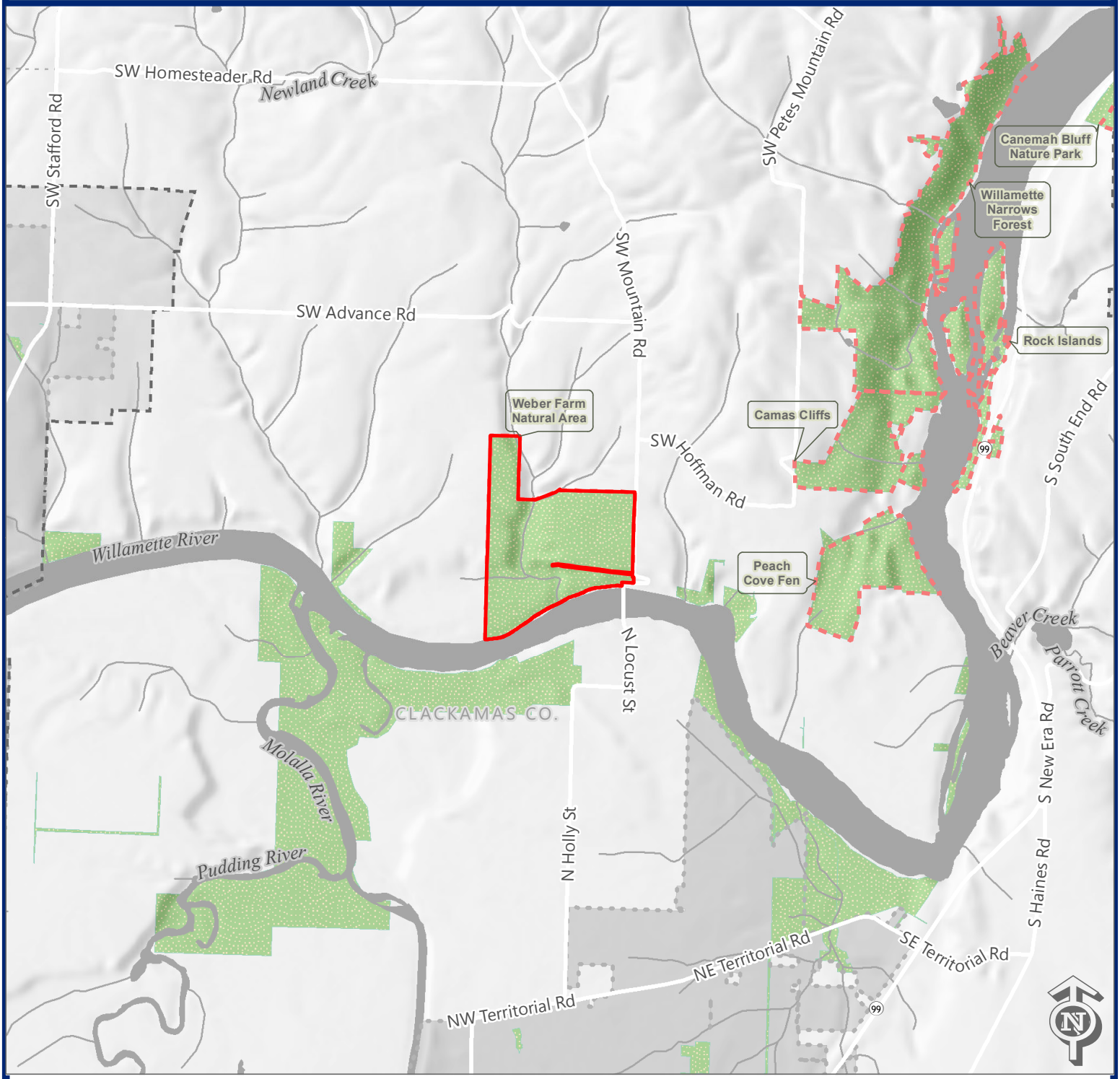
- Oregon Parks and Recreation Department

Potential partners

- Clackamas Soil and Water Conservation District for oak and prairie restoration on neighboring and nearby lands
- ODFW – native fish habitat restoration

