

# **Cooper Mountain Community Plan**

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## **Local Wetlands Inventory**

*Prepared for*

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# TABLE OF CONTENTS

<b>1. INTRODUCTION .....</b>	<b>1</b>
<b>2. METHODS .....</b>	<b>2</b>
2.1 General.....	2
2.2 Preliminary Resource Review .....	2
2.3 Mapping Procedures and Estimated Accuracy .....	3
2.4 OFWAM Functional Assessment .....	4
2.5 Public Involvement Process .....	4
<b>3. RESULTS .....</b>	<b>5</b>
3.1 Study Area Description .....	5
3.2 Wetland Inventory Process .....	7
3.3 Summary of Inventory Results .....	7
3.4 Locally Significant Wetlands Analysis and Results .....	9
<b>4. PREPARERS AND CONTRIBUTORS .....</b>	<b>11</b>
<b>5. BIBLIOGRAPHY .....</b>	<b>12</b>
<b>6. APPENDICES .....</b>	<b>13</b>
Appendix A: Figures	
Appendix B: Data Sheets	
Appendix C: Wetland Summary Sheets	
Appendix D: Wetland Functional Assessment Results	

## Tables

Table 1: Drainage Basins and Streams in LWI Study Area .....	6
Table 2: LWI Wetland Summary Results .....	8
Table 3: Wetland Functional Assessment Results .....	10



## 1. INTRODUCTION

This Local Wetlands Inventory (LWI) has been conducted for the City of Beaverton's Cooper Mountain Community Plan (Community Plan). The Community Plan LWI project area is shown in APPENDIX A, Figure 1. Tax lots covered by the LWI are shown in Figure 2, including those tax lots in which site access was available and on-site wetland delineation methods were used.

When adopted, this LWI will be an amendment to the City's existing LWI. It is intended to cover the new Community Plan project area. No work was performed to revise existing LWI mapping for other areas of the City.

The LWI is intended to support planning level decision making and is not intended to replace more detailed site level wetland delineation work that may be needed for compliance with local, state, or federal regulations governing the protection of wetlands and surface waters. The LWI purpose and applicability, as provided in the Oregon Administrative Rules (OAR), are provided verbatim in italics text below.

### **OAR 141-086-0180 Purpose**

*Pursuant to Oregon Revised Statute (ORS) 196.674 pertaining to the Statewide Wetlands Inventory (SWI), these rules establish a system for uniform wetland identification and comprehensive mapping. These rules also establish wetlands inventory standards for cities or counties developing a wetland conservation plan (WCP) pursuant to ORS 196.678. A Local Wetlands Inventory (LWI) is developed for all or a portion of a city or county according to the standards and guidelines contained in these rules (OAR 141-086-0180 through 141-086-0240).*

### **OAR 141-086-0185 Applicability**

*(1) Once approved by the Department of State Lands (Department), the LWI must be used in place of the National Wetlands Inventory (NWI) and is incorporated into the SWI.*

*(2) The approved LWI must be used by cities and counties in lieu of the NWI for notifying the Department of land use applications affecting mapped wetlands and other waters (ORS 215.418 and 227.350).*

*(3) An LWI fulfills the wetlands inventory requirements for Goal 5 and Goal 17 (OAR 660-015 and 660-023). An LWI that meets the additional WCP requirements specified in these rules must be used as the wetlands inventory basis for a WCP.*

*(4) A wetland function and condition assessment of mapped wetlands must be conducted as part of the LWI using the Oregon Freshwater Wetland Assessment Methodology (OFWAM) published by the Department in 1996. An equivalent functional assessment methodology may be used or adjustments may be made to OFWAM upon written approval by the Director. The assessment results are used to determine the relative quality (functions, values, and condition) of the mapped wetlands and to designate significant wetlands (OAR 141-086-0300 through 141-086-0350) as required for Goal 5, or to assess wetland functions and values for a WCP.*

*(5) An LWI is used by the Department, other agencies and the public to help determine if wetlands or other waters are present on particular land parcels.*

*(6) An LWI provides information for planning purposes on the location of potentially regulated wetlands and other waters such as lakes and streams, but is not of sufficient detail for permitting purposes under the state Removal-Fill Law (ORS 196.800 through 196.990). Smaller wetlands may not be mapped, and wetlands may be missed due to lack of onsite access, tree canopy cover and other constraints. A wetland delineation or determination report may be needed for parcels without LWI-mapped wetlands. A Department-approved wetland delineation report for wetlands identified in an LWI is usually needed prior to site development.*

(7) All wetlands inventory procedures and products are subject to review and approval by the Department before the products:

- (a) Are incorporated into the SWI;
- (b) Can be used in lieu of the NWI for Wetland Land Use Notification purposes; or
- (c) Can be used by a city or county for Goal 5, Goal 17 or WCP purposes.

## **2. METHODS**

### **2.1 GENERAL**

Methods included a review of project area background materials and drive-by and on-site field reconnaissance visits. Field work was conducted during the week of April 20-25, 2020. Wetland delineation was conducted at a reconnaissance level of accuracy suitable for LWI documentation and City planning purposes. A draft copy of the LWI was provided to the Oregon Department of State Lands (DSL) to review on May 31, 2022 (report dated September 2021), with the full set of review comments received from DSL on December 28, 2023. DSL comments have been addressed in this current report version. No additional field work has occurred since the April 2020 field work.

This LWI follows DSL rules, specifically OAR 141-086. All wetlands one-half acre in size or larger were mapped as wetlands, while smaller wetlands were mapped as “probable wetlands.” An exception is that all previously delineated wetlands concurred by DSL shall be mapped as wetlands regardless of size and not be mapped as “probable wetlands.” DSL only requires that probable wetlands be mapped as point features (meaning that a single point would represent the wetland). For this project, probable wetlands were mapped as polygons based on an estimate of their size if site access was available; if it was clearly visible from a roadway, air photo signature, or Light Detection and Ranging (LIDAR) contours; or if a previous wetland delineation had been performed by others and that mapping was available. All other probable wetlands were mapped as polygons but at a set size of 0.001 acres as they were all very small features. Mapping of probable wetlands as polygons, where good data was available, was done to aid the City planning process, as these features will likely need to be avoided or encroachment minimized. Where site access was available within the project area, a single sample plot documenting typical conditions for the respective wetland was completed and boundaries were mapped using global positioning system (GPS). Data collection and wetland boundary delineation followed the Level 2 Routine Delineation Method described in the U.S. Army Corps of Engineers (Corps) Wetlands Delineation Manual (Environmental Laboratory 1987) and further supported by the Western Mountains, Valleys, and Coast Region (Corps 2010) regional supplement (Supplement). This method requires the simultaneous presence of hydrophytic vegetation, hydric soils, and positive wetland hydrology in wetland delineations.

### **2.2 PRELIMINARY RESOURCE REVIEW**

Reference materials were reviewed prior to the field investigation to provide information regarding the possible presence of wetlands, water features, hydric soils, wetland hydrology, site topography, and habitat conditions. The materials reviewed included:

- ESRI ArcGIS OnlineWorld Imagery aerial photo imagery for ArcGIS (2020)
- Metro Regional Land Information System (RLIS) Geographic Information System (GIS) wetlands layer, hydric soils layer, and GIS streams layer (2020)
- Metro Cooper Mountain Natural Resource Management Plan (November 2005)

- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) for Washington County, Oregon (2020)
- Oregon Department of Fish and Wildlife (ODFW) fish distribution GIS layers (2020)
- Shapiro & Associates, Inc. City of Beaverton Local Wetlands Inventory and GIS data (2000)
- David Evans and Associates, Inc. South Cooper Mountain Annexation Area Local Wetlands Inventory. Prepared for the City of Beaverton. (2016)
- U.S. Fish and Wildlife Service. National Wetlands Inventory Wetland Mapper (2020)
- U.S. Geological Survey (USGS) National Hydrographic Database (NHD) high resolution GIS streams layer (2020)
- City of Beaverton January 2013 LIDAR derived contours (January 2013)
- DSL wetland determination/delineation database search results for Community Plan project area (April 2020)

### 2.3 MAPPING PROCEDURES AND ESTIMATED ACCURACY

Mapping of LWI features was supported through use of high-resolution color aerial photography (Esri 2020), the USGS NHD high resolution streams layer (USGS 2020), and LIDAR contour data provided by the City of Beaverton (2013). Ground truthing occurred on tax lots where access was available and from publicly accessible viewing areas (i.e., roadway right of way). In office review using aerial and LIDAR contours was conducted using GIS technology, which allowed for viewing information at various scales. This included the minimum photo scale of 1 inch = 200 feet required by OAR 141-086-0210(2)(g). Metadata for the aerial photography provides the following description:

*“The dataset encompasses portions of Washington, Multnomah, and Clackamas Counties. These data are LiDAR orthorectified aerial photographs of the West Metro study area. The data are delineated into north and south halves of 1/100th of standard USGS 7.5 minute quadrangles to create manageable file sizes. Each 4 band color image tile has a pixel resolution of 3 in. [Note pixel size measured in data provided by City of Beaverton was measured at 0.25 ft] These data are projected in NAD 83 State Plane, Oregon North, and their units are in feet. WSI collected the LiDAR and created this data set for the Oregon LiDAR Consortium.”*

The Metro-RLIS wetlands layer and existing LWI-DSL layer provided by the City were merged and used as a starting point for mapping wetland resources within the project area. Obvious wetland boundary adjustments were made based on review of the ESRI (2020) aerial photography and roadside reconnaissance. All wetlands were assigned a Cowardin class (i.e., vegetation type such as forested, emergent, etc.) and a hydrogeomorphic (HGM) class (i.e., slope, depression, etc.). Assigning of Cowardin and HGM classes was typically based on review of aerial photo and LIDAR contours, or field verification where possible.

For properties in which site access was available (see APPENDIX A Figure 2), wetland and waterway mapping was supported through use of ESRI ArcCollector mapping software linked to a Trimble R1 GPS unit with typical accuracy of one meter or better. Representative boundary and sample plot locations were collected and then exported to GIS format (i.e., Esri shapefile format). Although typical GPS accuracy is

considered one meter or better, the mapping accuracy of field verified wetlands should be considered to be five meters (16.4 feet) or better, as sample plots were conducted at a reconnaissance level of accuracy.

Per the OARs, probable wetlands can be recorded as a point, rather than a polygon. However, David Evans and Associates, Inc. (DEA) recorded approximate wetland polygon shapes, where feasible, to better inform the process.

Streams and other waters were mapped in accordance with OAR 141-086-0210(19), which states that “Streams and other waters must be mapped, but no further documentation such as wetland summary sheets or OFWAM assessment is required. If an existing stream geospatial dataset is used, it may be necessary to adjust the layer to align with riparian or other linear wetlands.”

Mapping of streams started with use of the USGS NHD high resolution streams GIS layer, which matched very closely with LIDAR contours (City of Beaverton 2013). Stream lines were modified based on field observations where access was available. In other areas, stream lines were adjusted to better match topographic contours and aerial photo interpretation.

GIS data produced by DEA was originally created using the state plane, Oregon north coordinate system, North American Datum of 1983 (NAD83) horizontal datum, international feet to maintain consistency with other Community Plan mapping efforts. This data was then re-projected into the Lambert system to comply with Oregon statewide wetland mapping standards required by DSL.

## **2.4 OFWAM FUNCTIONAL ASSESSMENT**

Wetland functions were evaluated for wetlands greater than one half acre using the Oregon Freshwater Wetland Assessment Method (OFWAM). OFWAM results were used to determine if any of the Community Plan wetlands qualify as “locally significant wetlands” in accordance with criteria set forth in OAR 141-086-0350. Following DSL guidance, probable wetlands were not included in the evaluation of locally significant wetlands.

## **2.5 PUBLIC INVOLVEMENT PROCESS**

Landowners within the project area with the potential to have wetlands or waterways on their property (e.g., situated along known riparian corridors, mapped hydric soils) were contacted by the City to inform them of the LWI project, which would be conducted as part of the greater planning project. The City requested property access to allow City’s consultant, DEA, to perform on-site wetland delineation work. As shown on Figure 2 of APPENDIX A, access was granted to 23 tax lots, including large parcels owned by Metro. It should be noted that many of the Metro parcels and the less-developed parcels along McKernan Creek southwest of Winkelman Park were dominated by dense forest replete with poison oak. Therefore, it was not possible to physically enter the entire parcel, and small slope wetlands (probable wetlands) could have been missed in these areas. Similarly, the headwaters of some creeks were covered in dense blackberry and poison oak, making exact delineation of their starting points impossible. However, existing contours and stream data, combined with hydric soils mapping makes it unlikely that significant features were excluded.

The City established a Community Plan website and a Public Engagement Plan that seeks to keep stakeholders informed of project activities and provide for active outreach to a diverse audience at key milestones. This has included posting a copy of the draft LWI report to the website and seeking input



from landowners within the Community Plan boundary as well as the broader community. Community listening sessions were also held, which included opportunities to discuss the draft LWI. Listening sessions were held remotely due to the unique conditions associated with Covid 19 safety protocols.

Four property owners provided email comments specific to the draft LWI, with one of the property owners providing wetland delineation mapping prepared by their consultant. The City provided responses back to all property owners. The wetland delineation that was provided had not been submitted for DSL concurrence. DEA did not have access to this property but did review the delineation mapping provided by the property owner. DEA utilized this mapping to refine the off-site LWI wetland mapping where contour signatures suggested a change was appropriate. However, DEA continued with a more conservative mapping of potential wetland boundaries where contours suggested wetland hydrology could be present, but the property owner's delineation mapped an absence of wetlands. This does not signify that the property owners mapping is inaccurate, but simply that a more conservative approach was taken since the provided mapping had not been concurred with by DSL. DSL commented on the mapping of this wetland as part of the draft LWI review, requesting that DEA expand the boundary to better reflect off-site evidence and to discount the information provided by the property owner. The boundary was therefore readjusted/expanded based on topography and aerial photo interpretation.

### **3. RESULTS**

LWI results documentation has been prepared in accordance with OAR 141-086-0220 LWI Reports and is provided herein.

#### **3.1 STUDY AREA DESCRIPTION**

*OAR 141-086-0220(2)(a) A general description of the study area including a description of the landscape setting;*

The southwestern and central portion of the project study area primarily consists of rural agricultural lands with scattered residences and the riparian zone of McKernan Creek and its tributaries. Open spaces and forest owned primarily by Metro occupies much of the northern portion and includes Cooper Mountain Nature Park.

Four watersheds draining the LWI study area cover an area of approximately 1,241 acres, with Lindow Creek/Jackson Creek, which contains McKernan Creek, draining the greatest area (791.8 acres) followed by Summer Creek tributaries to the north and east (305.7 acres), Tualatin River tributaries to the south (131.8 acres), and Johnson Creek tributaries to the south (11.27 acres). The average slope of the watersheds is approximately 8 percent, with lower gradient slopes occurring in the southern/lower portion and steeper slopes occurring in the northern/upper portion.

Table 1 and Figure 5 (APPENDIX A: Figures) show Clean Water Services (CWS) stream sheds and associated drainages that occur within the LWI study area. Regarding watershed boundaries, this geospatial dataset represents the 6th level (12-digit) hydrologic unit boundaries from the Watershed Boundary Dataset (WBD) layer for Oregon. Hydrologic units within the WBD\_OR\_HUC\_12 represent drainage areas delineated to the 6th level drainage systems.

**Table 1: Drainage Basins and Streams in LWI Study Area**

Clean Water Services Stream Shed <sup>1</sup>	Clean Water Services Basin ID <sup>2</sup>	Water Bodies <sup>3</sup>	Water Body ID <sup>3</sup>
Jackson/Lindow	LW	McKernon Creek	MK
	LW	Unnamed trib to McKernon Creek-1	MK-1
	LW	Unnamed trib to McKernon Creek-2	MK-2
	LW	Unnamed trib to McKernon Creek-3	MK-3
	LW	Unnamed trib to McKernon Creek-4	MK-4
	LW	Unnamed trib to MK-4ab	MK-4a
	LW	Unnamed trib to MK-4ab	MK-4b
	LW	Unnamed trib to MK-4ab	MK-4ab
	LW	Unnamed trib to McKernon Creek-5	MK-5
	LW	Unnamed trib to McKernon Creek-6	MK-6
Summer Creek	SM7W4	Summer Creek	SM
	SM7W4	Unnamed trib to Summer Creek	SM-1
Unnamed Tributary to Tualatin River	SMC	*Unnamed trib to SMC	SMC
	TR06.5	*Unnamed trib to Tualatin River	TR-1
	TR06.5	*Unnamed trib to TR-1	TR-1a
Johnson Creek South	JSBS	No streams mapped in study area	--
	JSE	No streams mapped in study area	--
	JSCS	No streams mapped in study area	--

<sup>1</sup> Data from "CWS\_SmallSubBasins" GIS shapefile, "STREAMSHED" data field

<sup>2</sup> Data from "CWS\_SmallSubBasins" GIS shapefile, "IDALL" data field

<sup>3</sup> Water body IDs assigned by Cooper Mountain Community Plan project

Most streams in the watershed have been modified to varying degrees by incision, channelization, or other manipulations for agriculture. For the most part, water is not being taken out of the streams through diking, drainage or irrigation districts in the watershed upstream of the assessment area. However, most of the area to the north and east of the Community Plan project area is being rapidly urbanized.

The LWI study area drains to the Tualatin River or tributaries of the Tualatin River, with most of the watershed draining southwest via McKernan Creek. Drainages typically begin as headwater drainages or wetlands, with much of the stream length likely only flowing intermittently, drying out in the late

summer. A historic cattle pond dam/water control structure occurs near the headwaters of tributary 6 to McKernan Creek (S-MK-6-1). McKernan Creek originates in a small wetland in the southwest corner of Winkelman Park, along SW 175<sup>th</sup> Avenue. The upper reaches of McKernan Creek flow through primarily forested lots with large residences along SW Horse Tale Drive. Winkelman Park is a large recreational open space west of SW 175<sup>th</sup> Avenue. East of SW 175<sup>th</sup> Avenue, lots and residences are somewhat smaller, and are bordered to the east, north, and south by suburban development and recent heavy urbanization within the UGB.

Land use is predominantly rural residential and agricultural, with a mix of annual crop production, pasture, orchards, and viticulture. Within the Cooper Mountain LWI area, medium and large remnant patches of native forest habitat occur, including mixed upland fir-deciduous forest in much of the eastern residential area and to the north, Oregon ash dominated wetland forest along McKernan Creek and its tributaries, and patches of Oregon oak forest. Most Oregon oak forest lies in Metro properties to the north, and the Oregon oak forest previously mapped (Oakquest 2018) north of SW Horse Tail Drive has been logged in recent years, with only a few trees remaining to the southwest on properties where access was not granted.

Several fir dominated lots were being logged or had recently been logged as observed during the April 2020 site visits. Most significantly, the majority of the forested areas in the northernmost portion of the study area had been cleared within the previous year and converted to grass fields with slash piled along the perimeter.

### **3.2 WETLAND INVENTORY PROCESS**

*OAR 141-086-0220(2)(b) A description of the wetland inventory process including the public involvement process; the inventory methods including the date(s) and scale(s) of source maps and aerial photos used; the offsite and onsite wetland determination procedures including procedures used for visual confirmation and probable wetland identification; and all mapping and map transfer procedures used;*

See methods discussion above.

### **3.3 SUMMARY OF INVENTORY RESULTS**

*OAR 141-086-0220(2)(c) A summary of the inventory results including the total acreage of the study area and the total number and acreage of wetlands identified within the study area, excluding the acreage of deepwater habitat and artificially created wetlands such as detention ponds or aggregate extraction ponds;*

The project area occupies approximately 1,240 acres. The study area contains an estimated 23.615 acres of wetlands and probable wetlands. Table 2 provides a list of individual wetlands, their sizes, and their HGM and Cowardin classifications. Study area wetlands are displayed in APPENDIX A Figure 5. Representative sample plots for each wetland are provided in APPENDIX B and summary sheets describing each wetland are provided in APPENDIX C.

**Table 2: LWI Wetland Summary Results**

<b>Wetland ID<sup>1</sup></b>	<b>Cowardin<sup>2</sup></b>	<b>HGM</b>	<b>Acres <sup>4</sup></b>
PW-MK-1-a	PEM1B	Slope	0.07
PW-MK-4a-a	PEM1B	Depressional	0.002
PW-MK-a	PEM1B	Depressional	0.06
PW-MK-5-a	PUBx	Depressional	0.30
PW-MK-b	PEM1B	Depressional	0.04
PW-MK-c	PSS1B	Slope	0.22
PW-MK-e	PSS1B	Slope	0.48
PW-MK-f	PSS1B	Slope	0.38
PW-MK-g	PSS1B	Slope	0.41
PW-MK-h	PSS1B	Depressional	0.002
PW-SM-a	PEM1B	Slope	0.002
PW-SM-b	PEM1B	Slope	0.13
PW-SM-d	PSS1B	Riverine	0.12
PW-SM-d	PUBx	Depressional	0.17
PW-SM-e	PUBx	Depressional	0.33
PW-SMC-a	PSS1B	Slope	0.002
PW-TR-1-a	PSS1B	Riverine	0.17
PW-TR-1a-a	PEM1B	Slope	0.002
PW-TR-1a-b	PEM1B	Slope	0.08
PW-TR-1a-c	PEM1B	Slope	0.09
PW-TR-1a-d	PEM1B	Depressional	0.002
W-MK-1	PEM2Bf	Slope	4.01
W-MK-1	PEM1B	Slope	1.10
W-MK-1	PFO1B	Slope	7.26
W-MK-1-1	PEM1B	Slope	1.31
W-MK-4-1	PEM1B	Slope	1.14
<sup>3</sup> W-MK-4-a	PEM1B	Depressional	0.37
<sup>3</sup> W-MK-4-b	PSS1B	Depressional	0.003
W-MK-6-1	PSS1B	Slope	1.79
W-MK-6-1	PEM2Bf	Slope	3.21
W-MK-6-1	PFO1B	Slope	1.05
<sup>3</sup> W-SM-c	PEM1B	Slope	0.11
<b>Probable Wetland Acreage</b>			<b>3.062</b>
<b>Wetland Acreage</b>			<b>21.353</b>
<b>Grand Total</b>			<b>24.415</b>

<sup>1</sup> "W" = wetland, "PW" = probable wetland

<sup>2</sup> PEM2Bf= Palustrine Emergent, Nonpersistent, Seasonally Saturated, farmed

PEM1B = Palustrine Emergent, Persistent, Seasonally Saturated

PSS1B= Palustrine Scrub-shrub, Broad-leaved Deciduous, Seasonally Saturated

PFO1B= Palustrine Forested, Broad-leaved Deciduous, Seasonally Saturated

PUBx= Palustrine Unconsolidated Bottom, Excavated

<sup>3</sup> Feature has been mapped as a wetland instead of a probable wetland despite being less than 0.5 acres. This is because the feature was part of a past wetland delineation that received DSL concurrence.

<sup>4</sup> Probable wetlands with acreage of 0.002 are rough estimates of very small features that may be wetlands.

The following discussion summarizes the range of wetland resources identified in the project area. More detailed descriptions are provided in the APPENDIX C summary sheets. Only four wetlands greater than 0.5 acres occur in the study area. These tend to consist of relatively long and linear shaped wetlands that follow along the McKernan Creek riparian corridors. These wetlands contain a patchwork of palustrine emergent wetland dominated by non-native grasses [e.g., meadow foxtail (*Alopecurus pratensis*)] or in agricultural production, as well as forested and scrub-shrub wetlands typically dominated by native plant species. One relatively large palustrine emergent wetland area occurs within Cooper Mountain Nature Park and contains a relatively diverse native plant community as a result of active management.

Most wetlands were considered to be slope wetlands as the dominant source of hydrology is likely to be hillside seepage or shallow subsurface flow. However, several small probable wetlands appeared to be fed primarily by precipitation and a small amount of runoff and had no outlet—these were classified as depressional. Two probable wetlands were fed primarily by flows from small streams rather than mainly groundwater and were classified as riverine.