VICINITY MAP

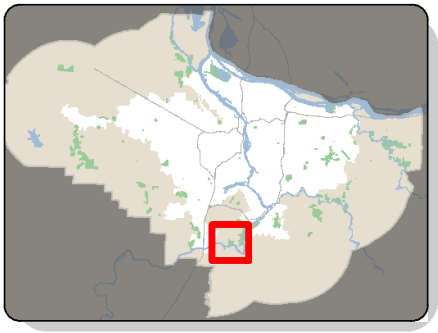
Metro



Weber Farm Natural Area site

Other Metro sites

0 0.9 1.8 Miles

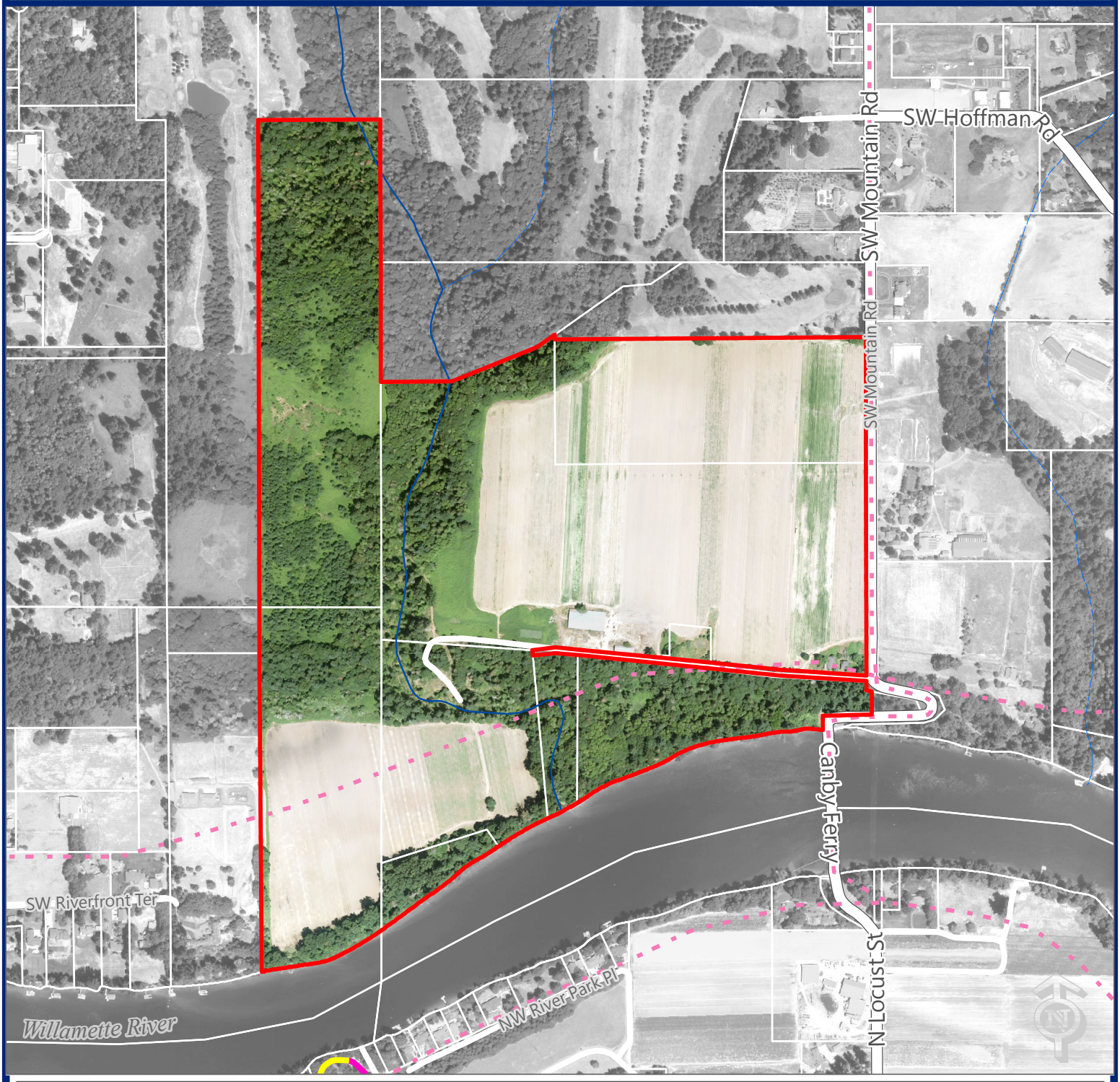


Weber Farm Natural Area Site Conservation Plan

map date: 10/19/2021

SITE MAP

Metro



Weber Farm Natural Area site

Other Metro sites

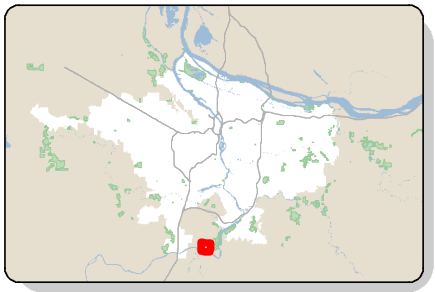
Existing Pedestrian Trail

Existing Regional Multi-use Trail

Proposed Trail

Intermittent stream

Perennial stream



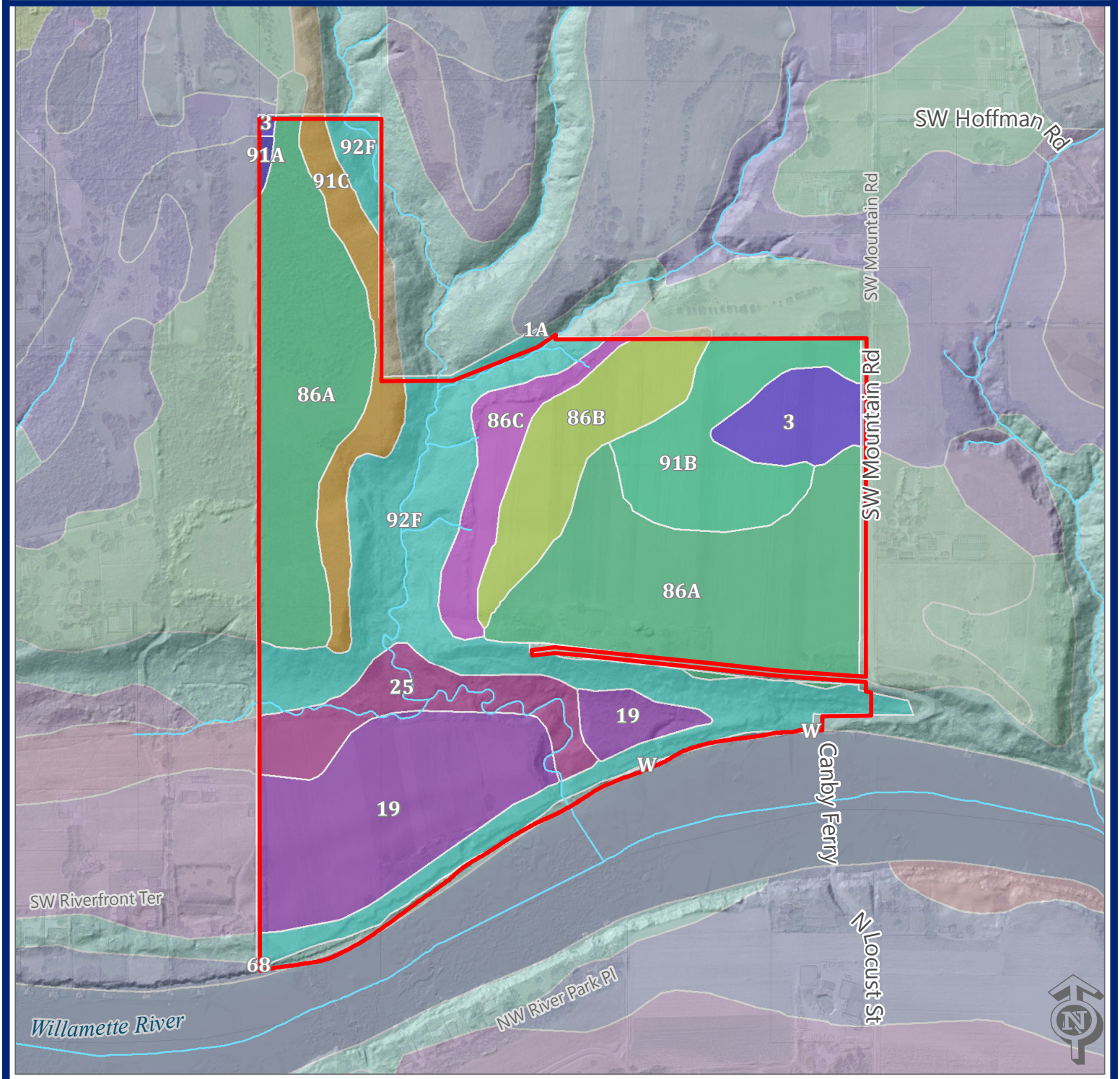
0 1,000 2,000 Feet

Weber Farm Natural Area Site Conservation Plan

map date: 10/19/2021

SOILS

Metro



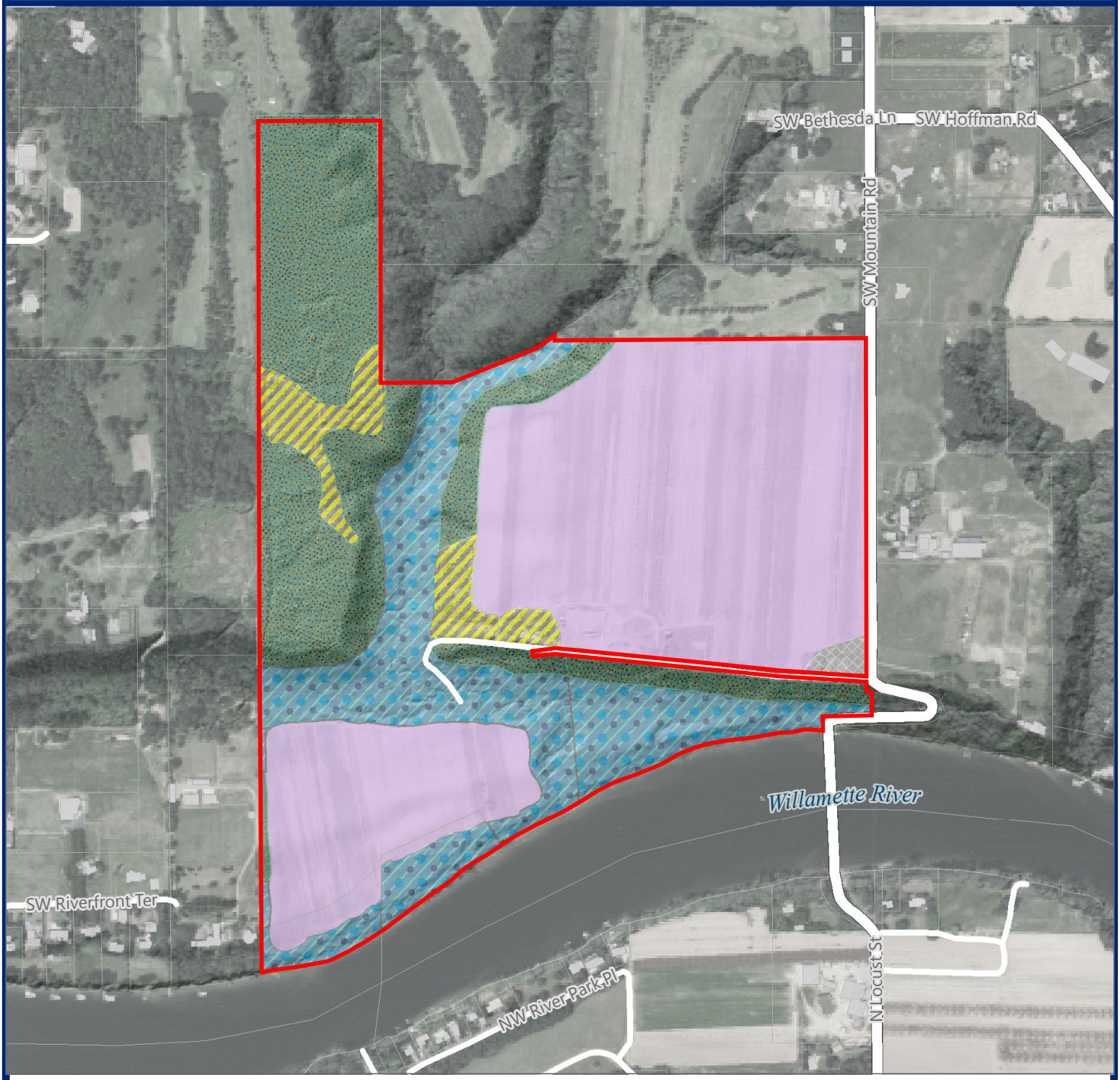
Weber Farm Natural Area site

- 19 - Cloquato silt loam
- 1A - Aloha silt loam, 0 to 3 percent slopes
- 25 - Cove silty clay loam
- 3 - Amity silt loam
- 68 - Newberg loam
- 86A - Willamette silt loam, 0 to 3 percent slopes
- 86B - Willamette silt loam, 3 to 8 percent slopes
- 86C - Willamette silt loam, 8 to 15 percent slopes
- 91A - Woodburn silt loam, 0 to 3 percent slopes
- 91B - Woodburn silt loam, 3 to 8 percent slopes
- 91C - Woodburn silt loam, 8 to 15 percent slopes
- 92F - Xerochrepts and Haploxerolls, very steep
- W - Water

0 940 1,880 Feet

CURRENT COVER

Metro



Weber Farm Natural Area site

- Agriculture
- Developed - (pervious/non ag)
- Riparian forest
- Undesirable cover/weeds
- Upland forest - deciduous
- Upland forest - mixed

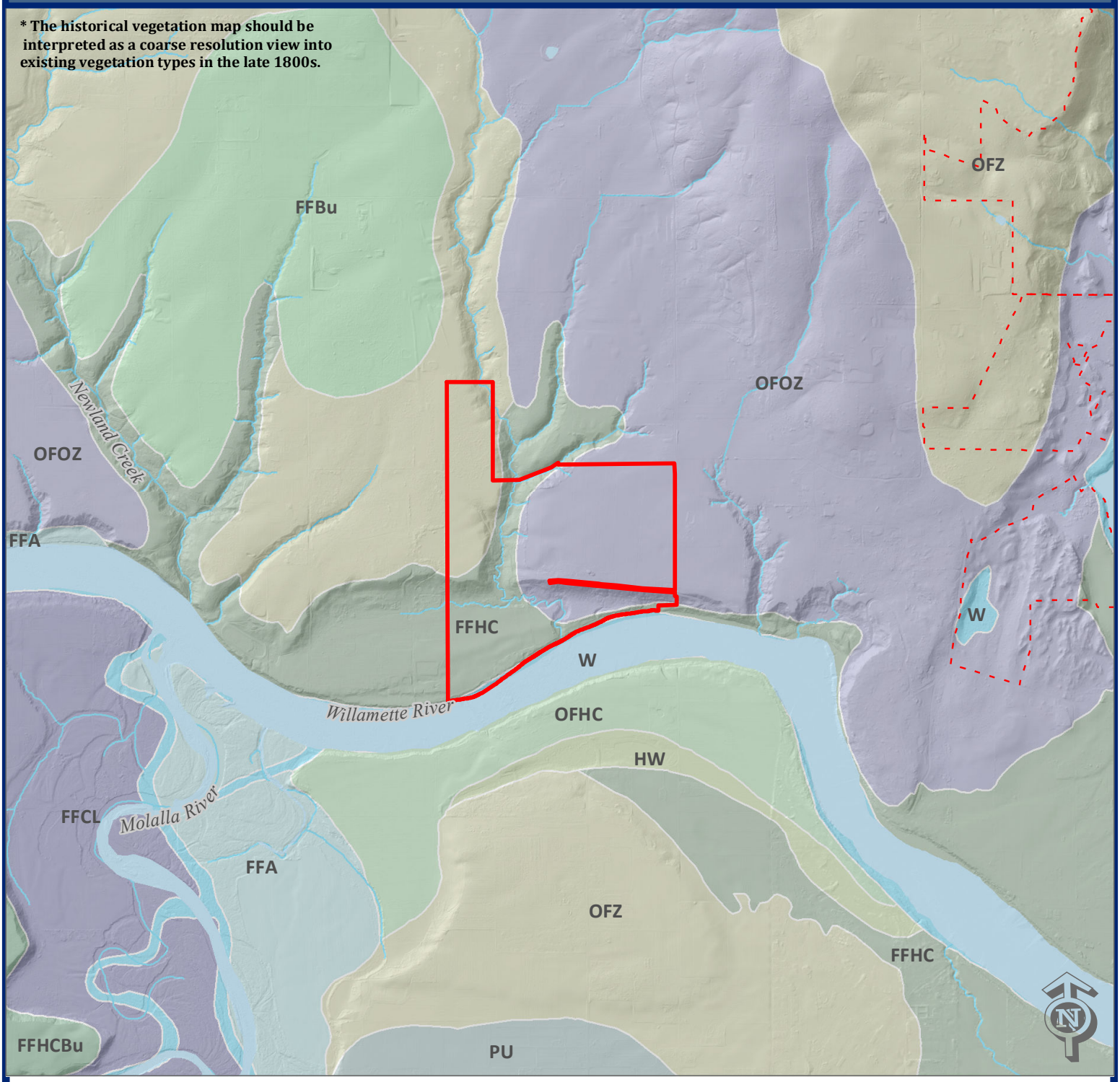
0 940 1,880 Feet

Weber Farm Natural Area Site Conservation Plan

HISTORICAL VEGETATION

Metro

* The historical vegetation map should be interpreted as a coarse resolution view into existing vegetation types in the late 1800s.



Weber Farm Natural Area site

Other Metro sites

Historical vegetation

- FFA - Closed forest; Riparian & Wetland
- FFBu - Closed forest; Upland
- FFCL - Closed forest; Riparian & Wetland
- FFHC - Closed forest; Upland
- FFHCBu - Closed forest; Upland
- HW - Shrubland
- OFHC - Woodland
- OFOZ - Woodland
- OFZ - Woodland
- PU - Prairie
- W - Water

* Labels refer to vegetation subclasses. Detailed descriptions can be found in T:\OBMO\GIS\DATA_V\vegetation\Historical