### 3.4 LOCALLY SIGNIFICANT WETLANDS ANALYSIS AND RESULTS

A determination of locally significant wetlands was conducted based on the analysis provided below. This included a wetland functional assessment using the Oregon Freshwater Wetland Assessment Method in addition to additional required criteria, which are all required to be reviewed per OAR 141-086-0220(2).

***OAR 141-086-0220(2)(a) A discussion of the OFWAM assessment process (e.g. how assessment units were defined) and the results;***

Table 3 provides a summary of wetland functional assessment results for the wetlands that are one-half acre or greater in size or that were delineated in a previous DSL approved wetland delineation. Wetland characteristics for these wetlands are summarized in the individual wetland summary sheets provided in APPENDIX C. Wetland W-MK-1 was the largest, most diverse, and most intact wetland within the study area, and scored high for all functions except Water Quality. Vegetative diversity in Wetland W-MK-4-1 and W-MK-4-1a was high and wildlife use was presumed to be high given the vernal nature of the wetlands, which is unusual and limited in the region. However, it did not rate well for the functions assessed by OFWAM, which generally focuses on wetland structure and water features. Similarly, the lack of structure and fish habitat in W-MK-1-1 and W-MK-6-1 resulted in a low rating.

**Table 3: Wetland Functional Assessment Results**

Wetland ID	Wildlife Habitat	Fish Habitat	Water Quality	Hydrologic Control	Meets Locally Significant Criteria
W-MK-1	Diverse	Intact	Degraded	Intact	Yes
W-MK-1-1	Some	Degraded	Degraded	Degraded	No
<sup>1</sup> W-MK-4-1 and W-MK-4-a	Some	Not Present	Degraded	Degraded	No
W-MK-4-b	Some	Not Present	Not Present	Not Present	No
W-MK-6-1	Degraded	NA	Not present	Not present	No
W-SM-c	Some Habitat	Degraded	Degraded	Degraded	No

Notes:

<sup>1</sup> W-MK-4-1 and W-MK-4-1 have been assessed as a single wetland unit. These wetlands are proximate to each other, share similar characteristics, and are both located in the Cooper Mtn Nature Park.

For each function, OFWAM provides a result rating that is akin to a high, moderate, or low/not present rating. However, OFWAM does not specifically use these terms but instead uses full sentence descriptions. The terms used in the table above are abbreviated versions of the full sentence descriptions. These can be thought of as follows:

High function = diverse, intact

Moderate function = some, degraded, impacted

Low or not present function = lost, not present

***(b) The wetland or a portion of the wetland occurs within a horizontal distance less than one-fourth mile from a water body listed by the Department of Environmental Quality as a water quality limited water body (303(d) list), and the wetland's water quality function is described as "intact" or "impacted or degraded" using OFWAM. The 303(d) list specifies which parameters (e.g., temperature, pH) do not meet state water quality standards for each water body. A local government may determine that a wetland is not significant under this subsection upon documentation that the wetland does not provide water quality improvements for the specified parameter(s).***

There are no water quality limited (303(d) list) water bodies within one-fourth of a mile of wetlands mapped within the LWI study area. Therefore, no LWI wetlands are considered significant based on this criterion.

***(c) The wetland contains one or more rare plant communities, as defined in this rule.***

None of the wetlands within the LWI study area contain rare plant communities. The plant communities are all commonly found within the Willamette Valley and consist of a mix of common native and non-native plant species. Therefore, no LWI wetlands are considered significant based on this criterion.

***(d) The wetland is inhabited by any species listed by the federal government as threatened or endangered, or listed by the state as sensitive, threatened or endangered, unless the appropriate state or federal agency indicates that the wetland is not important for the maintenance of the species.***

***(A) The use of the site by listed species must be documented, not anecdotal. Acceptable sources of documentation may include but are not limited to: field observations at the wetland sites during the local wetlands inventory and functional assessments, and existing information on rare species occurrences at agencies such as the Oregon Natural Heritage Program, Oregon***

*Department of Fish and Wildlife, Oregon Department of Agriculture and the U.S. Fish and Wildlife Service.*

*(B) Input originating from other locally knowledgeable sources constitutes “documentation” if verified by one of the above agencies or a university or college reference collection.*

Wetlands mapped within the LWI study area are not known to contain federal or state listed or sensitive species. None were observed during field investigations or through a review of Oregon Biological Information Center (ORBIC, formerly named the Oregon Natural Heritage Program) data. Therefore, no LWI wetlands are considered significant based on this criterion.

*(e) The wetland has a direct surface water connection to a stream segment mapped by the Oregon Department of Fish and Wildlife as habitat for indigenous anadromous salmonids, and the wetland is determined to have “intact” or “impacted or degraded” fish habitat function using OFWAM.*

Based on Oregon Department of Fish and Wildlife (ODFW) fish distribution maps, no stream segment within the LWI study area contains indigenous anadromous salmonids. Therefore, no LWI wetlands are considered significant based on this criterion.

*OAR 141-086-0220(2)(e) A summary of Locally Significant Wetlands, if identified (may be in table format);*

Wetland W-MK-1 met locally significant wetland criteria (which means at least one of the four functions evaluated rated highly). W-MK-1-1, W-MK-4-1 and W-MK-4-a, W-MK-6-1, and W-SM-c did not meet locally significant wetland criteria, primarily because they do not provide fish habitat support and are fed by groundwater rather than river flows due to their higher position in the watershed than W-MK-1. Wetlands W-MK-1-1, W-MK-4-1 and W-MK-4-a, W-MK-6-1, and W-SM-c also did not meet the criteria related to proximity to 303(d) listed waters, adjacency to streams with indigenous anadromous salmonids, contain rare plant communities or contain listed federal or state species. However, it should be noted that the forested portions of both W-MK-6-1 and W-MK-1 met criteria as wetlands of Special Interest for Protection because they are mapped Goal 5 resources. The results of this LWI and summary of locally significant wetlands will inform the Cooper Mountain Community Plan Natural Resources Report, ESEE (Economic, Social, Environmental, and Energy) analysis, and subsequent policy and development code updates related to the Cooper Mountain Community Plan study area. Determinations of Goal 5 significance for wetlands and other resources are found in the ESEE.

#### **4. PREPARERS AND CONTRIBUTORS**

Phil Rickus, DEA Ecologist, and Valerie Thompson, DEA Environmental Specialist, performed the field work. Mr. Rickus is the primary author of this report, and Ethan Rosenthal, DEA Ecologist, provided quality control review and the report update. Corie Peters, DEA Project Assistant, provided editing assistance. Sara Gilbert, DEA GIS Specialist, conducted GIS analysis and prepared report figures.

## 5. BIBLIOGRAPHY

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- U.S. Geological Survey (USGS). 2020. National Hydrographic Database National Hydrographic Database (NHD) GIS streams layer.



## **6. APPENDICES**

## ***APPENDIX A: Figures***








**OAR 141-086-0220(2)(f)** All figures, with the study area clearly outlined.

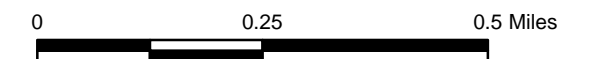
**Figure 1  
Vicinity Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  Stream/Creek
-  PLSS Section
-  Beaverton City Limits
-  Park
-  Washington County Tax Lot
-  Street

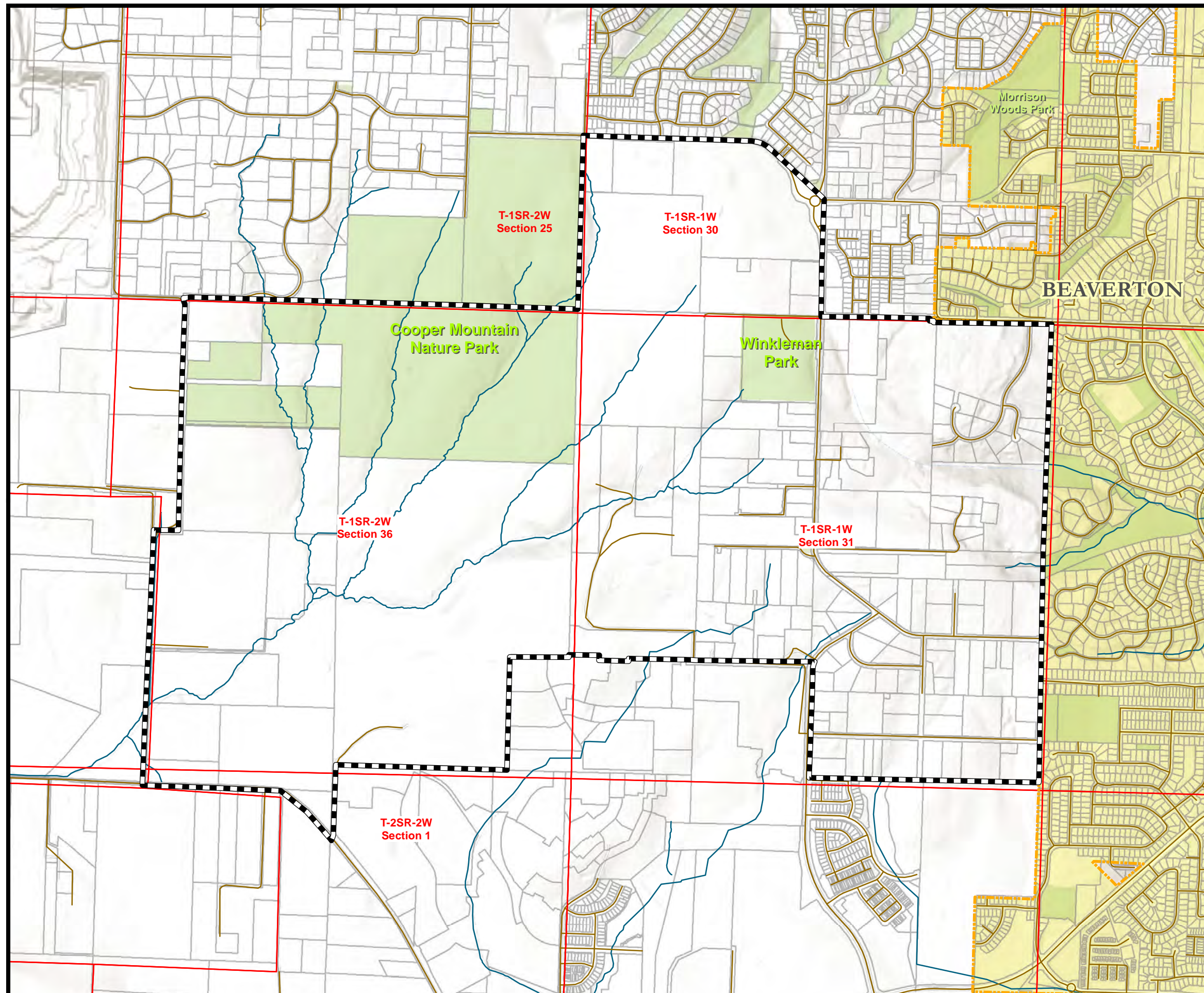


Data Sources:  
LWI Study Area: City of Beaverton, 2020  
Metro RLIS, USGS NHD

Disclaimer: Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands-approved wetland delineation is required for state removal-fill permits. You are advised to contact the Department of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



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




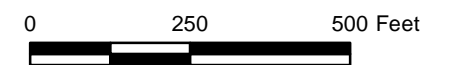
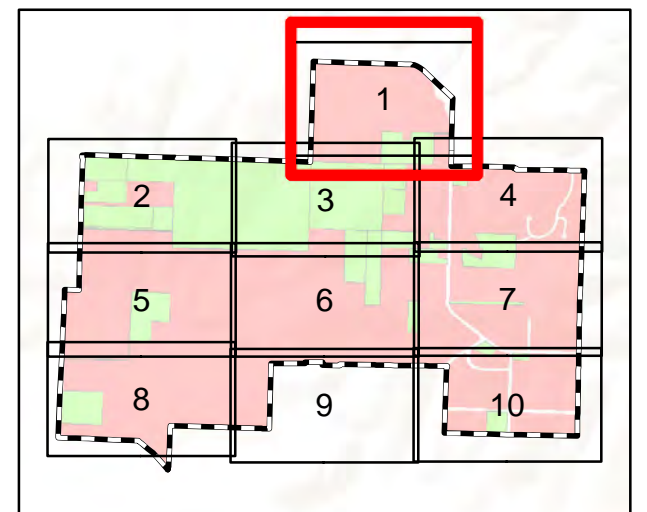
**Figure 2, Sheet 1 of 10  
Tax Lots and Property Access Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Property with Site Access
-  ROE not granted (as of April 30, 2020)
-  Street

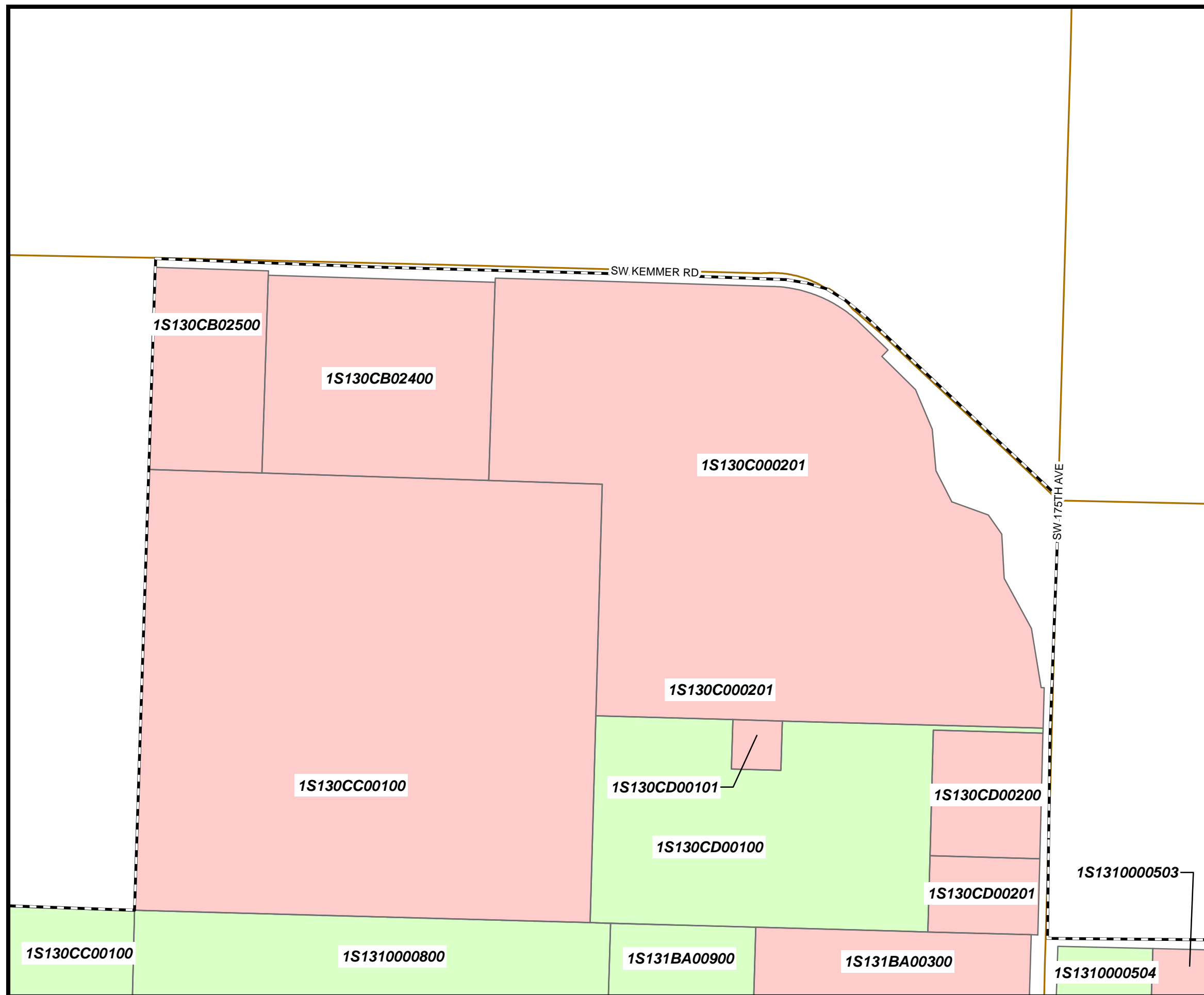


Data Sources:  
LWI Study Area: City of Beaverton, 2020  
Taxlots, City Limits, Streets: Metro RLIS, 2020

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




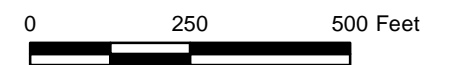
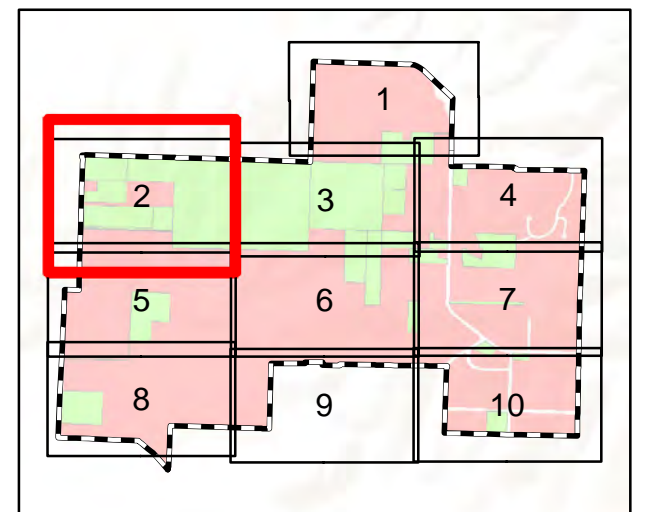
**Figure 2, Sheet 2 of 10  
Tax Lots and Property Access Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Property with Site Access
-  ROE not granted (as of April 30, 2020)
-  Street



Data Sources:  
LWI Study Area: City of Beaverton, 2020  
Taxlots, City Limits, Streets: Metro RLIS, 2020

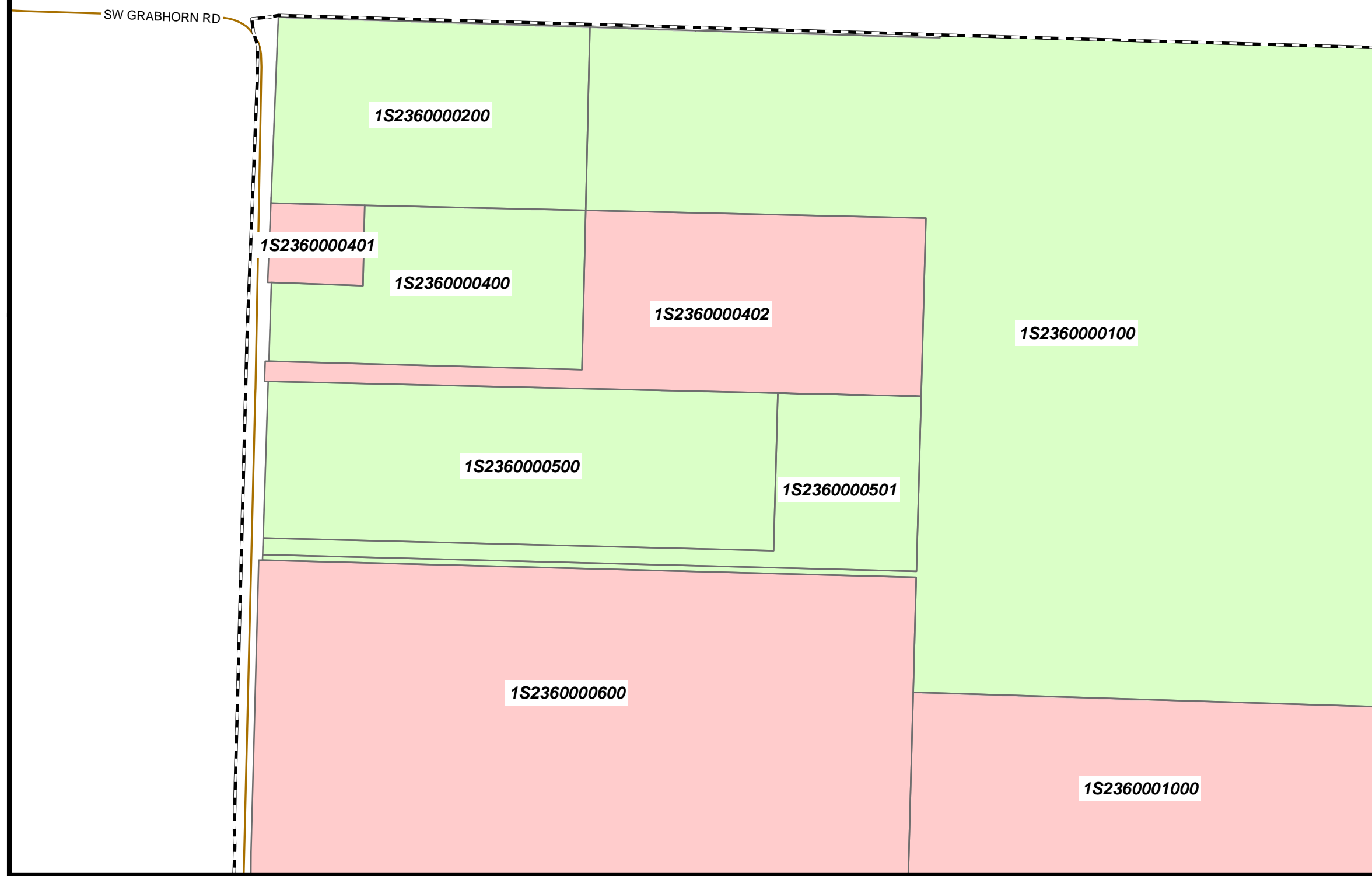
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




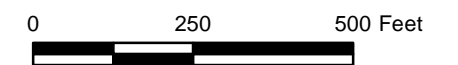
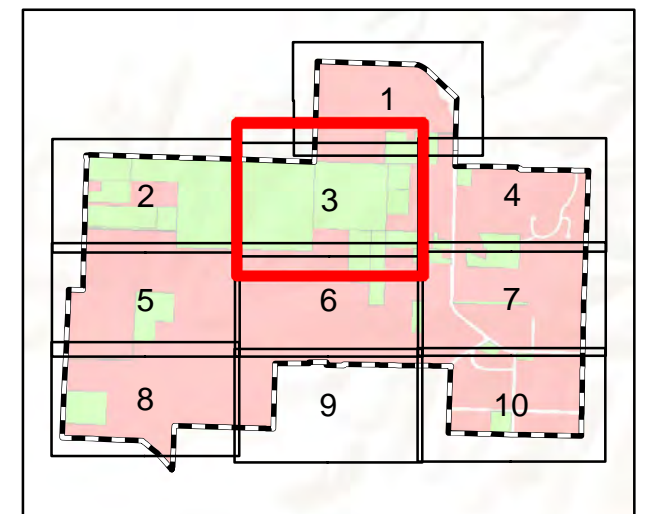
**Figure 2, Sheet 3 of 10  
Tax Lots and Property Access Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Property with Site Access
-  ROE not granted (as of April 30, 2020)
-  Street

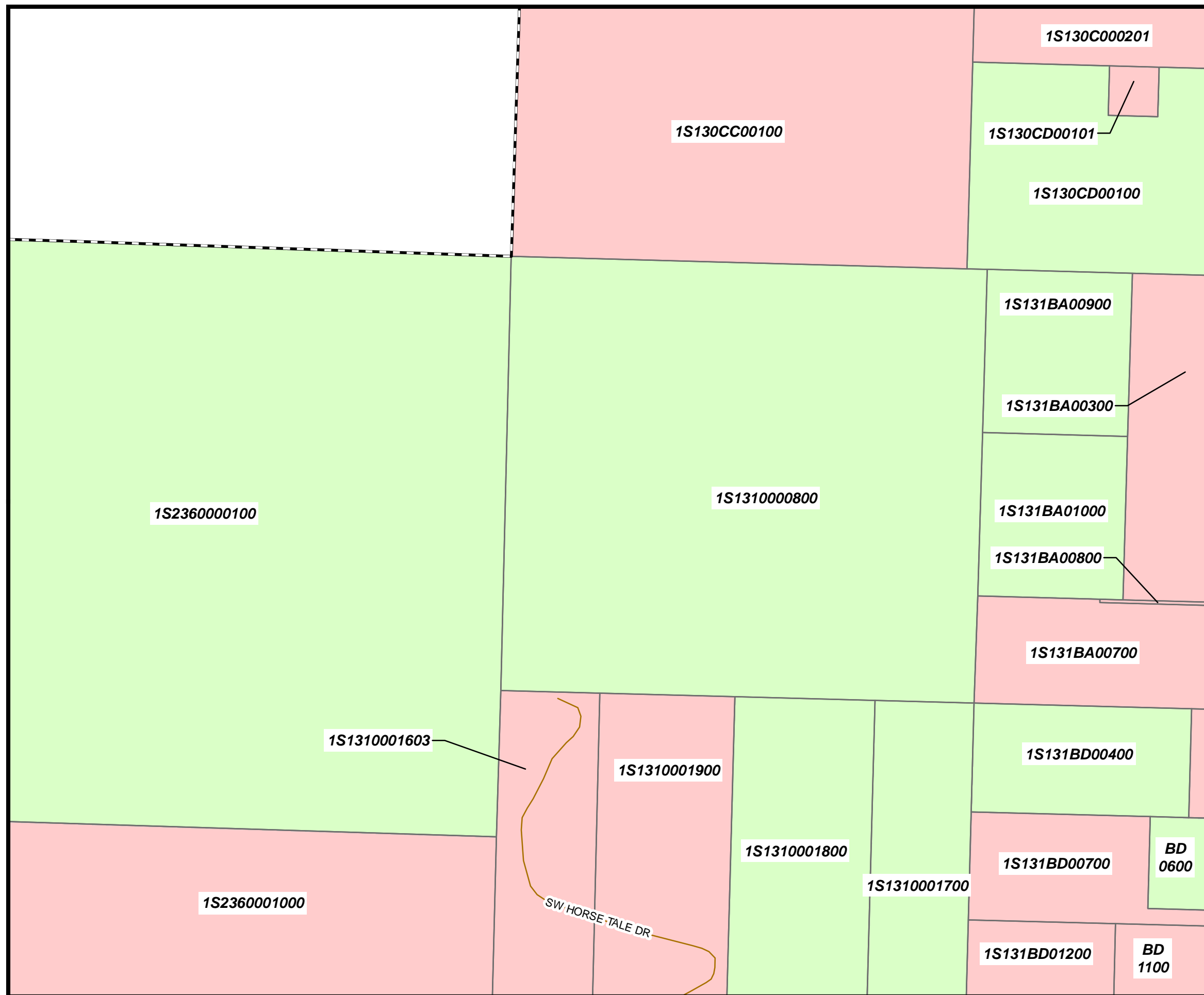


Data Sources:  
LWI Study Area: City of Beaverton, 2020  
Taxlots, City Limits, Streets: Metro RLIS, 2020

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




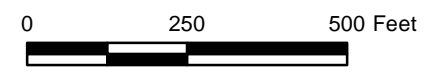
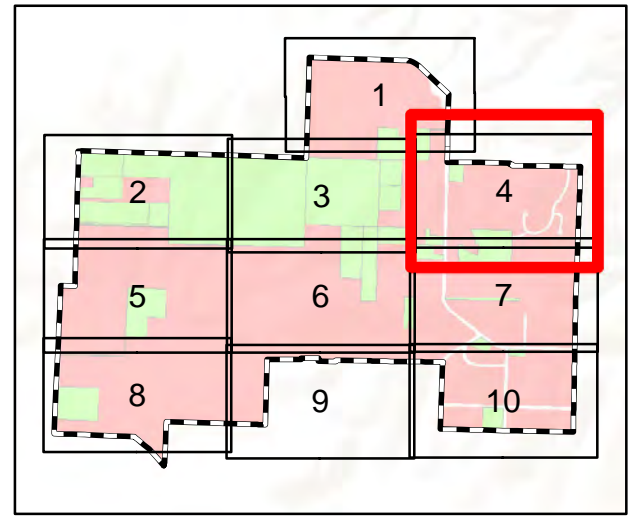
**Figure 2, Sheet 4 of 10  
Tax Lots and Property Access Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Property with Site Access
-  ROE not granted (as of April 30, 2020)
-  Street

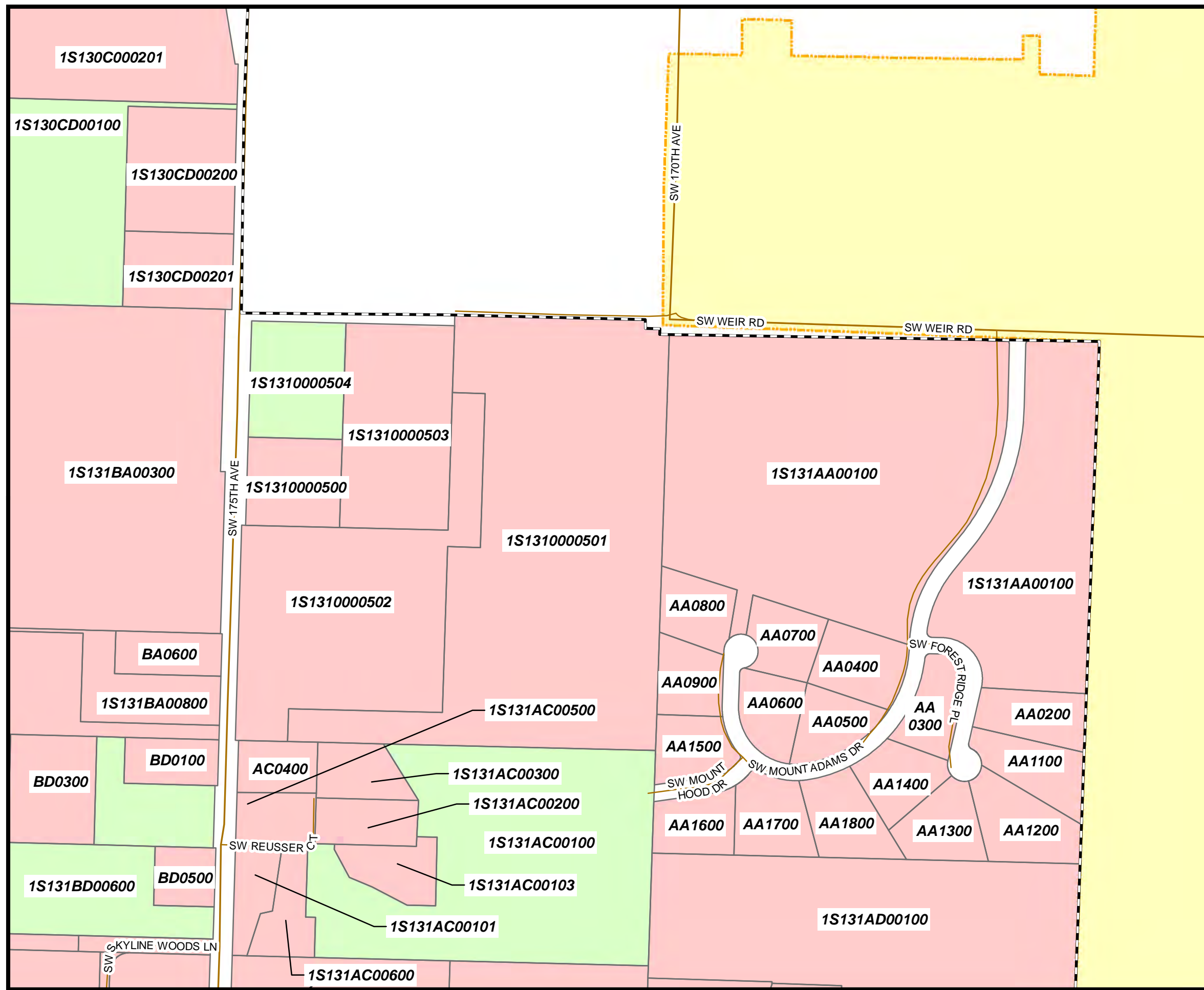


Data Sources:  
LWI Study Area: City of Beaverton, 2020  
Taxlots, City Limits, Streets: Metro RLIS, 2020

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




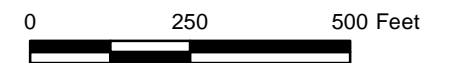
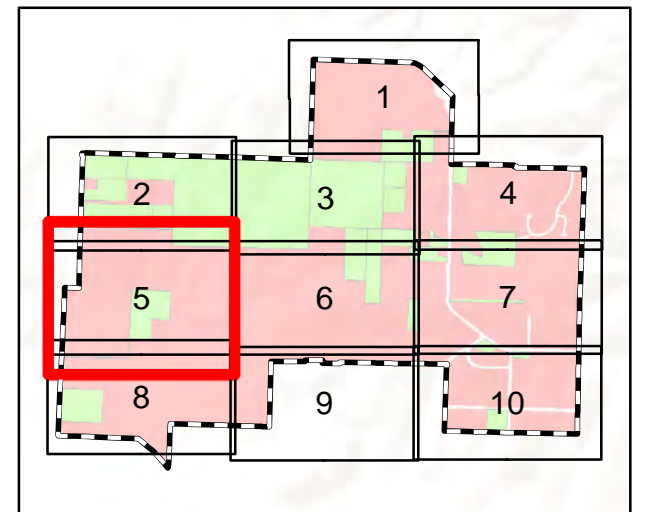
**Figure 2, Sheet 5 of 10  
Tax Lots and Property Access Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Property with Site Access
-  ROE not granted (as of April 30, 2020)
-  Street



Data Sources:  
LWI Study Area: City of Beaverton, 2020  
Taxlots, City Limits, Streets: Metro RLIS, 2020

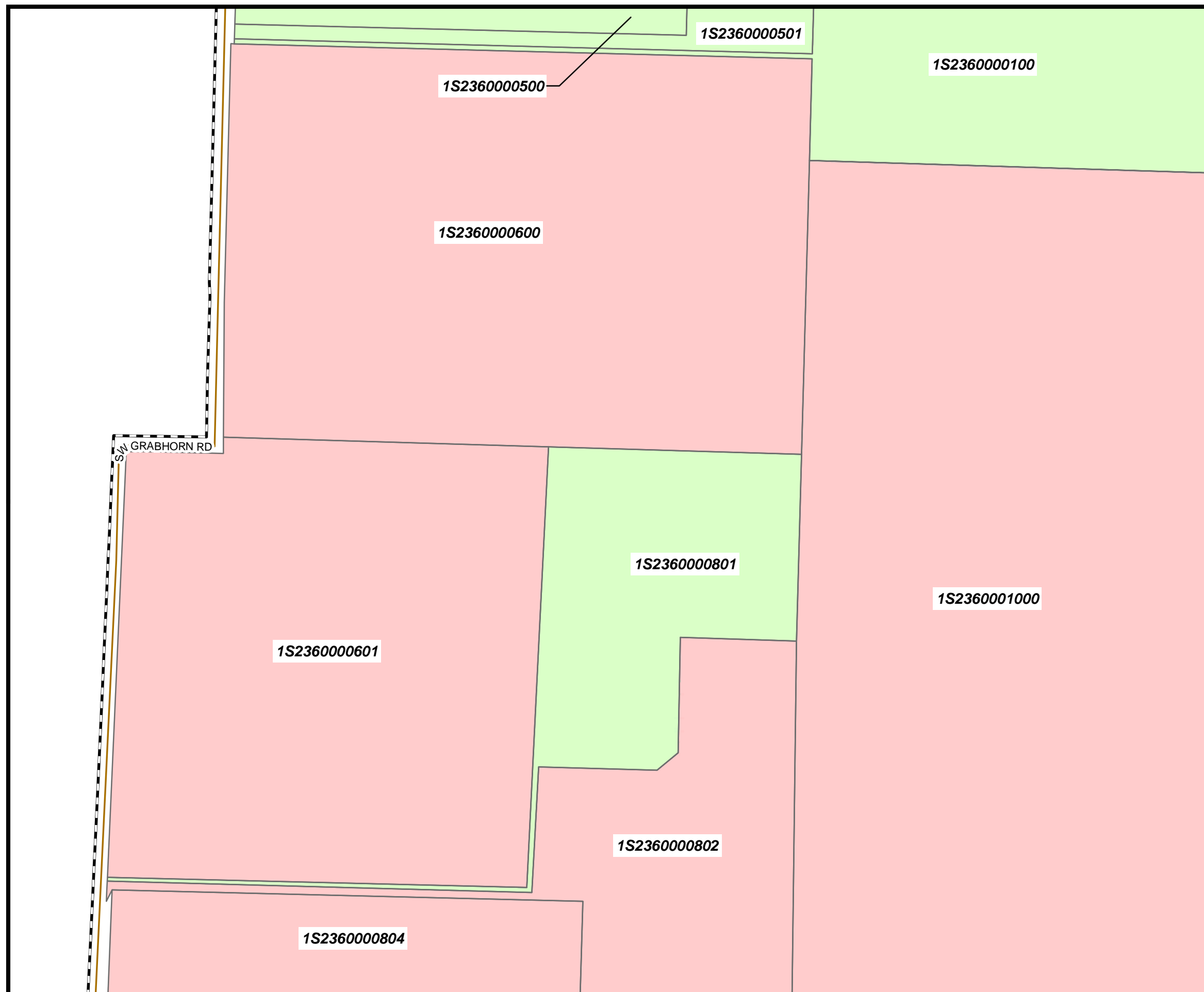
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




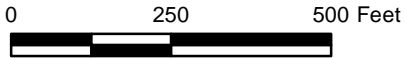
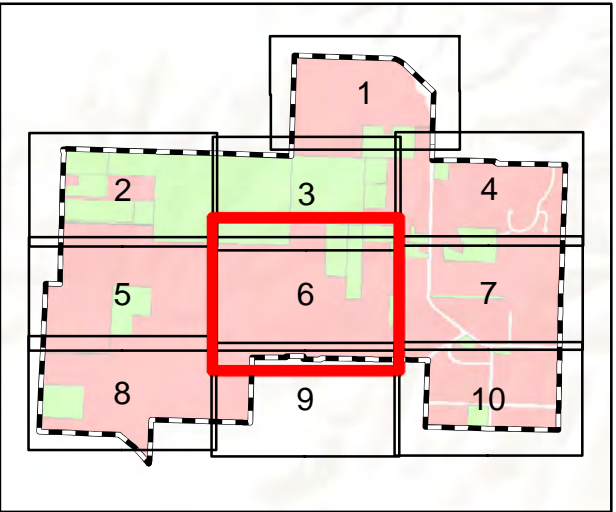


**Figure 2, Sheet 6 of 10**  
**Tax Lots and Property Access Map**  
**City of Beaverton**  
**Cooper Mountain Community**  
**Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Property with Site Access
-  ROE not granted (as of April 30, 2020)
-  Street

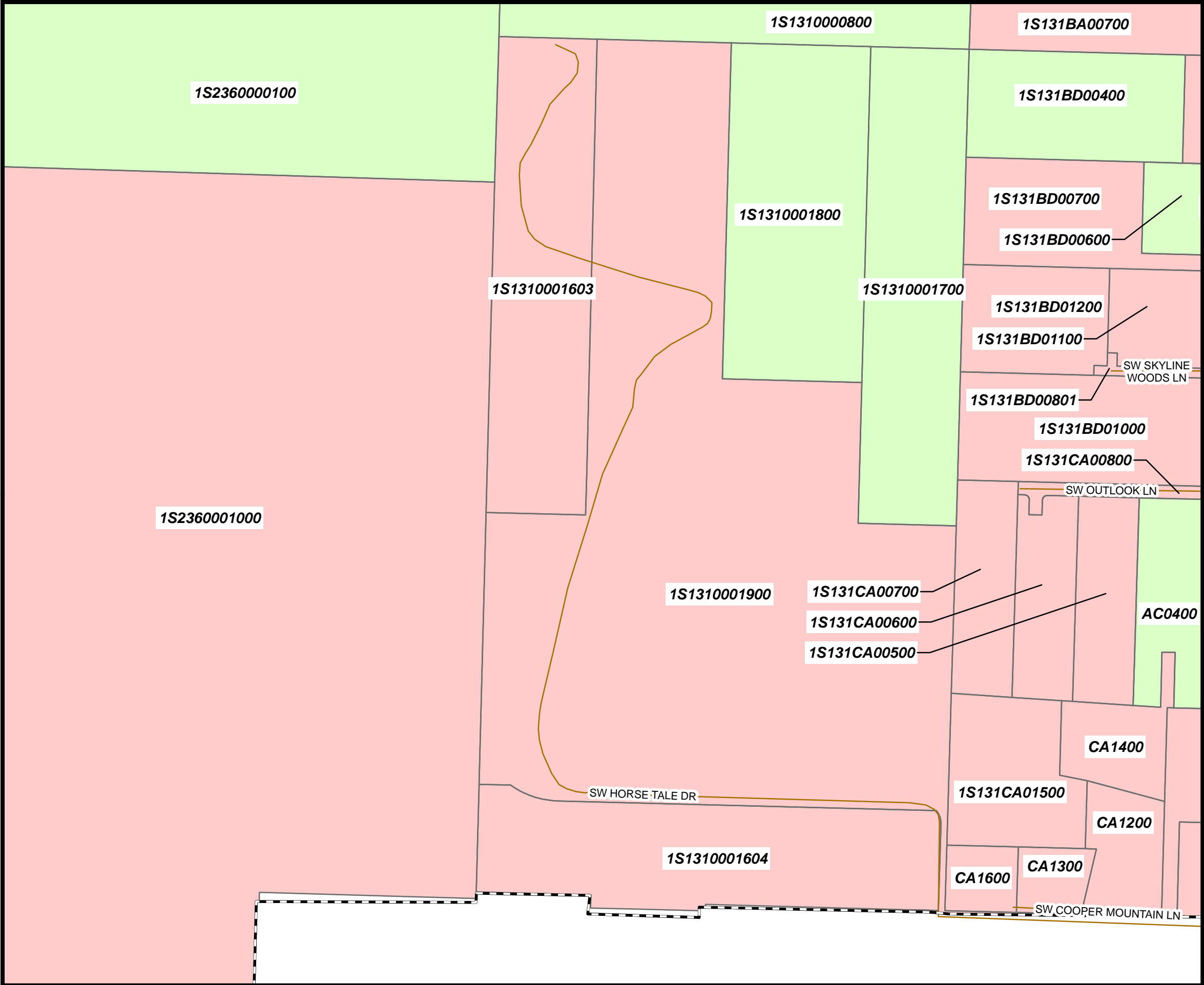


Data Sources:  
 LWI Study Area: City of Beaverton, 2020  
 Taxlots, City Limits, Streets: Metro RLIS, 2020

Disclaimer: Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands-approved wetland delineation is required for state removal-fill permits. You are advised to contact the Department of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



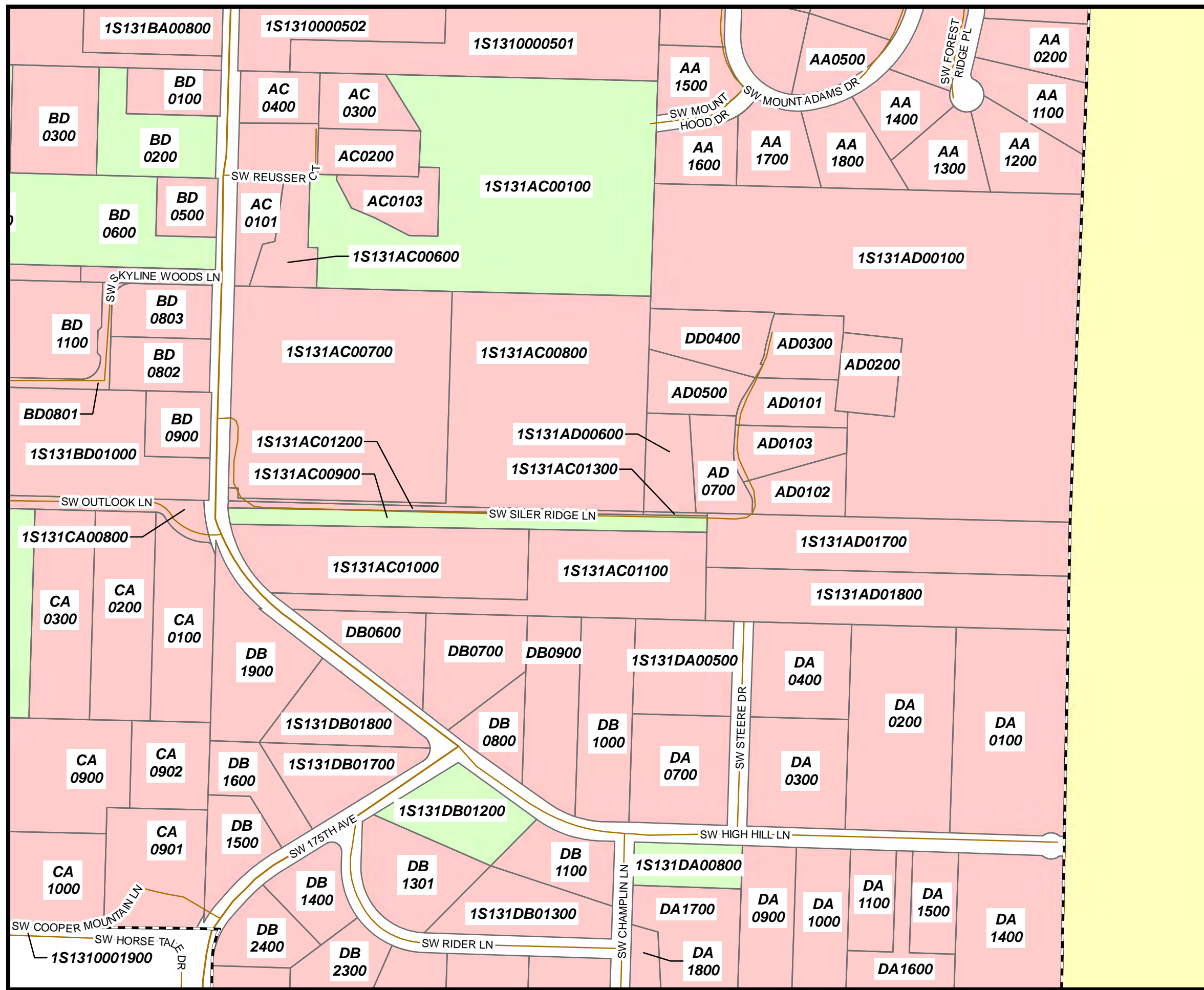
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**Figure 2, Sheet 7 of 10**  
**Tax Lots and Property Access Map**

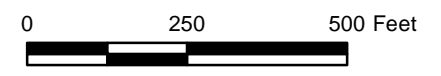
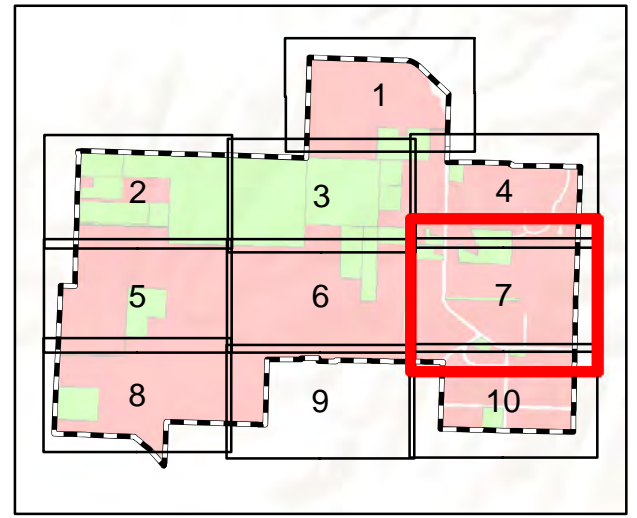
**City of Beaverton**  
**Cooper Mountain Community**  
**Plan Area**

**LOCAL WETLANDS INVENTORY**



**Legend**

- LWI Study Area
- Beaverton City Limits
- Washington County Tax Lot
- Property with Site Access
- ROE not granted (as of April 30, 2020)
- Street



Data Sources:  
 LWI Study Area: City of Beaverton, 2020  
 Taxlots, City Limits, Streets: Metro RLIS, 2020

Disclaimer: Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands-approved wetland delineation is required for state removal-fill permits. You are advised to contact the Department of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.