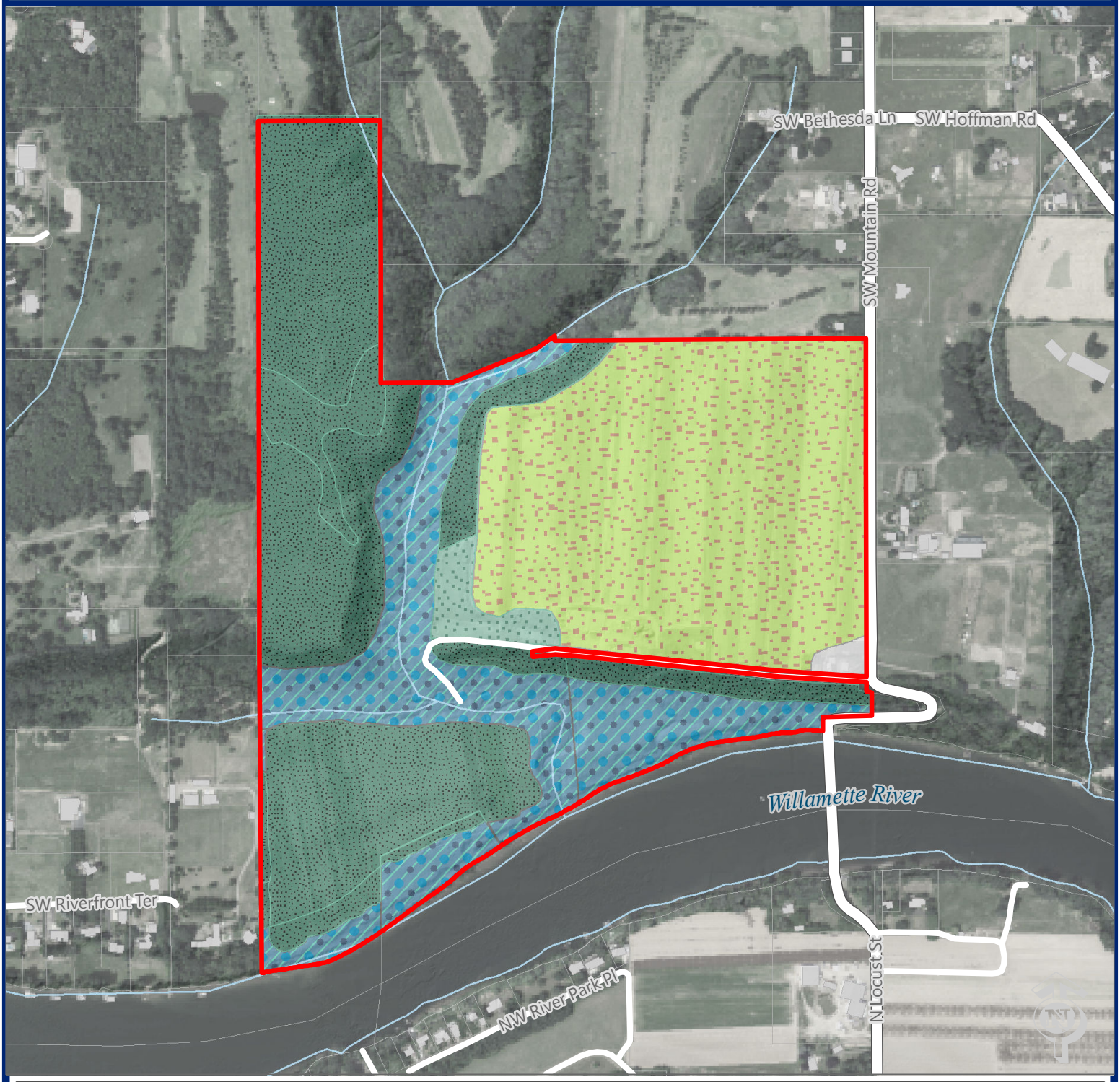
0 2,000 4,000 Feet

Weber Farm Natural Area Site Conservation Plan

map date: 10/19/2021

CONSERVATION TARGETS

Metro



Weber Farm Natural Area site

No targets

Oak savanna

Riparian forest

Upland forest

Upland forest - shrub (early successional)

0 940 1,880 Feet

Weber Farm Natural Area Site Conservation Plan

map date: 10/19/2021

STEWARDSHIP CLASS

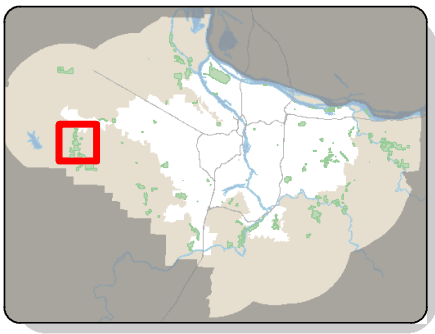
Metro

Weber Farm Natural Area site

Stewardship Class

- Riparian forest
- Savanna
- Upland forest

0 940 1,880 Feet

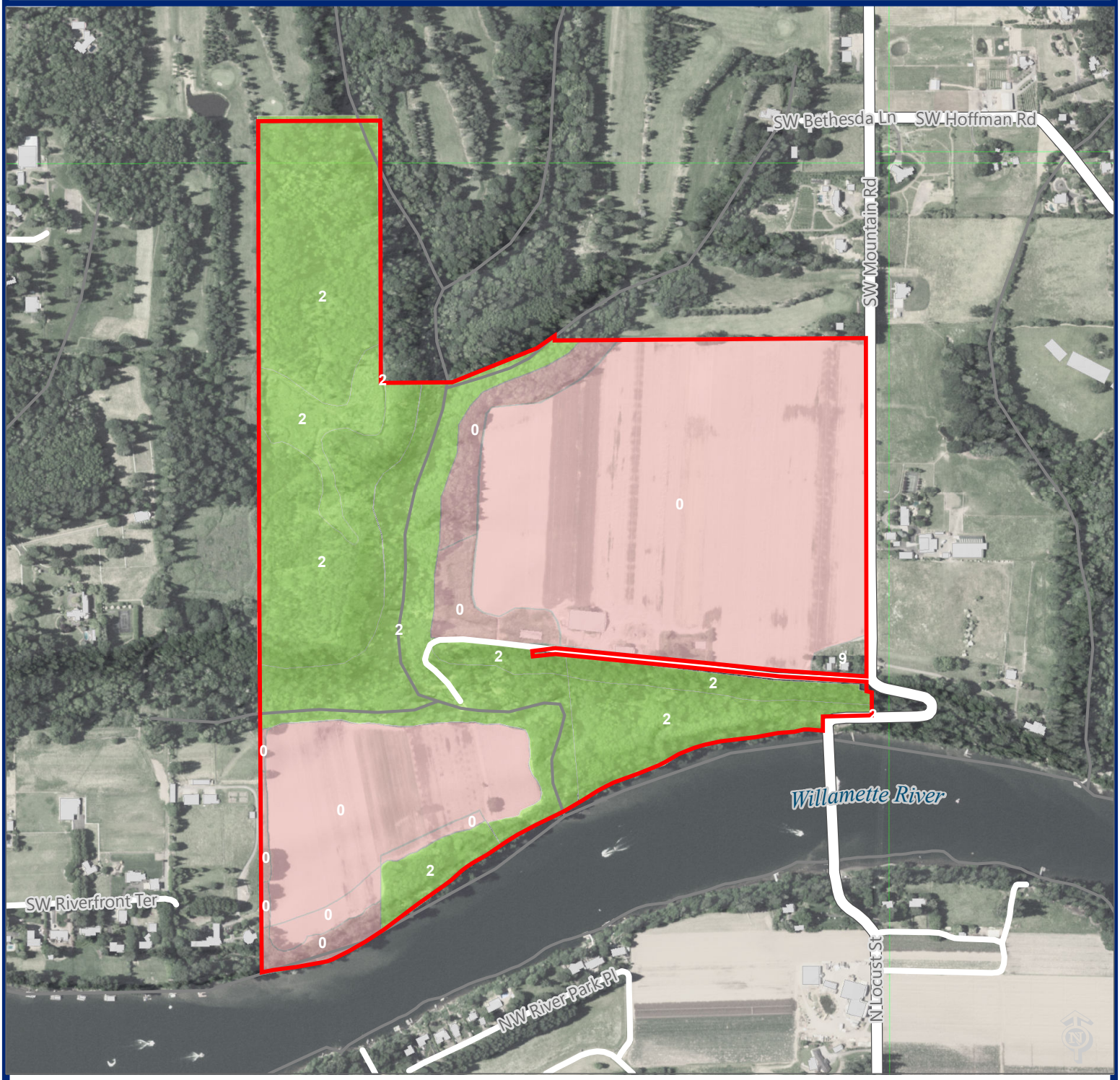


Weber Farm Natural Area Site Conservation Plan

map date: 10/19/2021

MANAGEMENT STATUS

Metro



Weber Farm Natural Area site

Other Metro site

0 - Pre-Initiation

1 - Initiation

2 - Establishment

3 - Consolidation

4 - Refinement and long-term maintenance

9 - No targets (developed)