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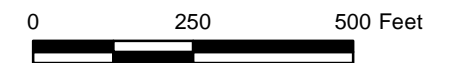
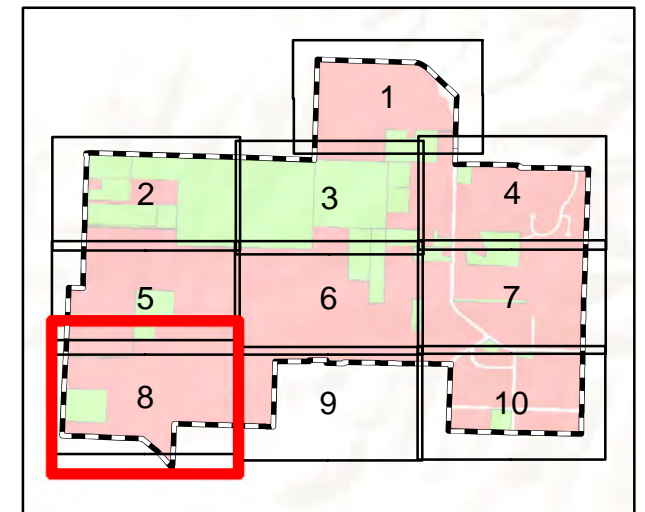
**Figure 2, Sheet 8 of 10**  
**Tax Lots and Property Access Map**

**City of Beaverton**  
**Cooper Mountain Community**  
**Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Property with Site Access
-  ROE not granted (as of April 30, 2020)
-  Street

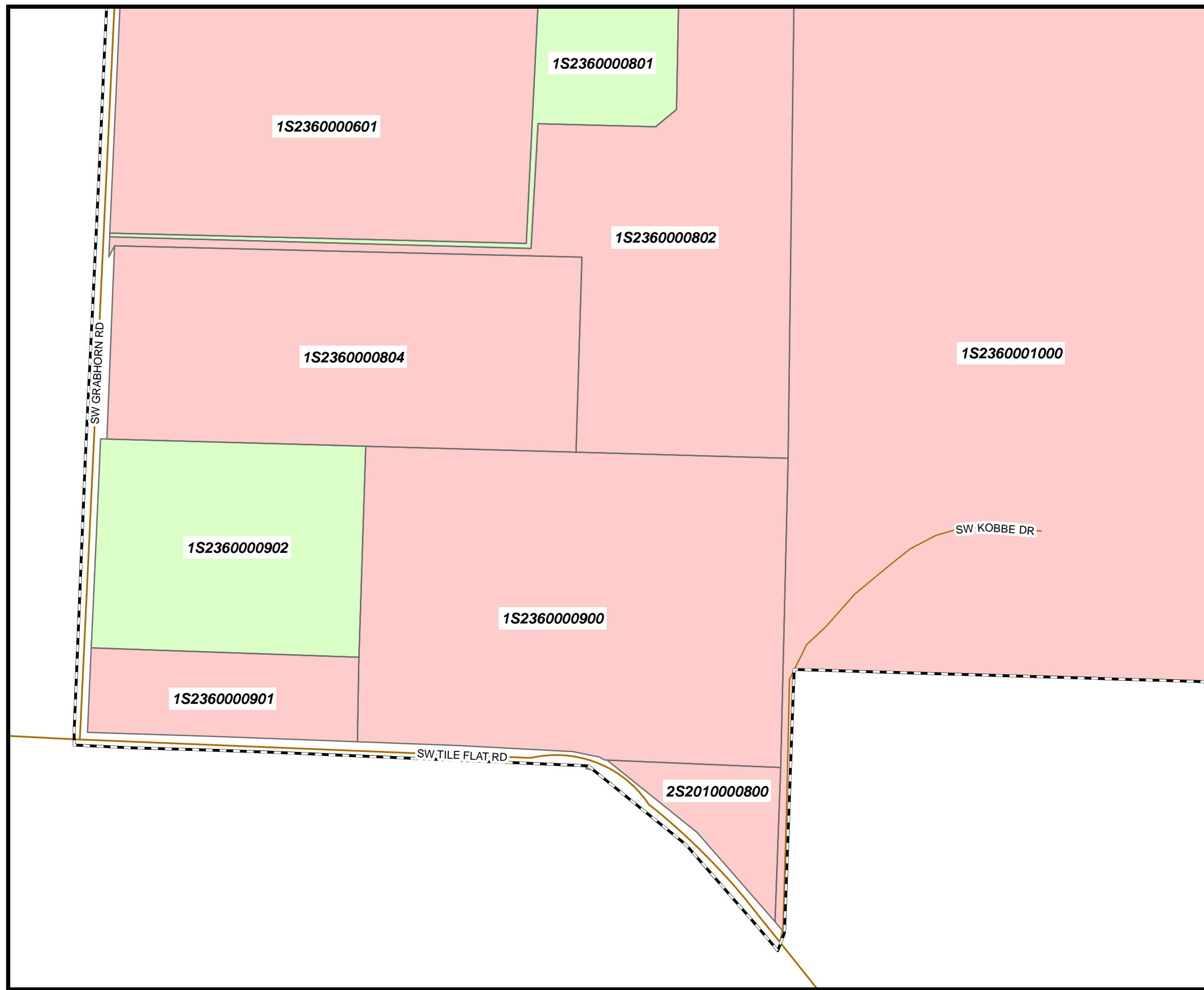


Data Sources:  
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 Taxlots, City Limits, Streets: Metro RLIS, 2020

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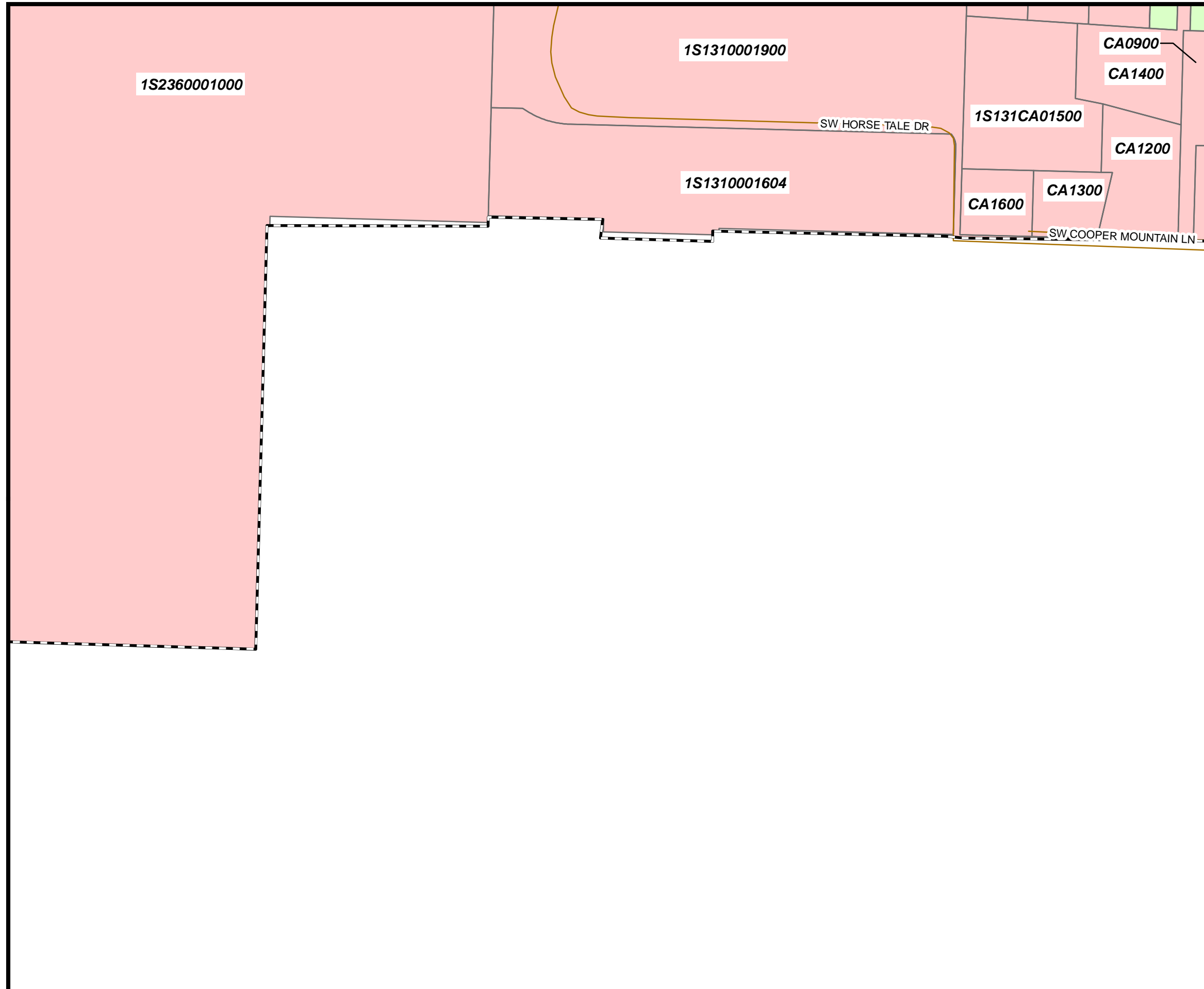
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**Figure 2, Sheet 9 of 10  
Tax Lots and Property Access Map**

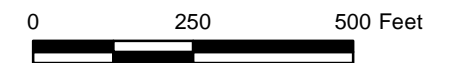
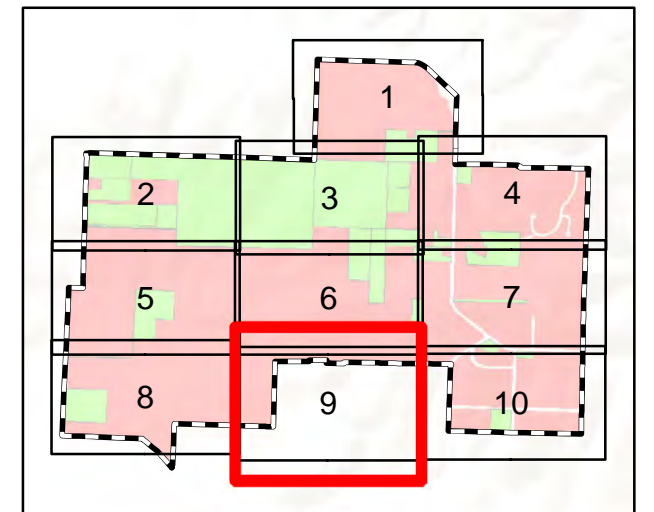
**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**



**Legend**

- LWI Study Area
- Beaverton City Limits
- Washington County Tax Lot
- Property with Site Access
- ROE not granted (as of April 30, 2020)
- Street



Data Sources:  
LWI Study Area: City of Beaverton, 2020  
Taxlots, City Limits, Streets: Metro RLIS, 2020

Disclaimer: Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands-approved wetland delineation is required for state removal-fill permits. You are advised to contact the Department of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



North

Information Current as of:  
**Sept 2021**







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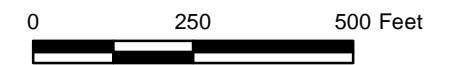
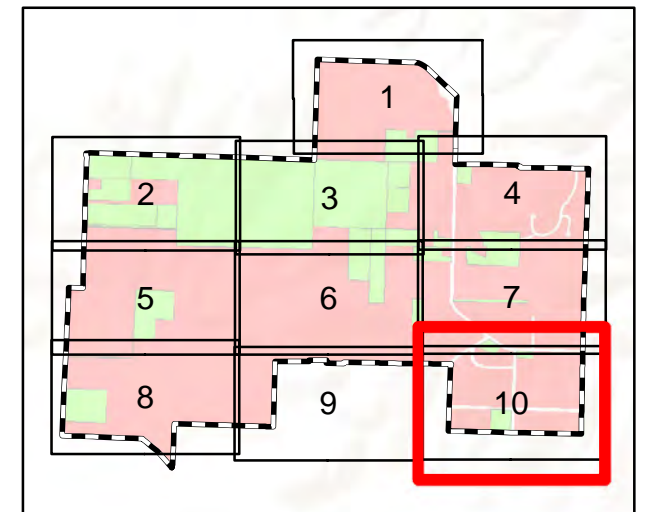
**Figure 2, Sheet 10 of 10  
Tax Lots and Property Access Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Property with Site Access
-  ROE not granted (as of April 30, 2020)
-  Street



Data Sources:  
LWI Study Area: City of Beaverton, 2020  
Taxlots, City Limits, Streets: Metro RLIS, 2020

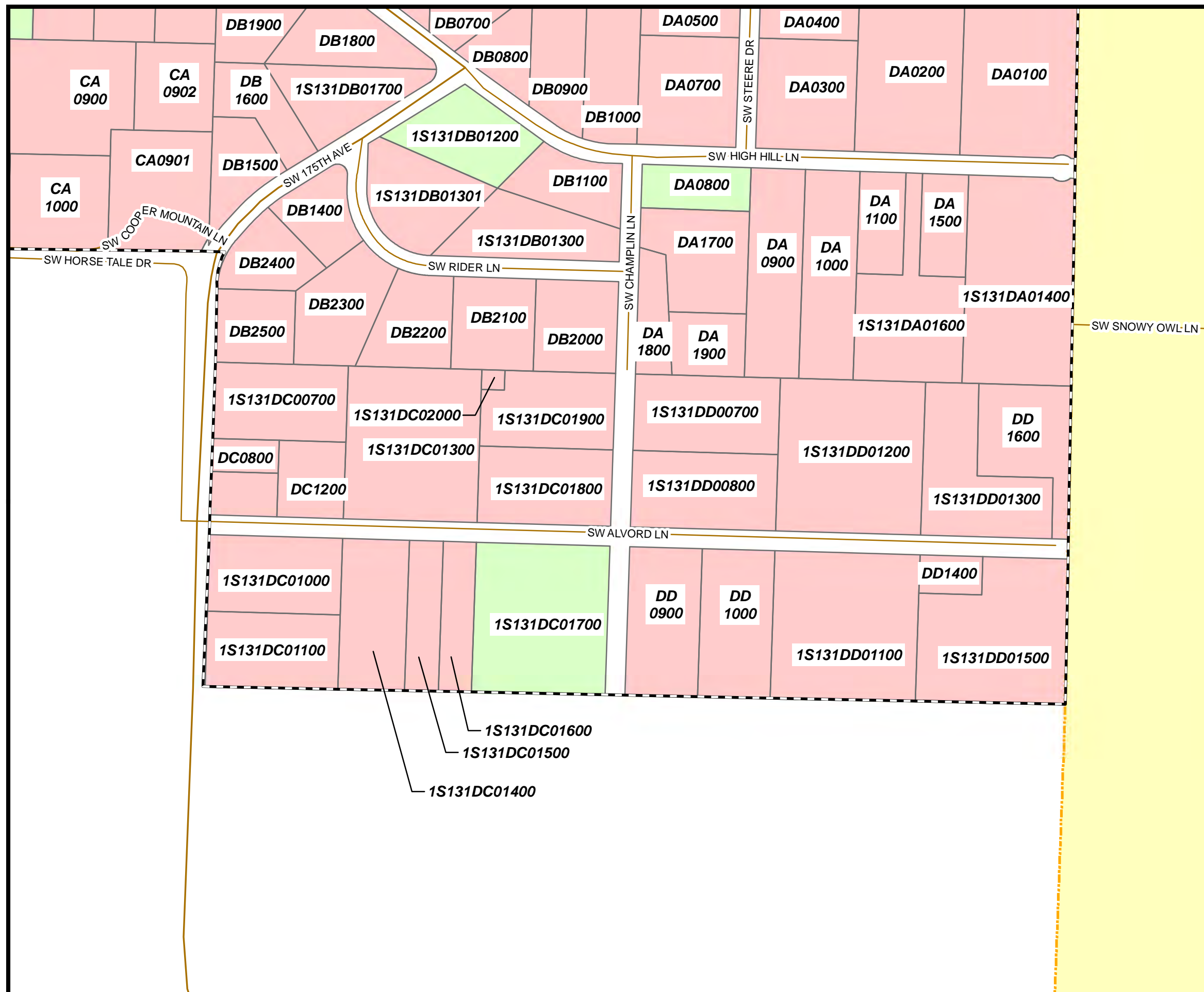
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# Figure 3 National Wetlands Inventory Map

## City of Beaverton Cooper Mountain Community Plan Area

### LOCAL WETLANDS INVENTORY

#### Legend

-  LWI Study Area
-  NWI Wetland
-  Beaverton City Limits
-  Street

Wetland ID	Wetland Type within Study Area
PFO1/SS1C	Freshwater Forested/Shrub Wetland
PFO1A	Freshwater Forested/Shrub Wetland
PFO1C	Freshwater Forested/Shrub Wetland
PUBK	Freshwater Pond
PUBHh	Freshwater Pond
R4SBC	Riverine
R5UBH	Riverine

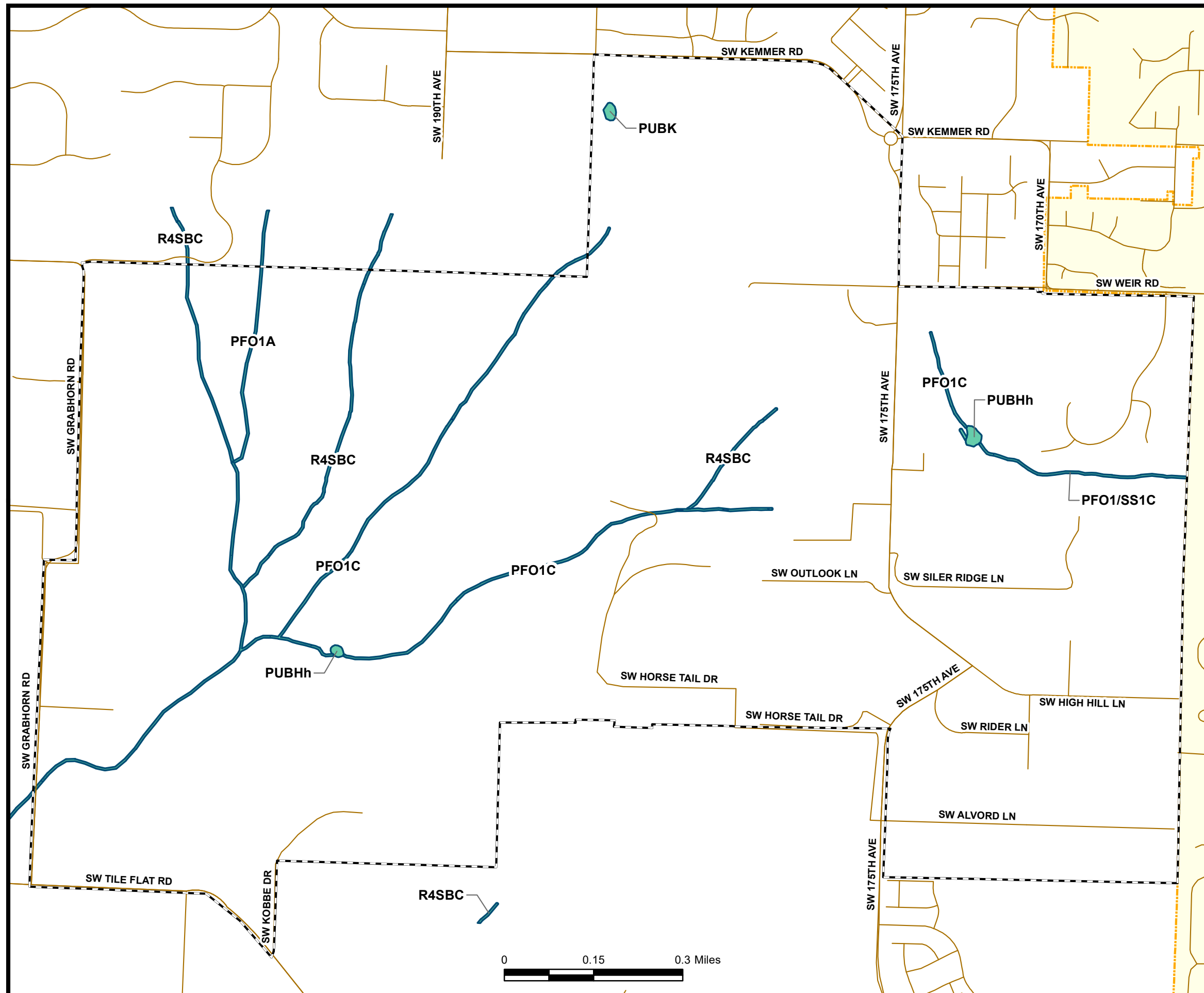
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 City Limits, Streets: Metro RLIS, 2020  
 Wetlands: USFWS NWI, 2020

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Information Current as of:  
**Sept 2021**

Printed on and Corrections as of:  
**Sept 2021**







# Figure 4 NRCS Soils Map

## City of Beaverton Cooper Mountain Community Plan Area

### LOCAL WETLANDS INVENTORY

#### Legend

-  LWI Study Area
-  NRCS Soil Type
-  Beaverton City Limits
-  Street

Soil ID	Soil Type within Study Area
1	Aloha silt loam
7B	Cascade silt loam, 3 to 7 percent slopes
7C	Cascade silt loam, 7 to 12 percent slopes
7D	Cascade silt loam, 12 to 20 percent slopes
11B	Cornelius and Kinton silt loams, 2 to 7 percent slopes
11C	Cornelius and Kinton silt loams, 7 to 12 percent slopes
11D	Cornelius and Kinton silt loams, 12 to 20 percent slopes
11E	Cornelius and Kinton silt loams, 20 to 30 percent slopes
11F	Cornelius and Kinton silt loams, 30 to 60 percent slopes
16C	Delena silt loam, 3 to 12 percent slopes
19C	Helvetia silt loam, 7 to 12 percent slopes
22	Huberly silt loam
38C	Saum silt loam, 7 to 12 percent slopes
38D	Saum silt loam, 12 to 20 percent slopes
38E	Saum silt loam, 20 to 30 percent slopes
38F	Saum silt loam, 30 to 60 percent slopes
43	Wapato silty clay loam
45A	Woodburn silt loam, 0 to 3 percent slopes
45B	Woodburn silt loam, 3 to 7 percent slopes

Data Sources:  
 LWI Study Area: City of Beaverton, 2020  
 City Limits, Streets: Metro RLIS, 2020  
 Soils: USDA NRCS, 2020

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Information Current as of:  
**Sept 2021**  
 Printed on and Corrections as of:  
**Sept 2021**



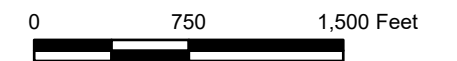
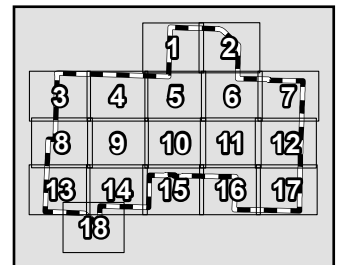
# Figure 5, Overview Map Local Wetlands Inventory Map

## City of Beaverton Cooper Mountain Community Plan Area

### LOCAL WETLANDS INVENTORY

#### Legend

- LWI Study Area
- LWI Stream
- NHD Stream
- Sample Plot
- Watershed Boundary**
  - Johnson Creek South
  - Lindow Creek/Jackson Creek
  - Summer Creek
  - Tualatin River Tributary
- LWI Wetlands**
  - Palustrine Emergent (PEM2Bf)
  - Palustrine Emergent (PEM1B)
  - Palustrine Forested (PFO1B)
  - Palustrine Scrub-Shrub (PSS1B)
  - Palustrine Unconsolidated Bottom (PUBx)
- Quarry
- PLSS Section
- Other Delineation Study Area
- Beaverton City Limits
- Street

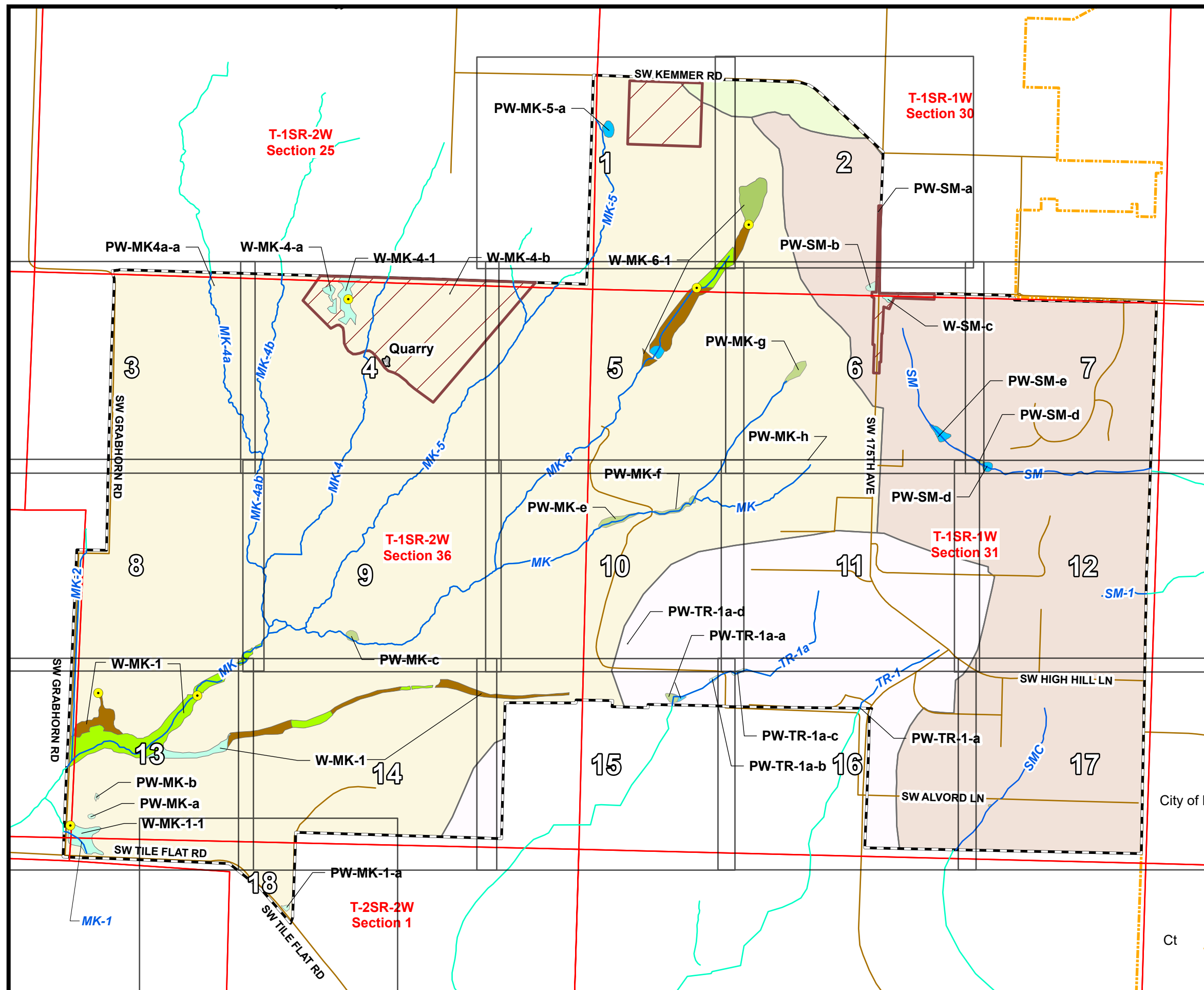


Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS  
NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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
















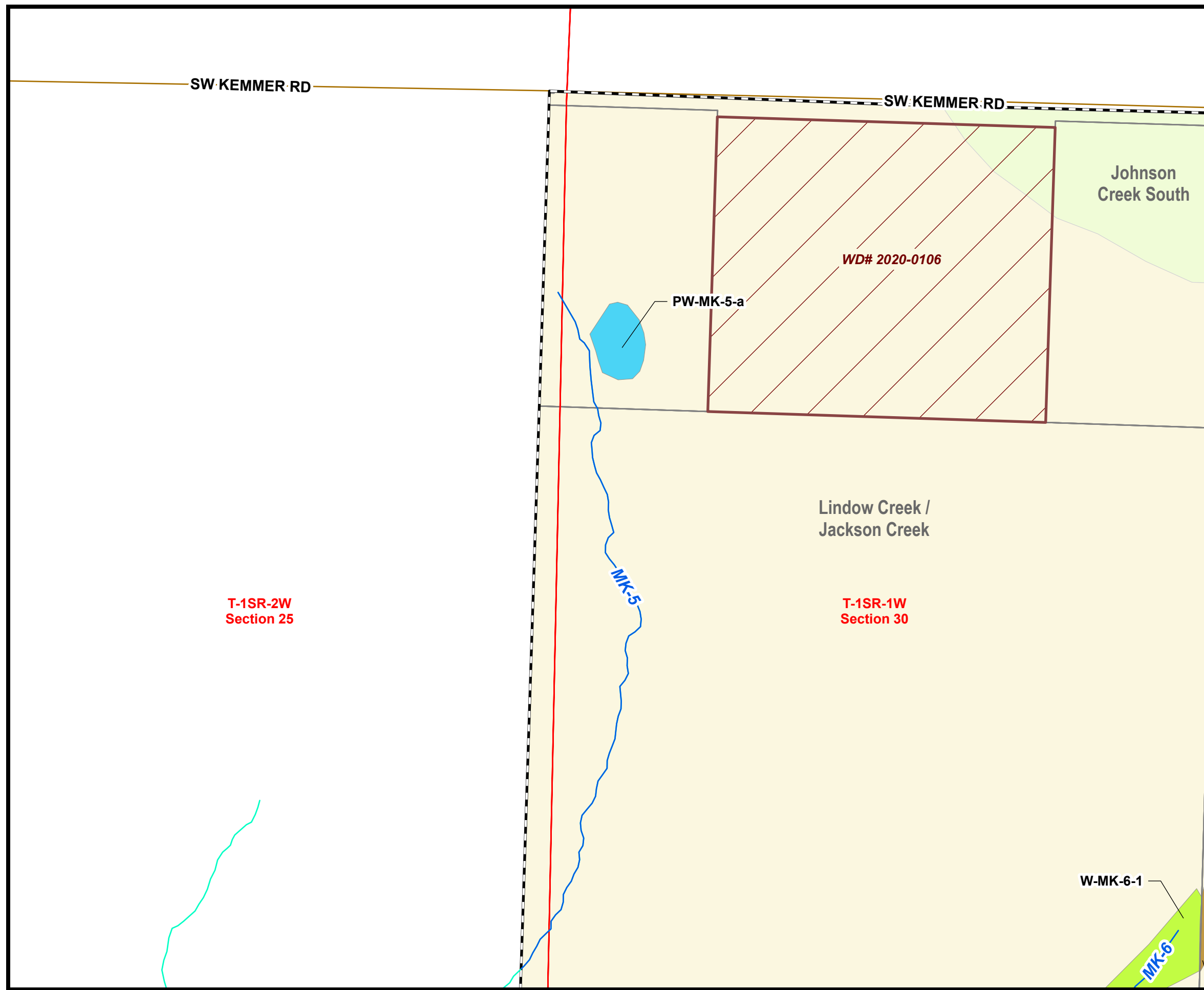
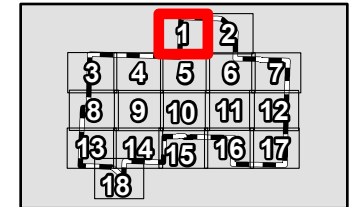
**Figure 5, Sheet 1 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
  -  LWI Stream
  -  NHD Stream
  -  Sample Plot
  -  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
  -  Lindow Creek/Jackson Creek
  -  Summer Creek
  -  Tualatin River Tributary
- LWI Wetlands**
-  Palustrine Emergent (PEM2Bf)
  -  Palustrine Emergent (PEM1B)
  -  Palustrine Forested (PFO1B)
  -  Palustrine Scrub-Shrub (PSS1B)
  -  Palustrine Unconsolidated Bottom (PUBx)
  -  Quarry
  -  PLSS Section
  -  Other Delineation Study Area
  -  Beaverton City Limits
  -  Washington County Tax Lot
  -  Street
- 0      150      300 Feet



Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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














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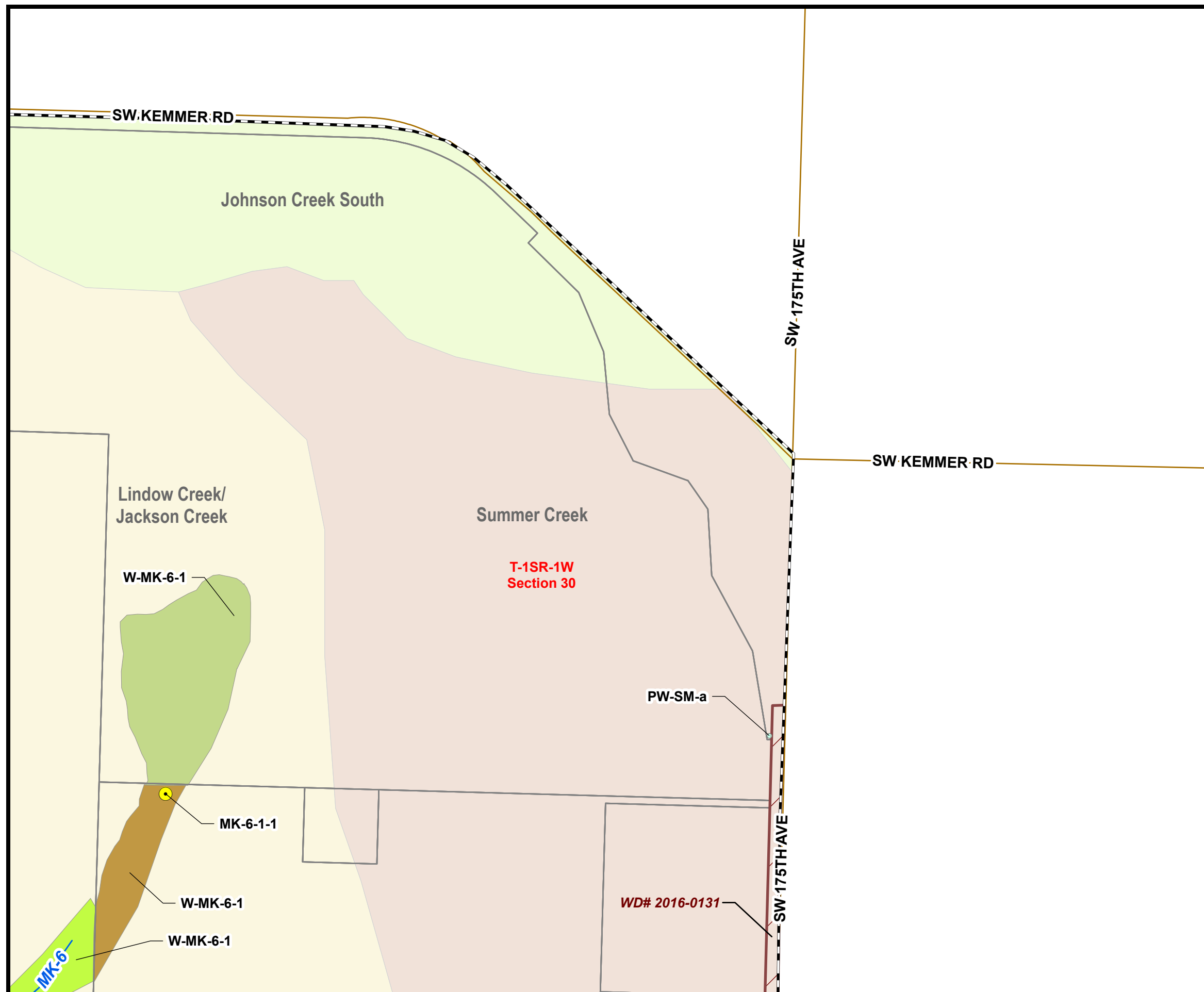
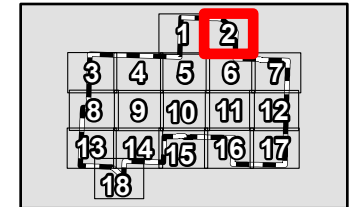
**Figure 5, Sheet 2 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
  -  LWI Stream
  -  NHD Stream
  -  Sample Plot
  -  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
  -  Lindow Creek/Jackson Creek
  -  Summer Creek
  -  Tualatin River Tributary
- LWI Wetlands**
-  Palustrine Emergent (PEM2Bf)
  -  Palustrine Emergent (PEM1B)
  -  Palustrine Forested (PFO1B)
  -  Palustrine Scrub-Shrub (PSS1B)
  -  Palustrine Unconsolidated Bottom (PUBx)
  -  Quarry
  -  PLSS Section
  -  Other Delineation Study Area
  -  Beaverton City Limits
  -  Washington County Tax Lot
  -  Street
- 0      150      300 Feet



Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS  
NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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














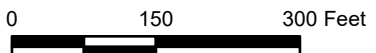
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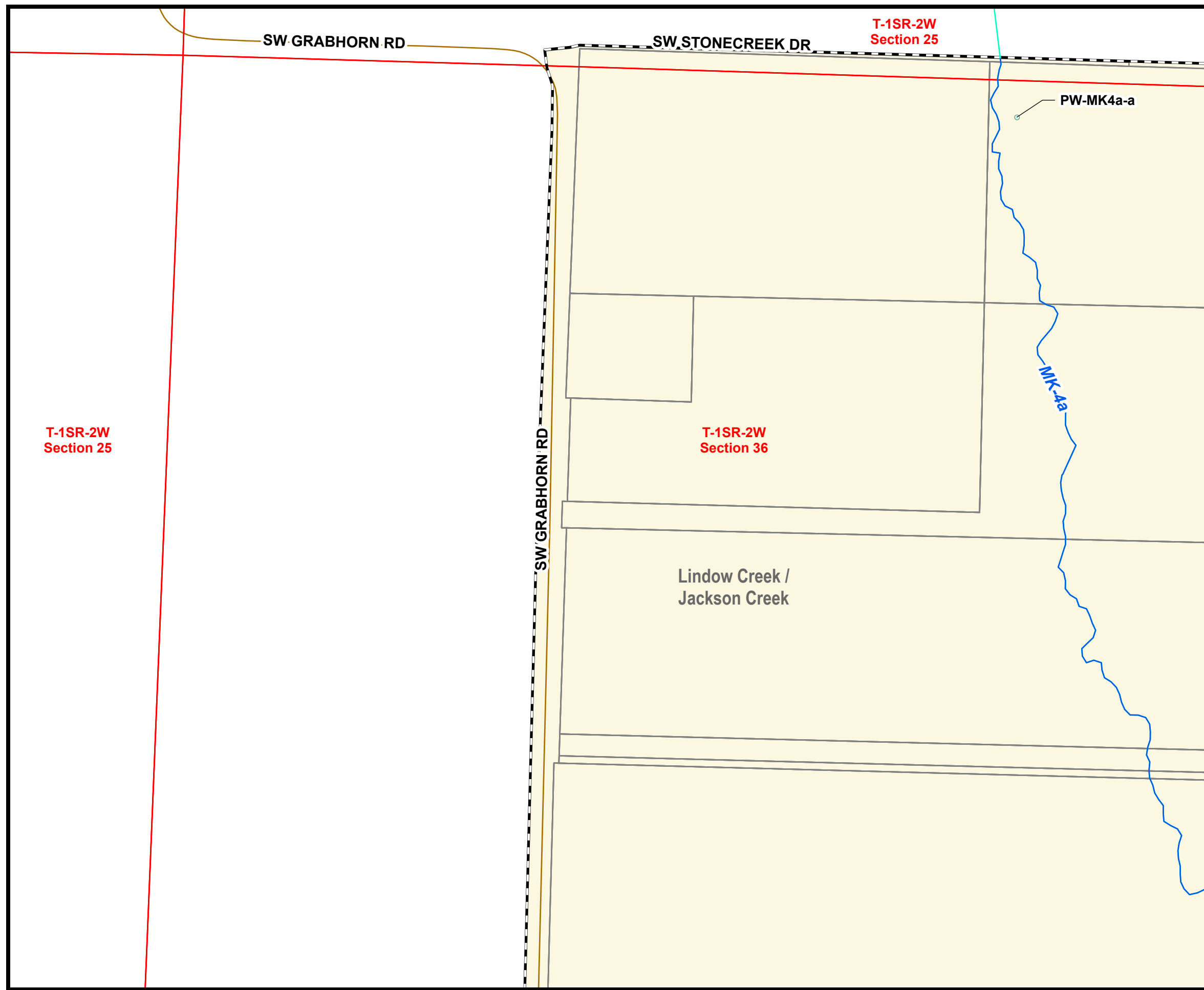
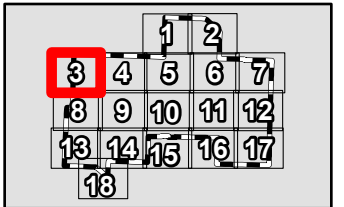
**Figure 5, Sheet 3 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
  -  LWI Stream
  -  NHD Stream
  -  Sample Plot
  -  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
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  -  Summer Creek
  -  Tualatin River Tributary
- LWI Wetlands**
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  -  Palustrine Forested (PFO1B)
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  -  Palustrine Unconsolidated Bottom (PUBx)
  -  Quarry
  -  PLSS Section
  -  Other Delineation Study Area
  -  Beaverton City Limits
  -  Washington County Tax Lot
  -  Street
- 



Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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













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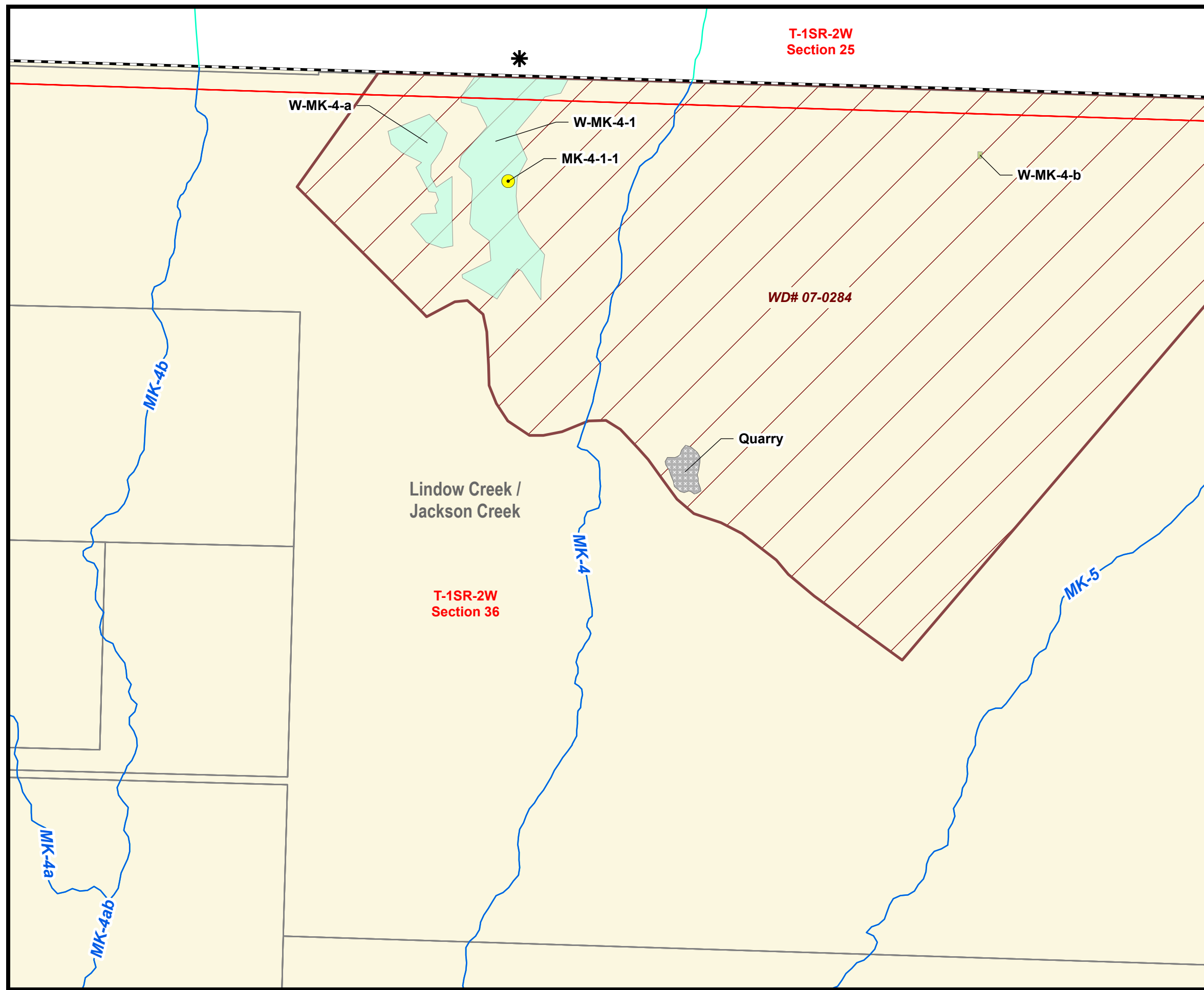
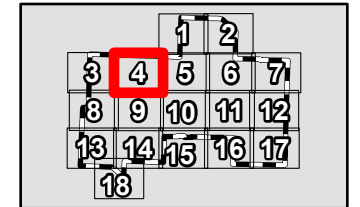
**Figure 5, Sheet 4 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
  -  LWI Stream
  -  NHD Stream
  -  Sample Plot
  -  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
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  -  Tualatin River Tributary
- LWI Wetlands**
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  -  Quarry
  -  PLSS Section
  -  Other Delineation Study Area
  -  Beaverton City Limits
  -  Washington County Tax Lot
  -  Street
- 0      150      300 Feet



Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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













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**Figure 5, Sheet 5 of 18  
Local Wetlands Inventory Map**