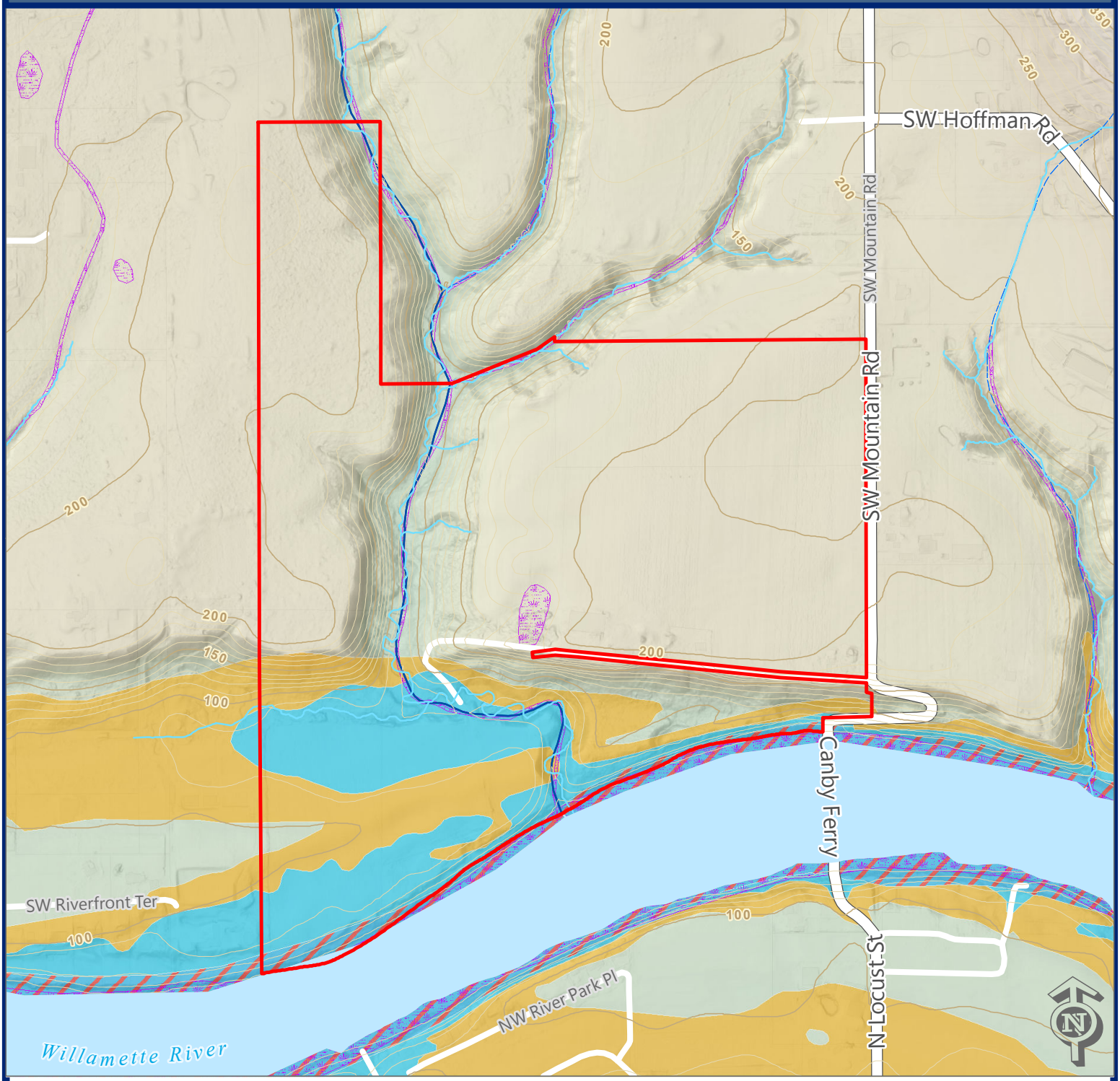
0 940 1,880 Feet

Weber Farm Natural Area Site Conservation Plan

map date: 10/19/2021

HYDROLOGY

Metro



Weber Farm Natural Area site

Wetlands (Wetlands Conservancy data)

NHD Flowlines

Intermittent stream

Perennial stream

Flood Plains (FEMA)