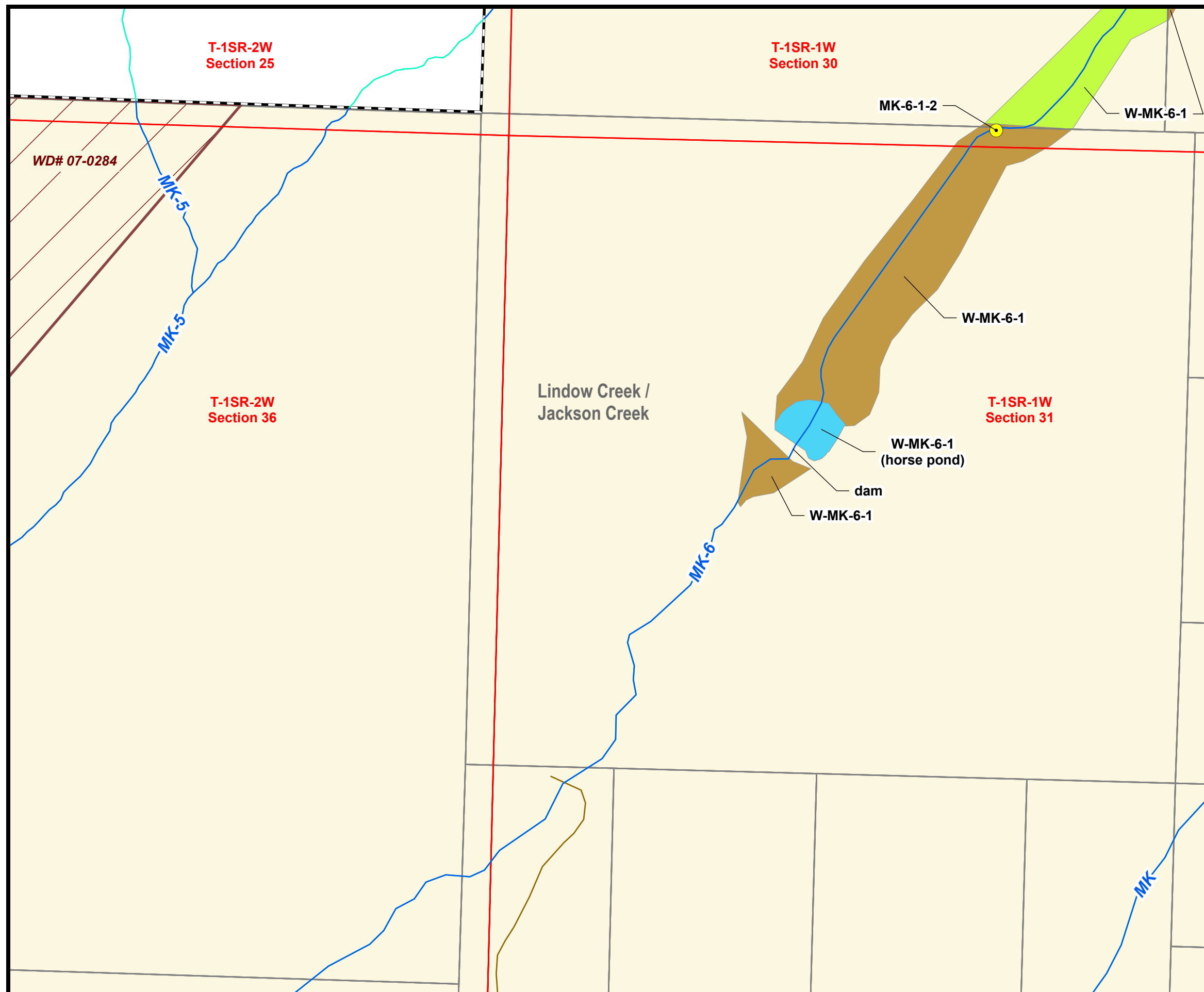
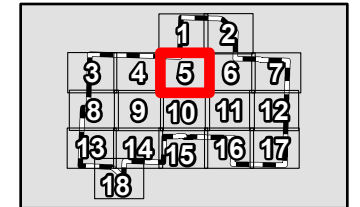
**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
  -  LWI Stream
  -  NHD Stream
  -  Sample Plot
  -  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
  -  Lindow Creek/Jackson Creek
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- LWI Wetlands**
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  -  Quarry
  -  PLSS Section
  -  Other Delineation Study Area
  -  Beaverton City Limits
  -  Washington County Tax Lot
  -  Street
- 0 150 300 Feet





**Data Sources:**  
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














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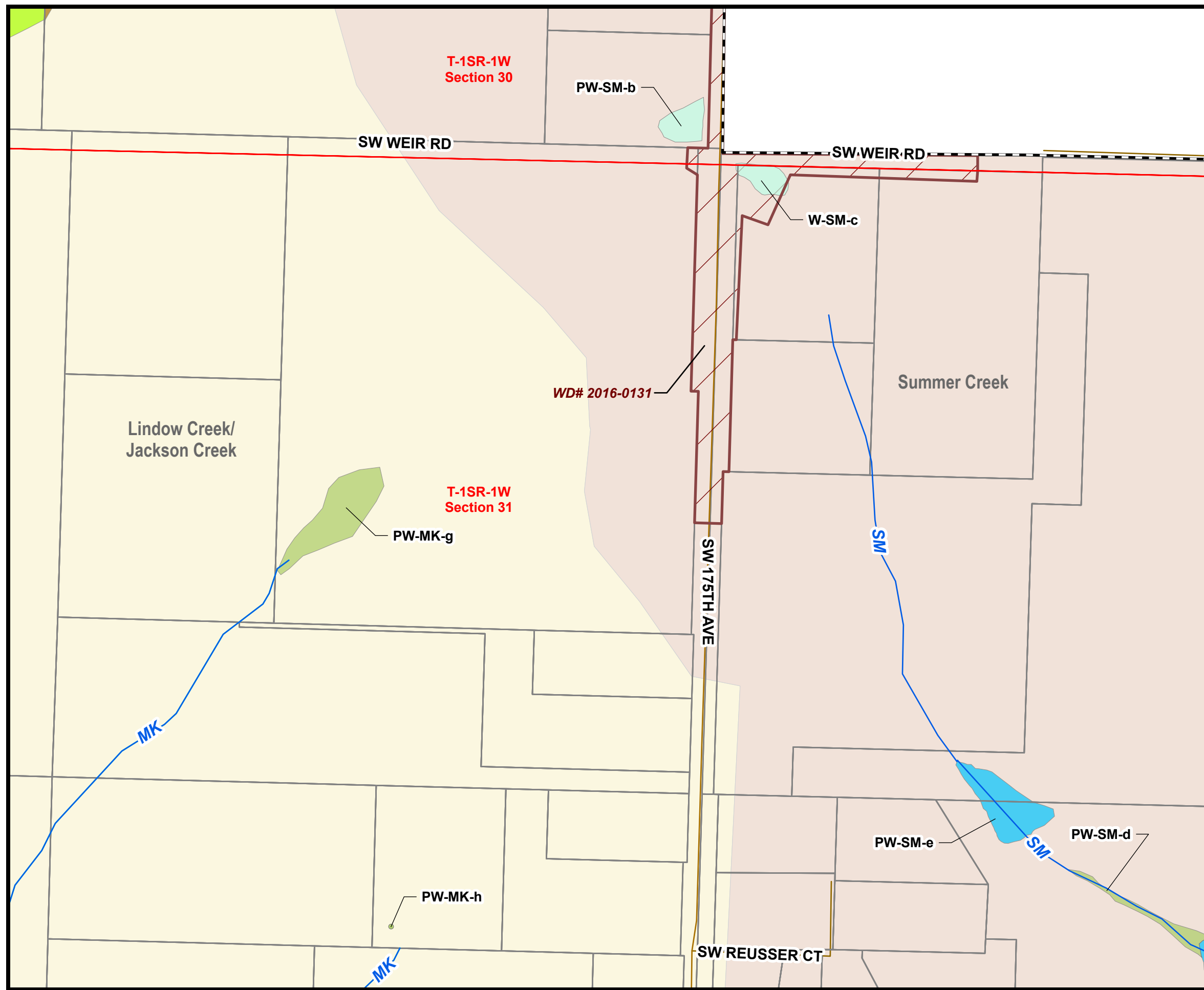
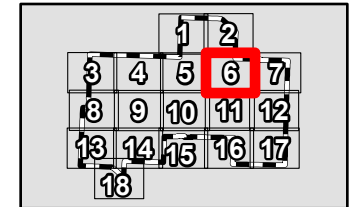
**Figure 5, Sheet 6 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
  -  LWI Stream
  -  NHD Stream
  -  Sample Plot
  -  Feature Extends Outside Study Area
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  -  Lindow Creek/Jackson Creek
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  -  Tualatin River Tributary
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  -  PLSS Section
  -  Other Delineation Study Area
  -  Beaverton City Limits
  -  Washington County Tax Lot
  -  Street
- 0      150      300 Feet



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NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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














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**Figure 5, Sheet 7 of 18  
Local Wetlands Inventory Map**

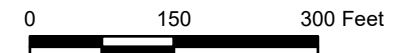
**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  LWI Stream
-  NHD Stream
-  Sample Plot
-  Feature Extends Outside Study Area
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-  Lindow Creek/Jackson Creek
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-  Palustrine Emergent (PEM1B)
-  Palustrine Forested (PFO1B)
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-  Palustrine Unconsolidated Bottom (PUBx)
-  Quarry
-  PLSS Section
-  Other Delineation Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Street

	1	2
3	4	5
6	7	8
9	10	11
12	13	14
15	16	17
18		



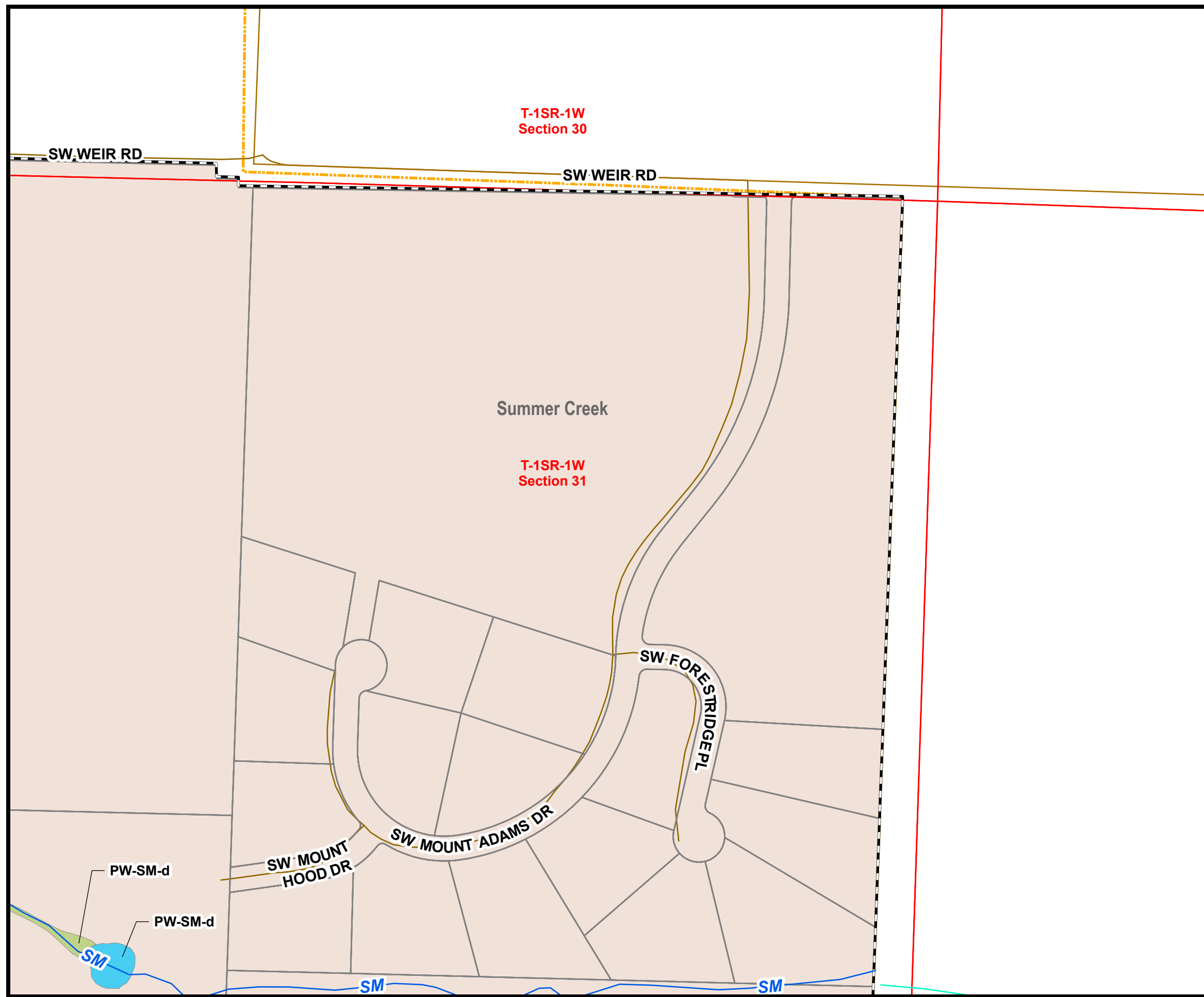
Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS  
NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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**September 2024**








**Figure 5, Sheet 8 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**





**LOCAL WETLANDS INVENTORY**

**Legend**












-  LWI Study Area
-  LWI Stream
-  NHD Stream
-  Sample Plot
-  Feature Extends Outside Study Area

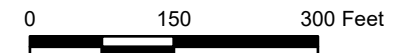
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3	4	5	6	7
8	9	10	11	12
13	14	15	16	17
		18		

**Watershed Boundary**

-  Johnson Creek South
-  Lindow Creek/Jackson Creek
-  Summer Creek
-  Tualatin River Tributary

**LWI Wetlands**

-  Palustrine Emergent (PEM2Bf)
-  Palustrine Emergent (PEM1B)
-  Palustrine Forested (PFO1B)
-  Palustrine Scrub-Shrub (PSS1B)
-  Palustrine Unconsolidated Bottom (PUBx)
-  Quarry
-  PLSS Section
-  Other Delineation Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Street



**Data Sources:**

LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

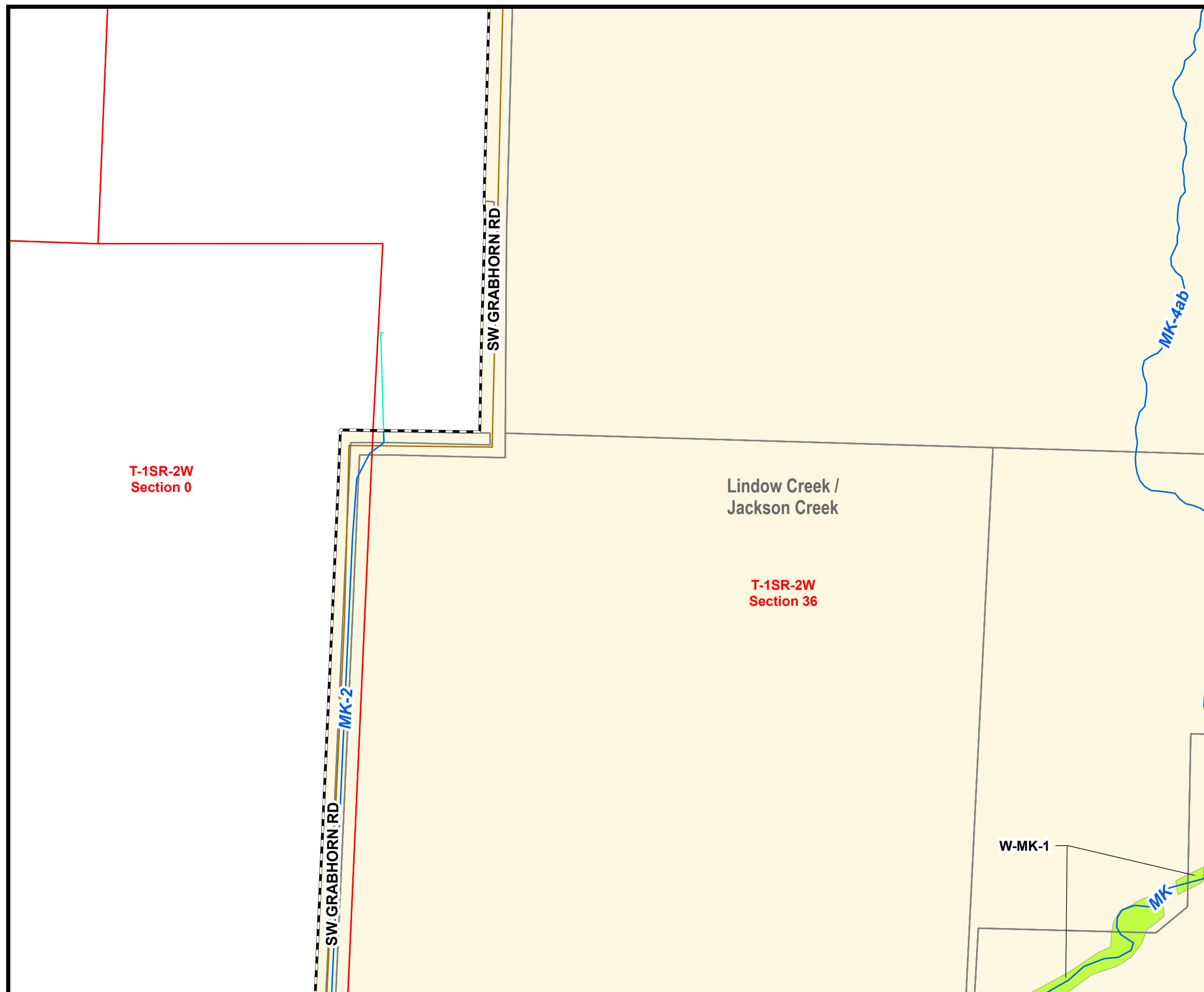
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




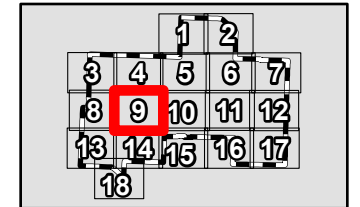
**Figure 5, Sheet 9 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**





**LOCAL WETLANDS INVENTORY**

**Legend**












-  LWI Study Area
-  LWI Stream
-  NHD Stream
-  Sample Plot
-  Feature Extends Outside Study Area

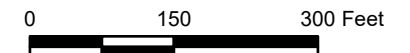


**Watershed Boundary**

-  Johnson Creek South
-  Lindow Creek/Jackson Creek
-  Summer Creek
-  Tualatin River Tributary

**LWI Wetlands**

-  Palustrine Emergent (PEM2Bf)
-  Palustrine Emergent (PEM1B)
-  Palustrine Forested (PFO1B)
-  Palustrine Scrub-Shrub (PSS1B)
-  Palustrine Unconsolidated Bottom (PUBx)
-  Quarry
-  PLSS Section
-  Other Delineation Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Street



**Data Sources:**

LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

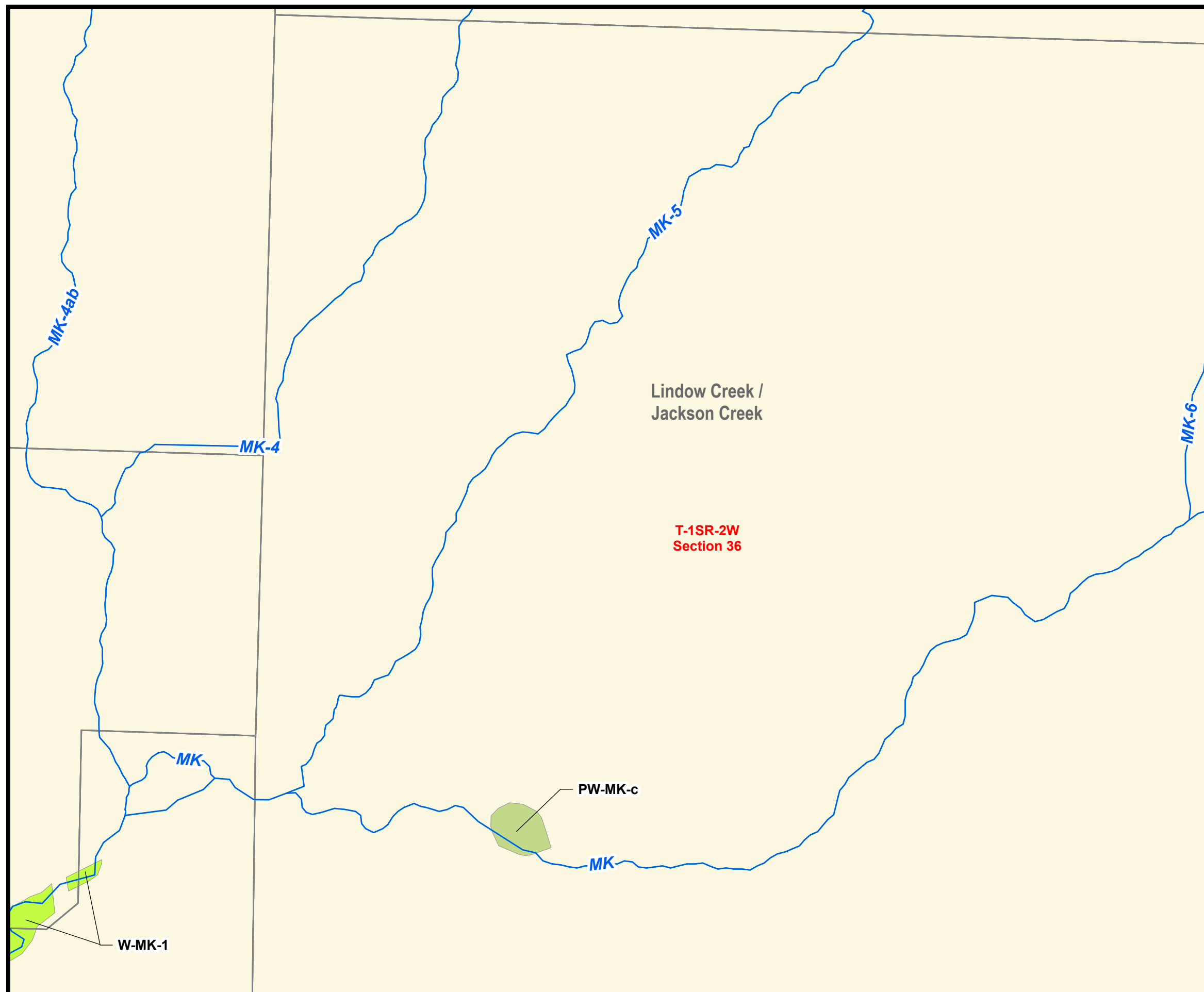
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
















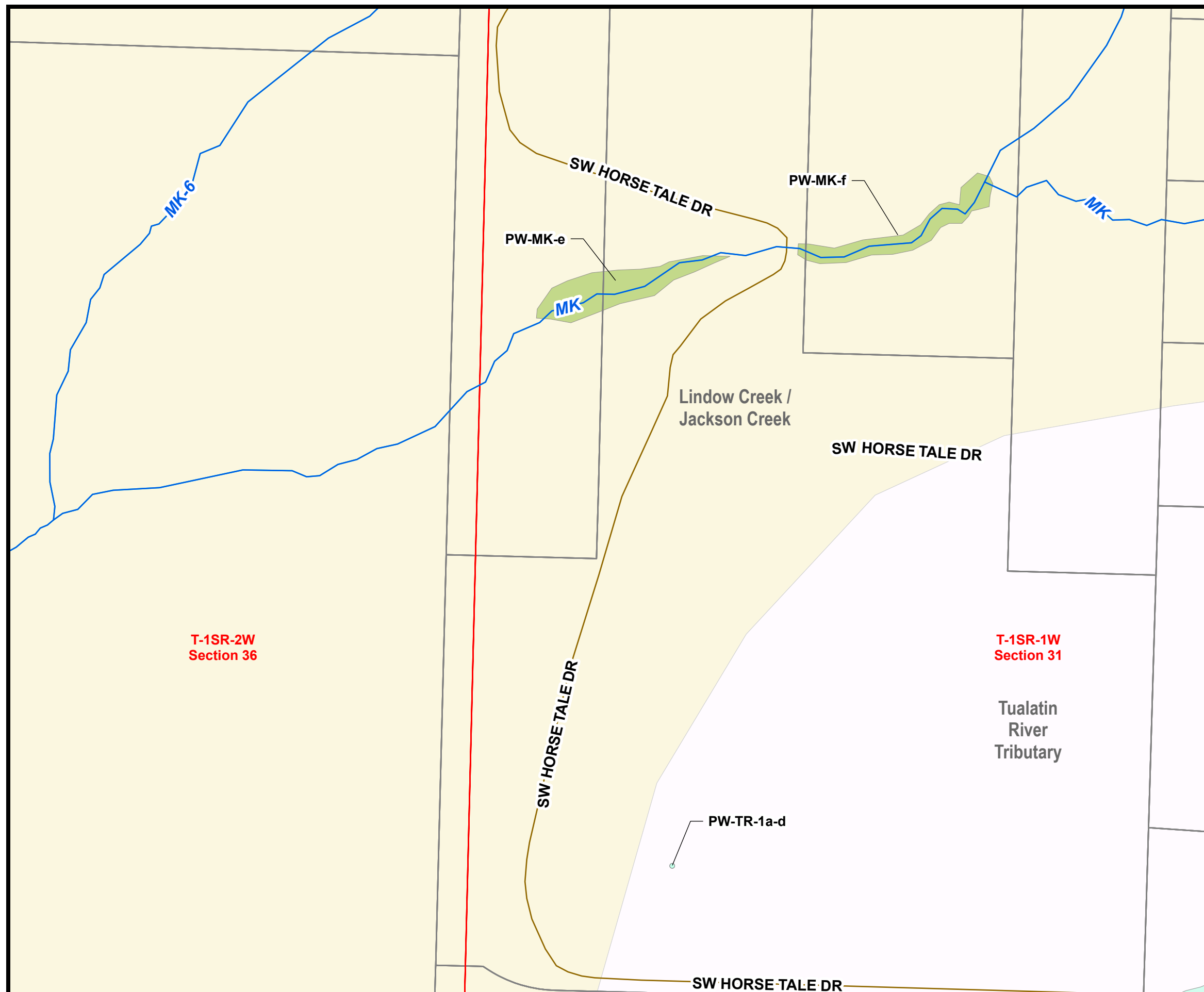
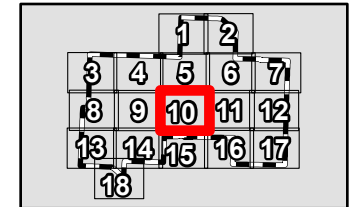
**Figure 5, Sheet 10 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
  -  LWI Stream
  -  NHD Stream
  -  Sample Plot
  -  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
  -  Lindow Creek/Jackson Creek
  -  Summer Creek
  -  Tualatin River Tributary
- LWI Wetlands**
-  Palustrine Emergent (PEM2Bf)
  -  Palustrine Emergent (PEM1B)
  -  Palustrine Forested (PFO1B)
  -  Palustrine Scrub-Shrub (PSS1B)
  -  Palustrine Unconsolidated Bottom (PUBx)
  -  Quarry
  -  PLSS Section
  -  Other Delineation Study Area
  -  Beaverton City Limits
  -  Washington County Tax Lot
  -  Street
- 0      150      300 Feet



Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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















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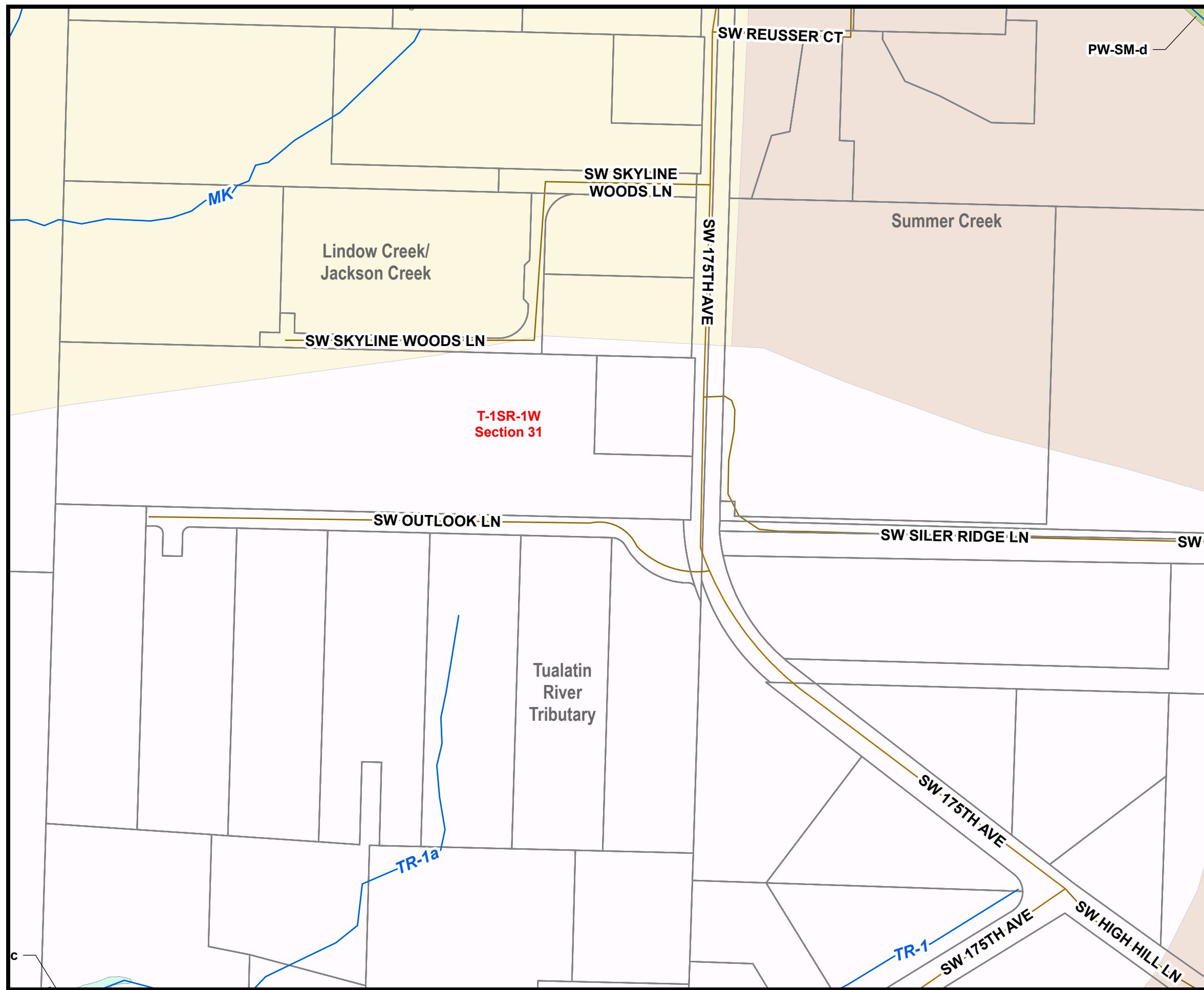
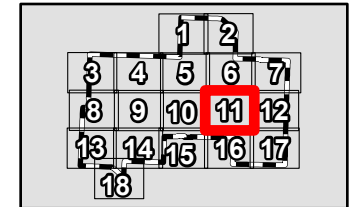
**Figure 5, Sheet 11 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
  -  LWI Stream
  -  NHD Stream
  -  Sample Plot
  -  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
  -  Lindow Creek/Jackson Creek
  -  Summer Creek
  -  Tualatin River Tributary
- LWI Wetlands**
-  Palustrine Emergent (PEM2Bf)
  -  Palustrine Emergent (PEM1B)
  -  Palustrine Forested (PFO1B)
  -  Palustrine Scrub-Shrub (PSS1B)
  -  Palustrine Unconsolidated Bottom (PUBx)
  -  Quarry
  -  PLSS Section
  -  Other Delineation Study Area
  -  Beaverton City Limits
  -  Washington County Tax Lot
  -  Street
- 0      150      300 Feet
- 



Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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**Figure 5, Sheet 12 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**





**LOCAL WETLANDS INVENTORY**

**Legend**












-  LWI Study Area
-  LWI Stream
-  NHD Stream
-  Sample Plot
-  Feature Extends Outside Study Area

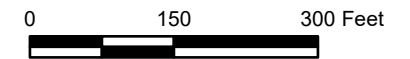
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8	9	10	11	12
13	14	15	16	17
		18		

**Watershed Boundary**

-  Johnson Creek South
-  Lindow Creek/Jackson Creek
-  Summer Creek
-  Tualatin River Tributary

**LWI Wetlands**

-  Palustrine Emergent (PEM2Bf)
-  Palustrine Emergent (PEM1B)
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-  Palustrine Unconsolidated Bottom (PUBx)
-  Quarry
-  PLSS Section
-  Other Delineation Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Street



**Data Sources:**

LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

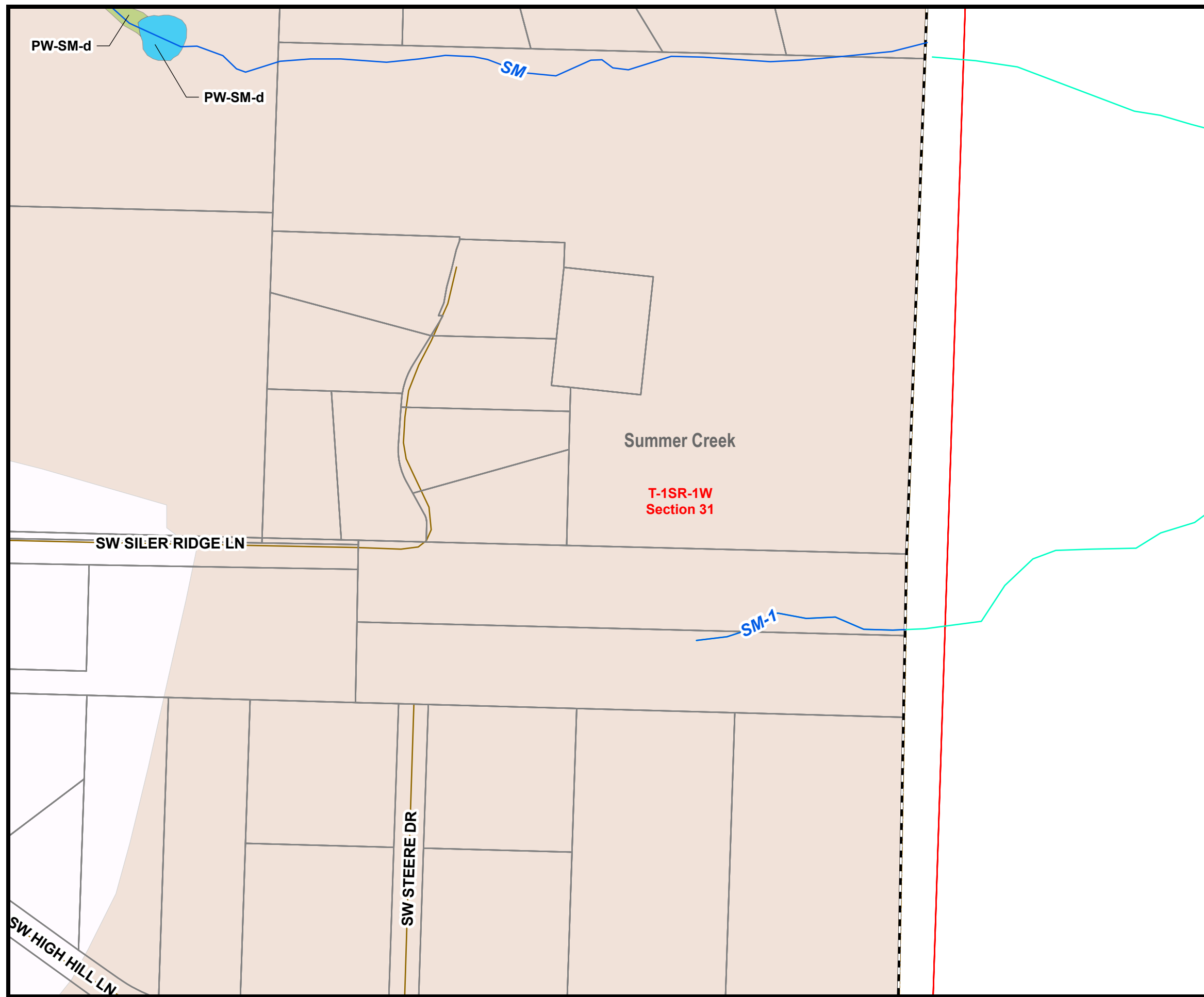
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
















**Figure 5, Sheet 13 of 18  
Local Wetlands Inventory Map**

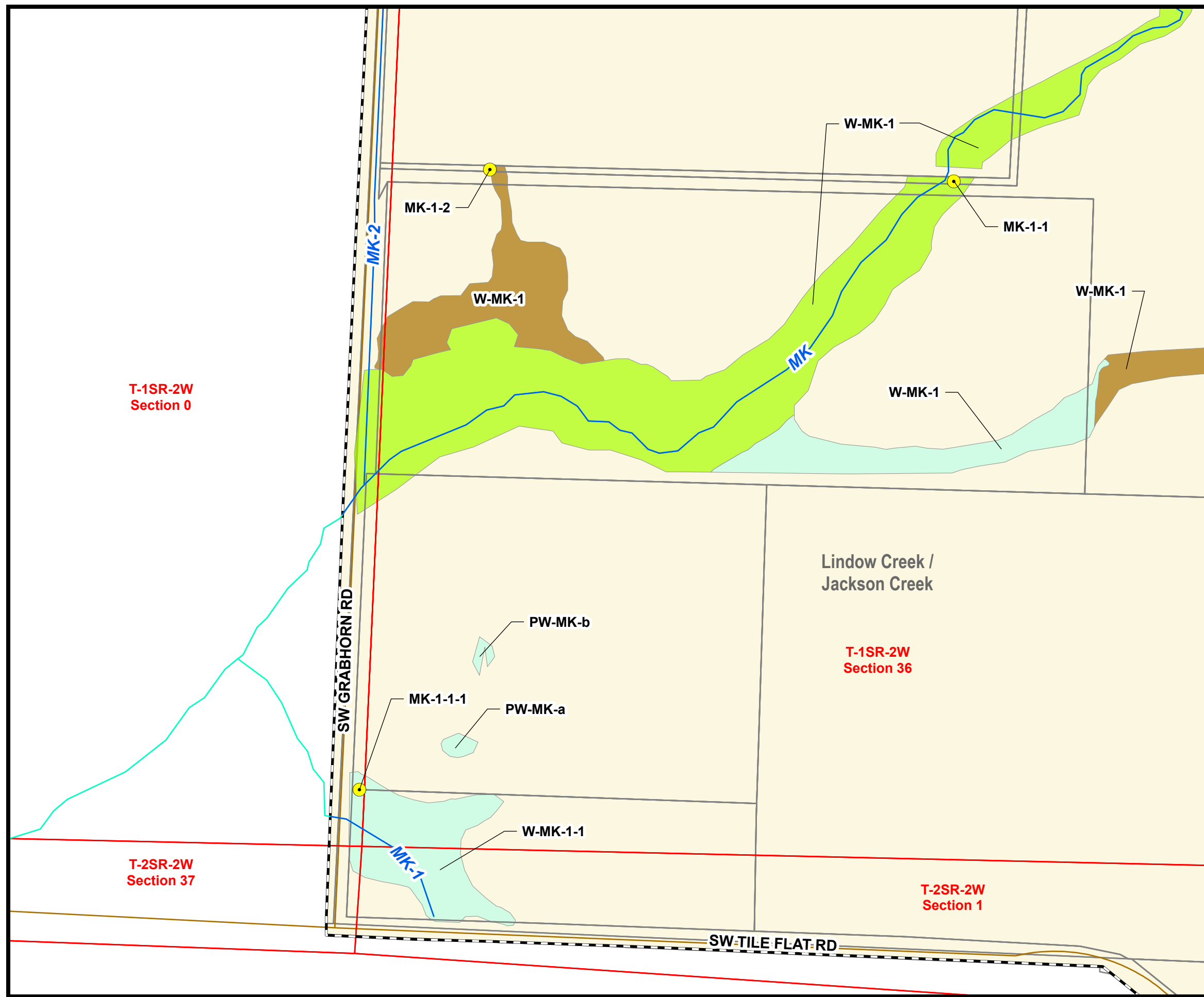
**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
  -  LWI Stream
  -  NHD Stream
  -  Sample Plot
  -  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
  -  Lindow Creek/Jackson Creek
  -  Summer Creek
  -  Tualatin River Tributary
- LWI Wetlands**
-  Palustrine Emergent (PEM2Bf)
  -  Palustrine Emergent (PEM1B)
  -  Palustrine Forested (PFO1B)
  -  Palustrine Scrub-Shrub (PSS1B)
  -  Palustrine Unconsolidated Bottom (PUBx)
  -  Quarry
  -  PLSS Section
  -  Other Delineation Study Area
  -  Beaverton City Limits
  -  Washington County Tax Lot
  -  Street
- 0      150      300 Feet

	1	2		
3	4	5	6	7
8	9	10	11	12
13	14	15	16	17
	18			



**Data Sources:**  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

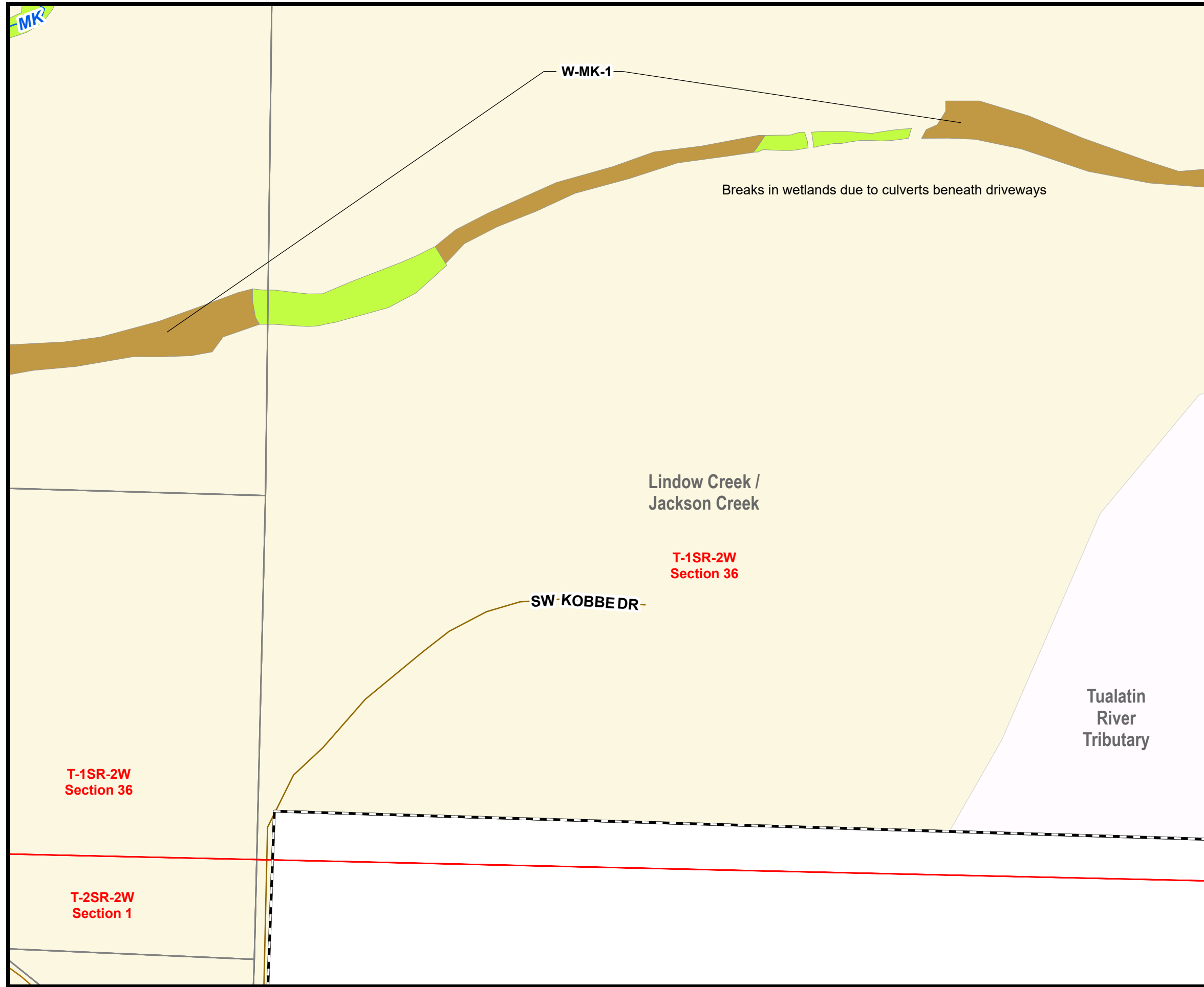
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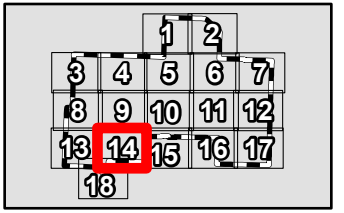
**Figure 5, Sheet 14 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

- LWI Study Area
  - LWI Stream
  - NHD Stream
  - Sample Plot
  - Feature Extends Outside Study Area
- Watershed Boundary**
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  - Lindow Creek/Jackson Creek
  - Summer Creek
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  - Palustrine Unconsolidated Bottom (PUBx)
  - Quarry
  - PLSS Section
  - Other Delineation Study Area
  - Beaverton City Limits
  - Washington County Tax Lot
  - Street
- 0 150 300 Feet



Data Sources:  
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














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**Figure 5, Sheet 15 of 18  
Local Wetlands Inventory Map**

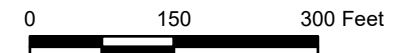
**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  LWI Stream
-  NHD Stream
-  Sample Plot
-  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
-  Lindow Creek/Jackson Creek
-  Summer Creek
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-  Beaverton City Limits
-  Washington County Tax Lot
-  Street

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	18				

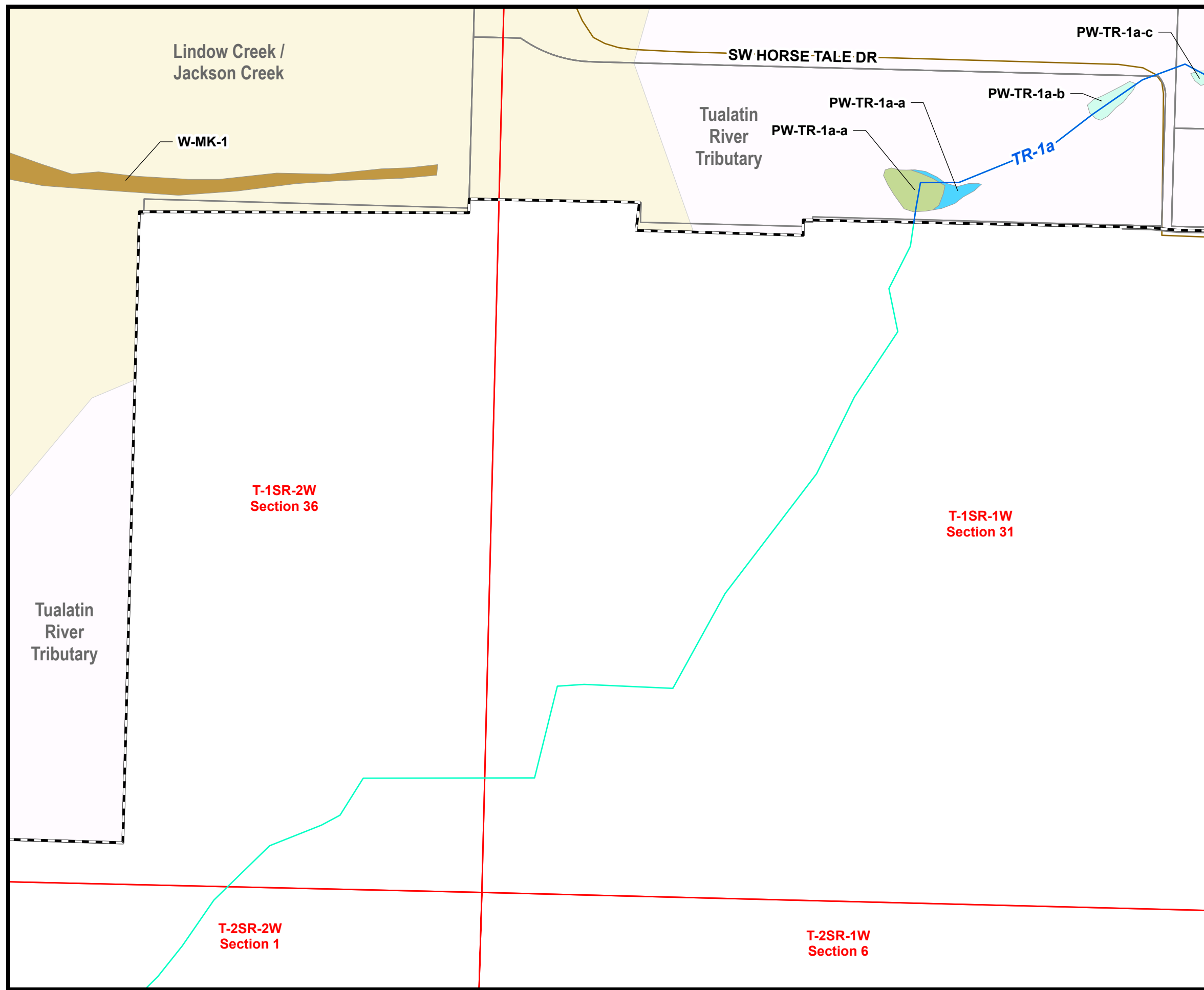


Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

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
















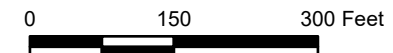
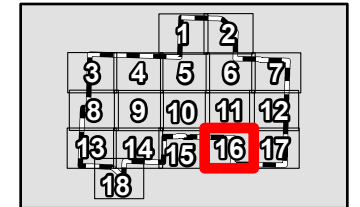
**Figure 5, Sheet 16 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**