1% Annual Chance Flood Hazard

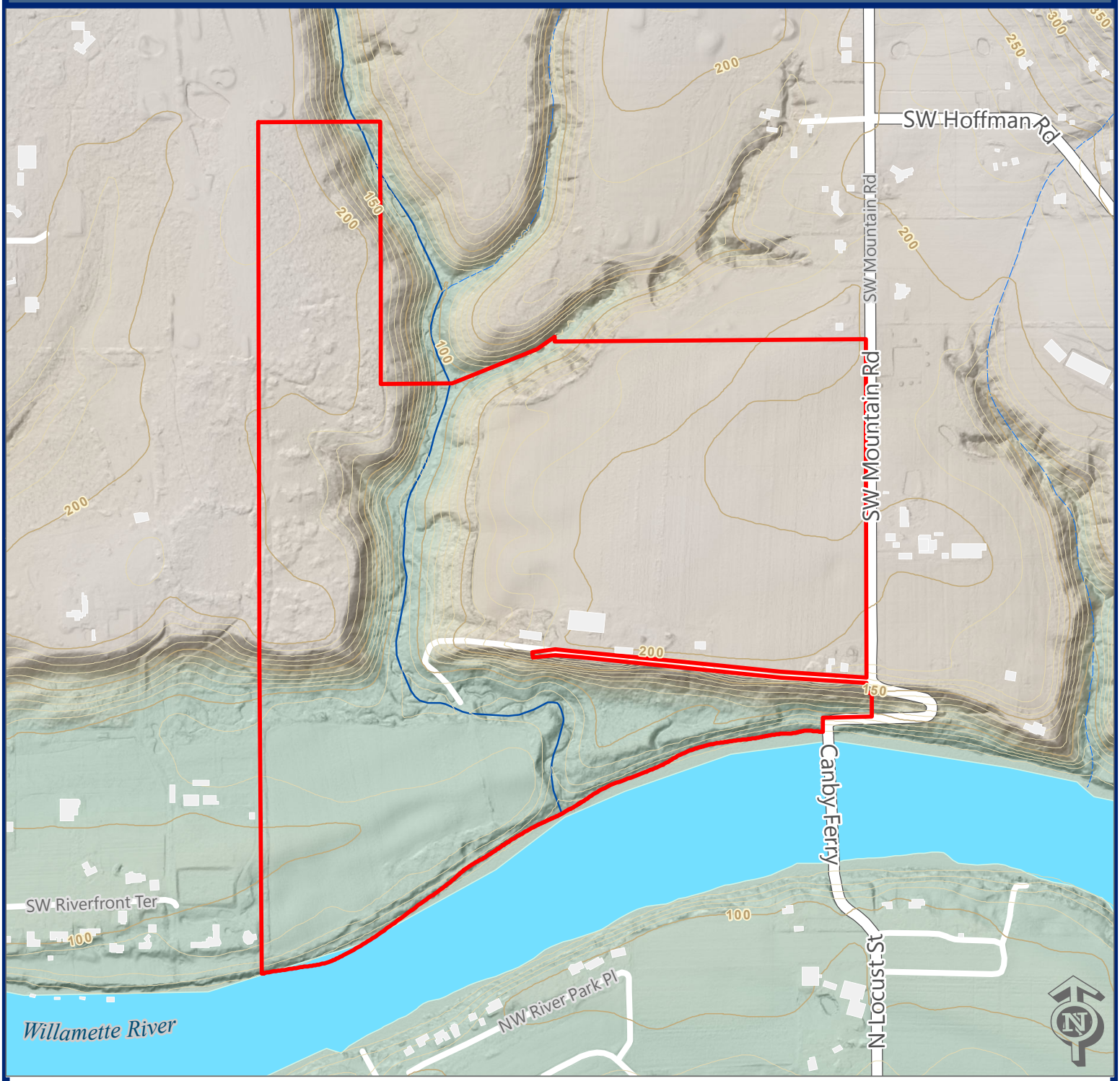
Regulatory Flooodway

0.2% Annual Chance Flood Hazard

0 1,000 2,000 Feet

TOPOGRAPHY

Metro

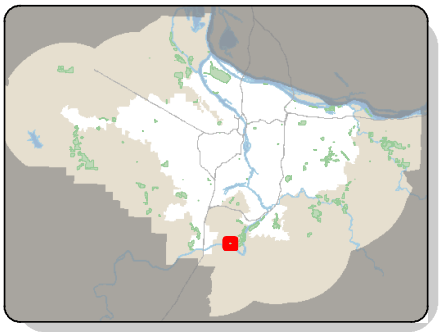


Weber Farm Natural Area site

10 ft contour

50 ft contour

0 1,000 2,000 Feet



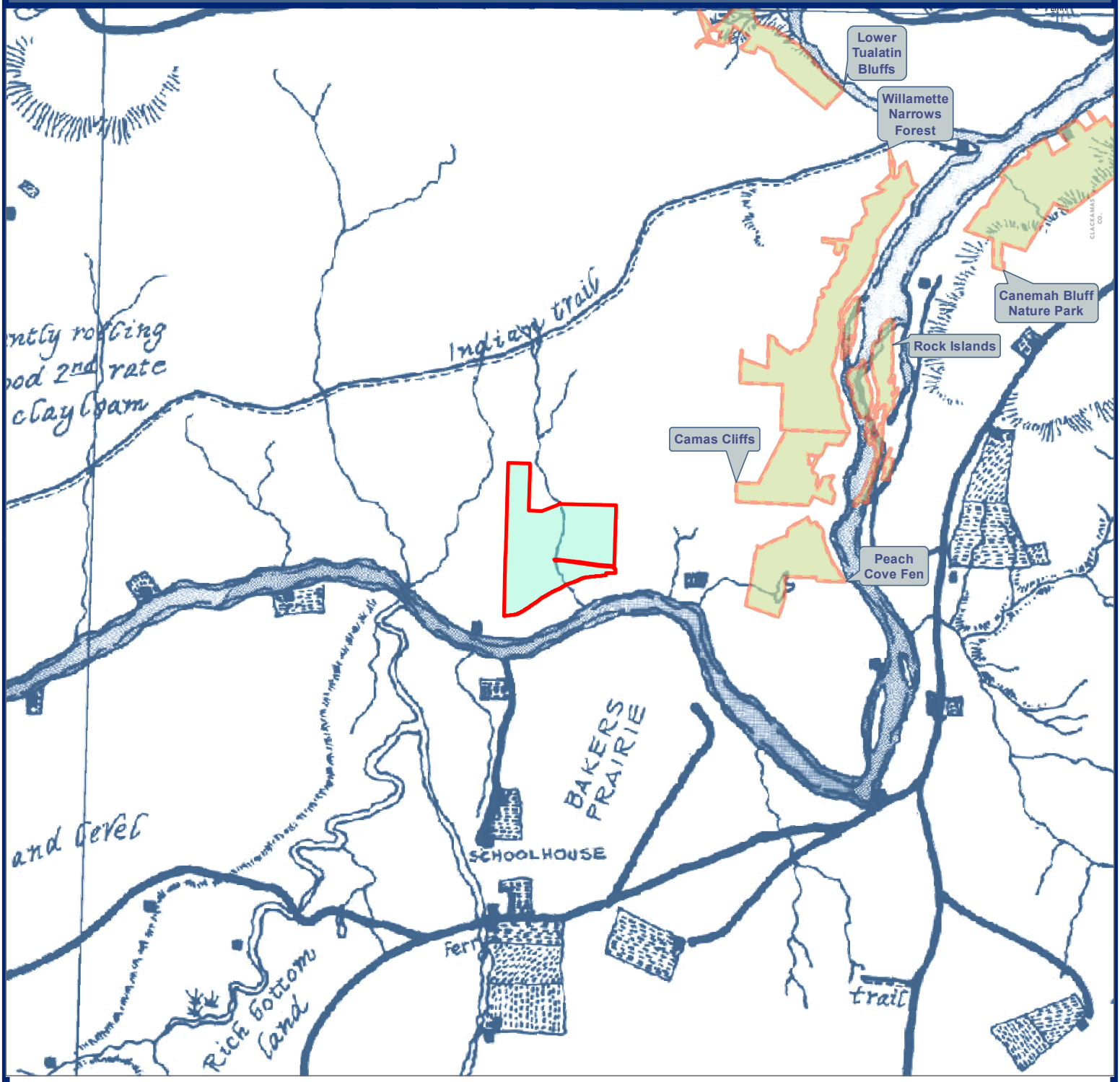
Weber Farm Natural Area Site Conservation Plan

map date: 10/19/2021

GENERAL LAND OFFICE (GLO) MAP

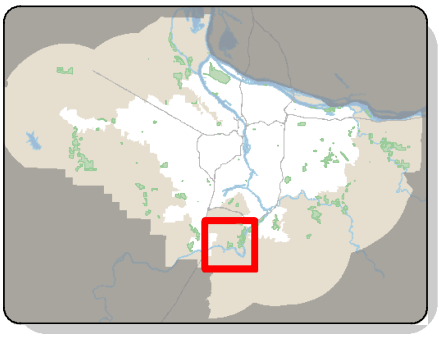
This map is the 1852 public land survey of the Portland, OR region.

Metro



Weber Farm Natural Area site

Other Metro site



0 1 2 Miles

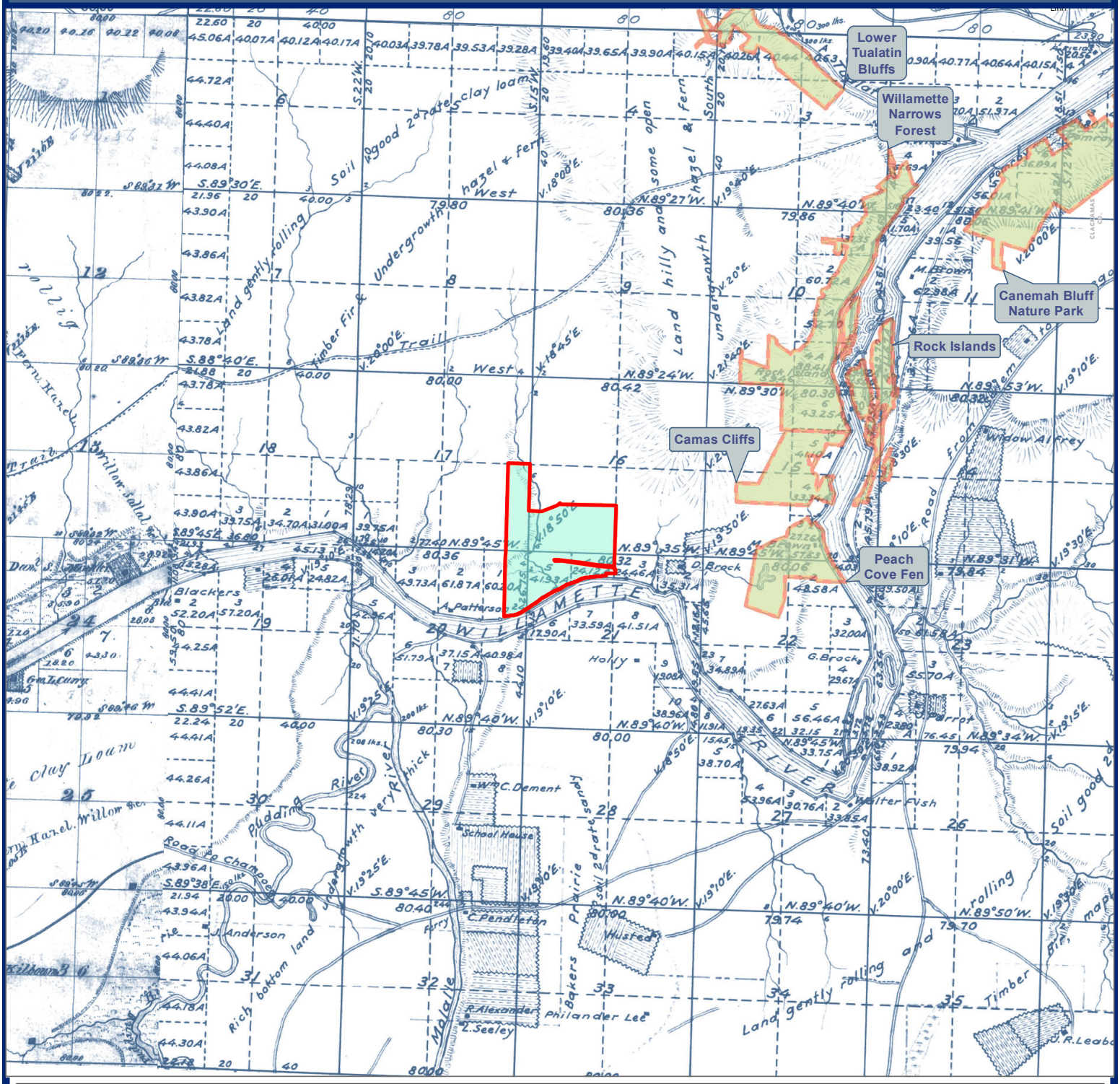
Weber Farm Natural Area Site Conservation Plan

map date: 10/20/2021

GENERAL LAND OFFICE (GLO) MAP

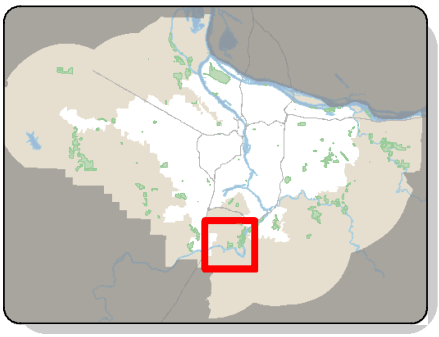
This map is the 1852 public land survey of the Portland, OR region.

Metro



Weber Farm Natural Area site

Other Metro site



0 1 2 Miles

Weber Farm Natural Area Site Conservation Plan

map date: 10/20/2021

OWNERSHIP

Metro

Weber Farm Natural Area site

PN Site - taxlot ownership

Metro owns (7)

Partner owns (2)

0 940 1,880 Feet

Weber Farm Natural Area Site Conservation Plan

map date: 10/19/2021