**LOCAL WETLANDS INVENTORY**

**Legend**

-  LWI Study Area
-  LWI Stream
-  NHD Stream
-  Sample Plot
-  Feature Extends Outside Study Area
- Watershed Boundary**
-  Johnson Creek South
-  Lindow Creek/Jackson Creek
-  Summer Creek
-  Tualatin River Tributary
- LWI Wetlands**
-  Palustrine Emergent (PEM2Bf)
-  Palustrine Emergent (PEM1B)
-  Palustrine Forested (PFO1B)
-  Palustrine Scrub-Shrub (PSS1B)
-  Palustrine Unconsolidated Bottom (PUBx)
-  Quarry
-  PLSS Section
-  Other Delineation Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Street



**Data Sources:**  
 LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS  
 NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

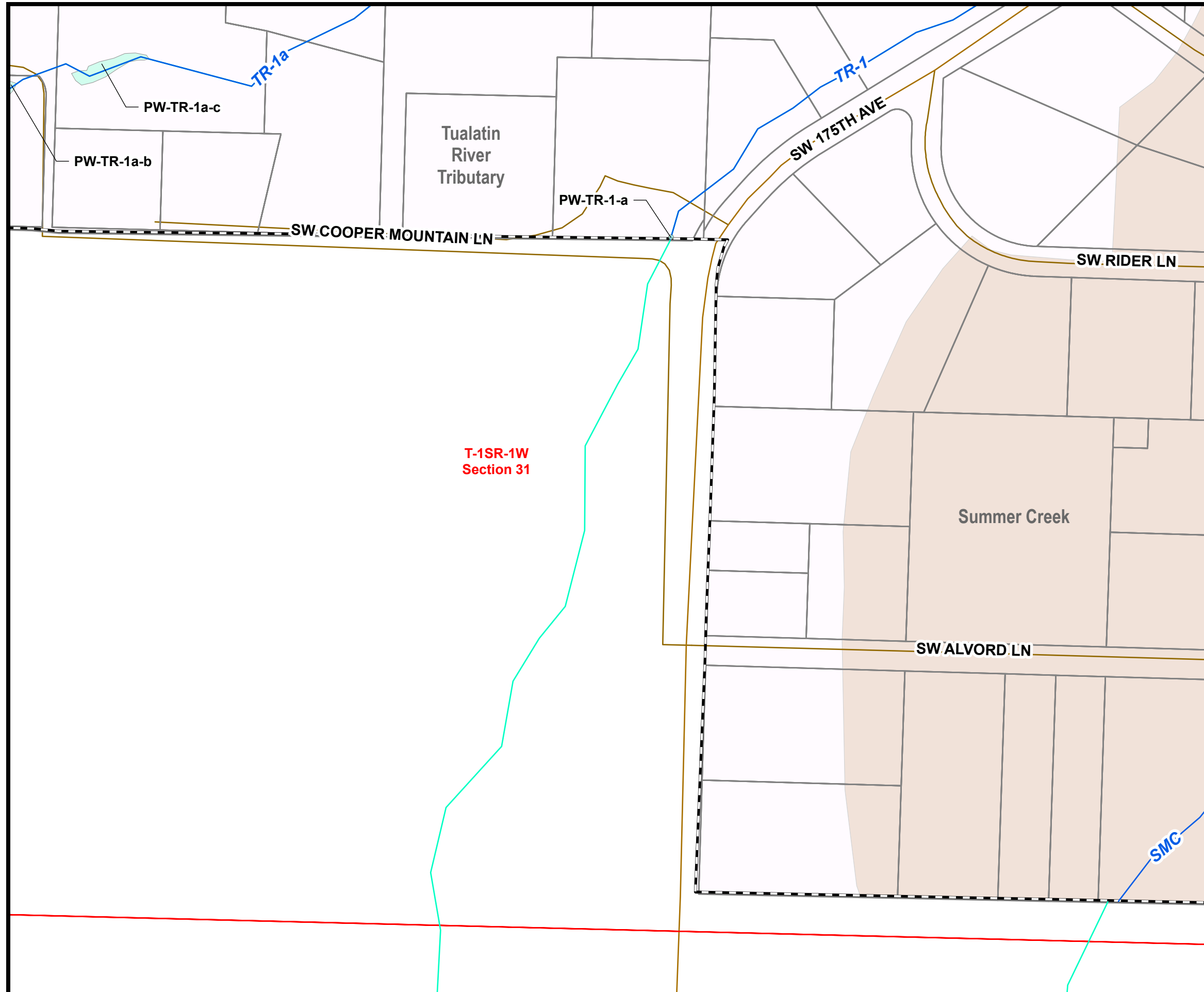
**Disclaimer:** Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands-approved wetland delineation is required for state removal-fill permits. You are advised to contact the Department of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



North

Printed date:  
**April 2024**

Printed with corrections:  
**September 2024**










**Figure 5, Sheet 17 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**





**LOCAL WETLANDS INVENTORY**

**Legend**







-  LWI Study Area
-  LWI Stream
-  NHD Stream
-  Sample Plot
-  Feature Extends Outside Study Area





		1	2	
3	4	5	6	7
8	9	10	11	12
13	14	15	16	17
	18			



**Watershed Boundary**

-  Johnson Creek South
-  Lindow Creek/Jackson Creek
-  Summer Creek
-  Tualatin River Tributary

**LWI Wetlands**

-  Palustrine Emergent (PEM2Bf)
-  Palustrine Emergent (PEM1B)
-  Palustrine Forested (PFO1B)
-  Palustrine Scrub-Shrub (PSS1B)
-  Palustrine Unconsolidated Bottom (PUBx)
-  Quarry

-  PLSS Section
-  Other Delineation Study Area
-  Beaverton City Limits
-  Washington County Tax Lot

-  Street
- 0      150      300 Feet
- 

Data Sources:  
LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

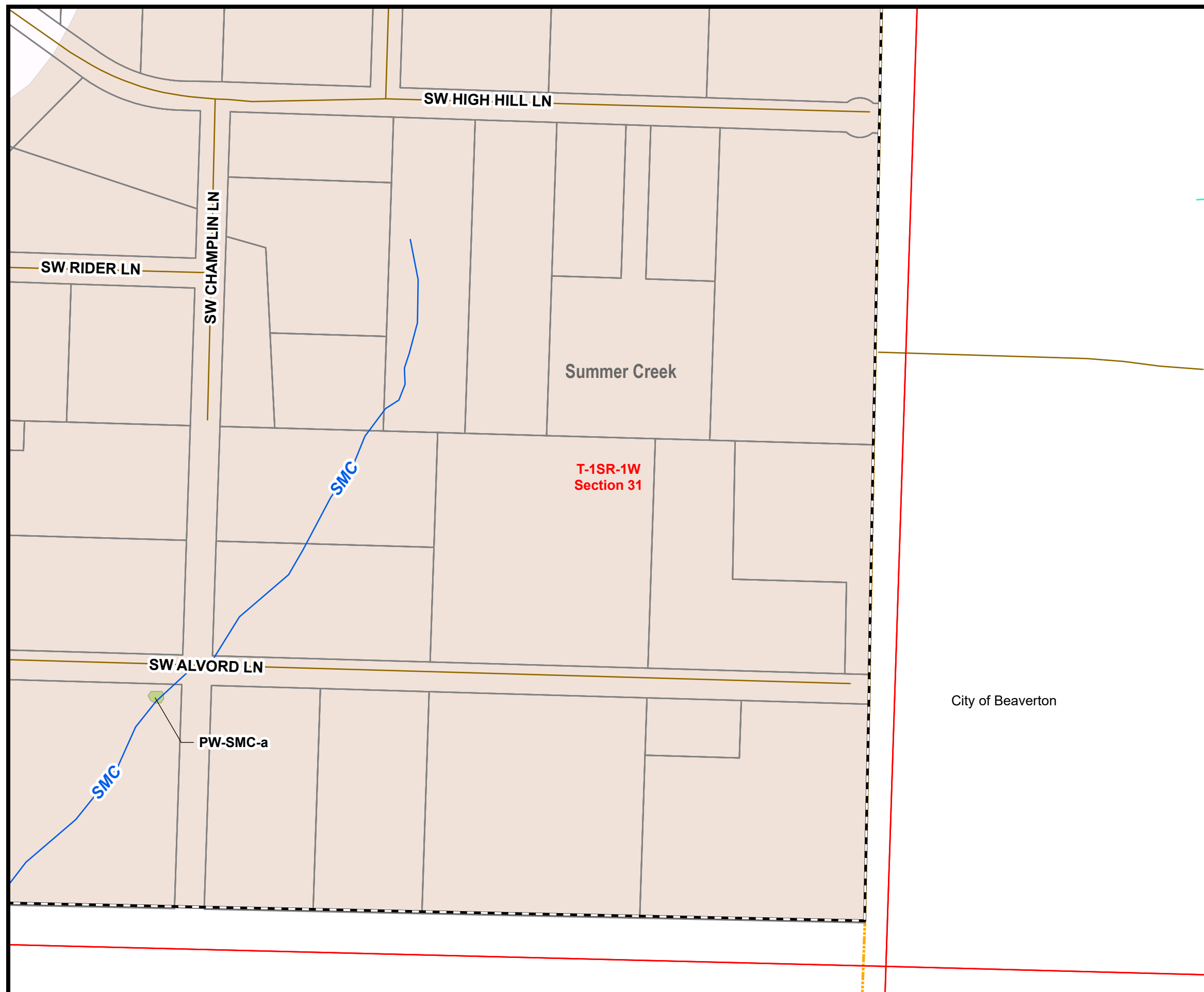
Disclaimer: Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands-approved wetland delineation is required for state removal-fill permits. You are advised to contact the Department of State Lands and the U.S. Army Corps of Engineers with any regulatory questions.



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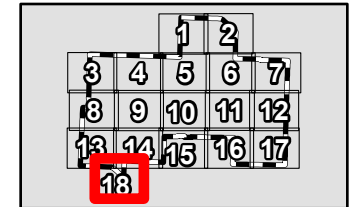
**Figure 5, Sheet 18 of 18  
Local Wetlands Inventory Map**

**City of Beaverton  
Cooper Mountain Community  
Plan Area**





**LOCAL WETLANDS INVENTORY**

**Legend**












-  LWI Study Area
-  LWI Stream
-  NHD Stream
-  Sample Plot
-  Feature Extends Outside Study Area

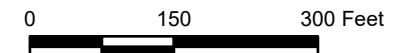


**Watershed Boundary**

-  Johnson Creek South
-  Lindow Creek/Jackson Creek
-  Summer Creek
-  Tualatin River Tributary

**LWI Wetlands**

-  Palustrine Emergent (PEM2Bf)
-  Palustrine Emergent (PEM1B)
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-  Palustrine Scrub-Shrub (PSS1B)
-  Palustrine Unconsolidated Bottom (PUBx)
-  Quarry
-  PLSS Section
-  Other Delineation Study Area
-  Beaverton City Limits
-  Washington County Tax Lot
-  Street



**Data Sources:**

LWI Study Area: City of Beaverton, 2020; LWI Streams: USGS NHD modified by DEA; LWI Wetlands: DEA; Metro RLIS

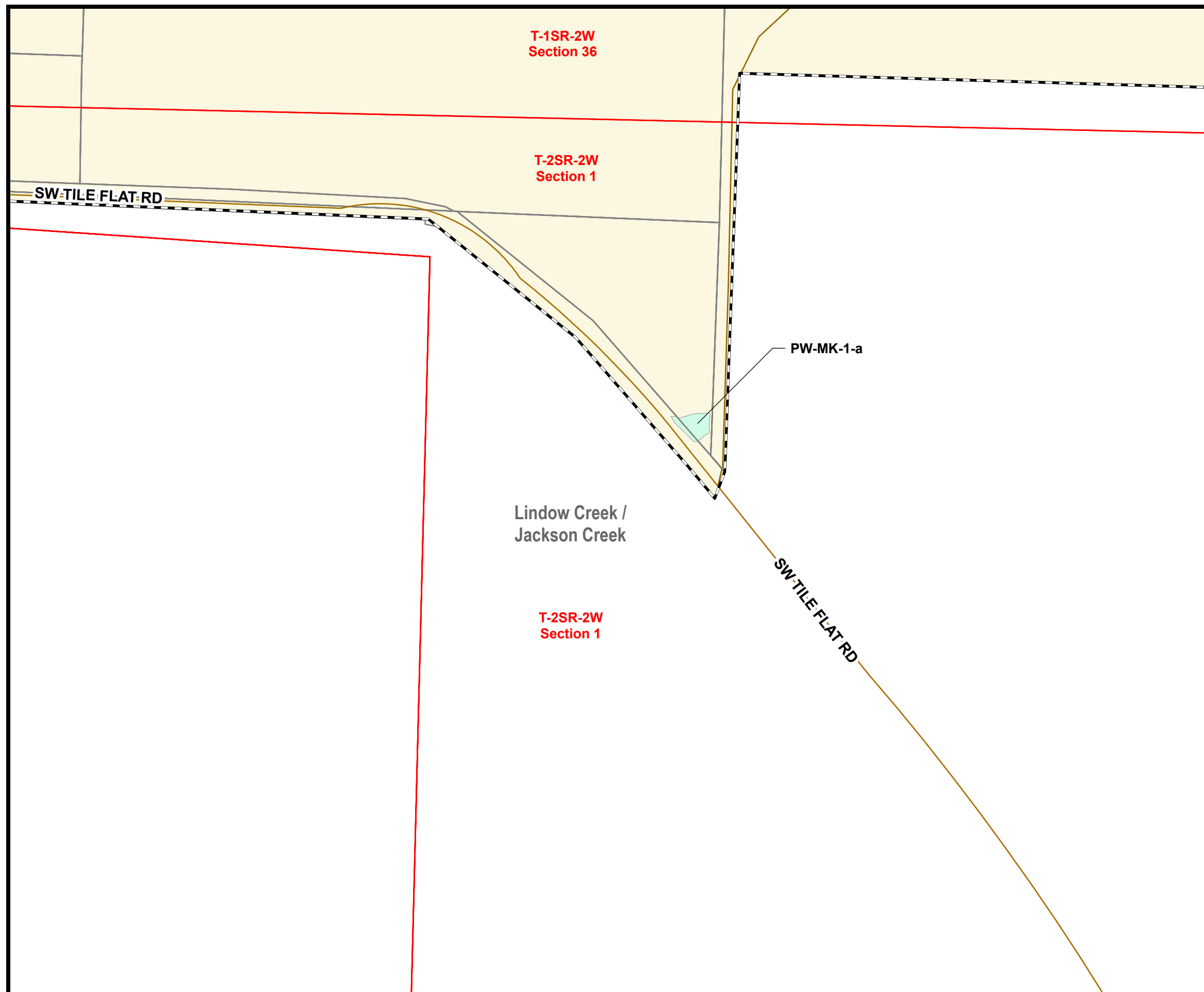
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## ***APPENDIX B: Data Sheets***

**OAR 141-086-0220(3)(a)** Sample plot data on standard field data forms per OAR 141-090 et seq.

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: \_\_\_\_\_ City/County: \_\_\_\_\_ Sampling Date: \_\_\_\_\_  
 Applicant/Owner: \_\_\_\_\_ State: \_\_\_\_\_ Sampling Point: \_\_\_\_\_  
 Investigator(s): \_\_\_\_\_ Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No _____	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes _____ No _____		Yes _____ No _____
Wetland Hydrology Present?	Yes _____ No _____		
Remarks:			

### VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				Yes _____ No _____
% Bare Ground in Herb Stratum _____				
Remarks:				

**SOIL**

Sampling Point: \_\_\_\_\_

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b>	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present? Yes _____ No _____</b>
--	--

Remarks:

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
<b>Primary Indicators (minimum of one required; check all that apply)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b>
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present? Yes _____ No _____</b>
---	--

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: \_\_\_\_\_ City/County: \_\_\_\_\_ Sampling Date: \_\_\_\_\_  
 Applicant/Owner: \_\_\_\_\_ State: \_\_\_\_\_ Sampling Point: \_\_\_\_\_  
 Investigator(s): \_\_\_\_\_ Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No _____	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes _____ No _____		Yes _____ No _____
Wetland Hydrology Present?	Yes _____ No _____		
Remarks:			

### VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

**SOIL**

Sampling Point: \_\_\_\_\_

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present? Yes _____ No _____</b>
--	--

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present? Yes _____ No _____</b>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

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## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: \_\_\_\_\_ City/County: \_\_\_\_\_ Sampling Date: \_\_\_\_\_  
 Applicant/Owner: \_\_\_\_\_ State: \_\_\_\_\_ Sampling Point: \_\_\_\_\_  
 Investigator(s): \_\_\_\_\_ Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No _____
Hydric Soil Present?	Yes _____	No _____			
Wetland Hydrology Present?	Yes _____	No _____			
Remarks:					

### VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: _____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Prevalence Index worksheet:</b>
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
<u>Herb Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b>
1. _____	_____	_____	_____	___ 1 - Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____	___ 2 - Dominance Test is >50%
3. _____	_____	_____	_____	___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	___ 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b>
1. _____	_____	_____	_____	Yes _____ No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				



**SOIL**

Sampling Point: \_\_\_\_\_

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)  <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present? Yes _____ No _____</b>
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Remarks: \_\_\_\_\_

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> ) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Frost-Heave Hummocks (D7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> ) <input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present? Yes _____ No _____</b>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: \_\_\_\_\_

Remarks: \_\_\_\_\_

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: \_\_\_\_\_ City/County: \_\_\_\_\_ Sampling Date: \_\_\_\_\_  
 Applicant/Owner: \_\_\_\_\_ State: \_\_\_\_\_ Sampling Point: \_\_\_\_\_  
 Investigator(s): \_\_\_\_\_ Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No _____	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes _____ No _____		Yes _____ No _____
Wetland Hydrology Present?	Yes _____ No _____		
Remarks:			

### VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				Yes _____ No _____
% Bare Ground in Herb Stratum _____				
Remarks:				

**SOIL**

Sampling Point: \_\_\_\_\_

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

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

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

- \_\_\_ Histic Epipedon (A2)
- \_\_\_ Black Histic (A3)
- \_\_\_ Hydrogen Sulfide (A4)
- \_\_\_ Depleted Below Dark Surface (A11)
- \_\_\_ Thick Dark Surface (A12)
- \_\_\_ Sandy Mucky Mineral (S1)
- \_\_\_ Sandy Gleyed Matrix (S4)
- \_\_\_ Sandy Redox (S5)
- \_\_\_ Stripped Matrix (S6)
- \_\_\_ Loamy Mucky Mineral (F1) (except MLRA 1)
- \_\_\_ Loamy Gleyed Matrix (F2)
- \_\_\_ Depleted Matrix (F3)
- \_\_\_ Redox Dark Surface (F6)
- \_\_\_ Depleted Dark Surface (F7)
- \_\_\_ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- \_\_\_ 2 cm Muck (A10)
- \_\_\_ Red Parent Material (TF2)
- \_\_\_ Very Shallow Dark Surface (TF12)
- \_\_\_ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes \_\_\_\_\_ No \_\_\_\_\_

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

- \_\_\_ Surface Water (A1)
- \_\_\_ High Water Table (A2)
- \_\_\_ Saturation (A3)
- \_\_\_ Water Marks (B1)
- \_\_\_ Sediment Deposits (B2)
- \_\_\_ Drift Deposits (B3)
- \_\_\_ Algal Mat or Crust (B4)
- \_\_\_ Iron Deposits (B5)
- \_\_\_ Surface Soil Cracks (B6)
- \_\_\_ Inundation Visible on Aerial Imagery (B7)
- \_\_\_ Sparsely Vegetated Concave Surface (B8)

- \_\_\_ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- \_\_\_ Salt Crust (B11)
- \_\_\_ Aquatic Invertebrates (B13)
- \_\_\_ Hydrogen Sulfide Odor (C1)
- \_\_\_ Oxidized Rhizospheres along Living Roots (C3)
- \_\_\_ Presence of Reduced Iron (C4)
- \_\_\_ Recent Iron Reduction in Tilled Soils (C6)
- \_\_\_ Stunted or Stressed Plants (D1) (LRR A)
- \_\_\_ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- \_\_\_ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- \_\_\_ Drainage Patterns (B10)
- \_\_\_ Dry-Season Water Table (C2)
- \_\_\_ Saturation Visible on Aerial Imagery (C9)
- \_\_\_ Geomorphic Position (D2)
- \_\_\_ Shallow Aquitard (D3)
- \_\_\_ FAC-Neutral Test (D5)
- \_\_\_ Raised Ant Mounds (D6) (LRR A)
- \_\_\_ Frost-Heave Hummocks (D7)

**Field Observations:**

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

**Wetland Hydrology Present?** Yes \_\_\_\_\_ No \_\_\_\_\_

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: \_\_\_\_\_ City/County: \_\_\_\_\_ Sampling Date: \_\_\_\_\_  
 Applicant/Owner: \_\_\_\_\_ State: \_\_\_\_\_ Sampling Point: \_\_\_\_\_  
 Investigator(s): \_\_\_\_\_ Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No _____	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes _____ No _____		Yes _____ No _____
Wetland Hydrology Present?	Yes _____ No _____		
Remarks:			

### VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b>  Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

**SOIL**

Sampling Point: \_\_\_\_\_

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> )	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present? Yes _____ No _____</b>
--	--

Remarks:

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>		
<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> )	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> )
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )	<input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present? Yes _____ No _____</b>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: \_\_\_\_\_ City/County: \_\_\_\_\_ Sampling Date: \_\_\_\_\_  
 Applicant/Owner: \_\_\_\_\_ State: \_\_\_\_\_ Sampling Point: \_\_\_\_\_  
 Investigator(s): \_\_\_\_\_ Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____ No _____	<b>Is the Sampled Area within a Wetland?</b>	
Hydric Soil Present?	Yes _____ No _____		Yes _____ No _____
Wetland Hydrology Present?	Yes _____ No _____		
Remarks:			

### VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				Yes _____ No _____
% Bare Ground in Herb Stratum _____				
Remarks:				

**SOIL**

Sampling Point: \_\_\_\_\_

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> )	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present? Yes _____ No _____</b>
--	--

Remarks:

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
<b>Primary Indicators (minimum of one required; check all that apply)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> )
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> )
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b> Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present? Yes _____ No _____</b>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

## **APPENDIX C: Wetland Summary Sheets (Wetlands less than 0.5 acres Not Included)**

**OAR 141-086-0220(3)(b)** A summary sheet for each wetland that must at a minimum include:

- (A) The unique wetland code;
- (B) Street address or equivalent location description;
- (C) Township, Range, Section, Quarter Quarter Section and tax lot(s) that contain the mapped wetland;
- (D) Approximate wetland size (in acres);
- (E) Cowardin classification(s);
- (F) HGM classification(s);
- (G) Mapped soil unit(s);
- (H) Watershed boundaries at the 6th field Hydrologic Unit Code scale as defined by the US Geological Survey or finer;
- (I) Sample plot numbers, if any;
- (J) Department wetland determination or delineation file numbers, where applicable;
- (K) Scientific and common names of dominant plant species;
- (L) Primary hydrology sources;
- (M) Sampling or visual confirmation date(s) and method;
- (N) Locally Significant Wetland determination, if made; and
- (O) Comments that describe the wetland, including topographic position, land uses and significant alterations (including agricultural).





# LOCAL WETLANDS INVENTORY

## Wetland Summary Sheet

Wetland: W-MK-1

GENERAL INFORMATION			
Wetland Code:	W-MK-1 (Locally Significant)	Method:	Onsite and Offsite
Wetland Size:	12.37 acres	Field Date(s):	April 27 and 29, 2020
Cowardin Class:	PFO1B, PEM1B, PEM2Bf	Data Plot #s:	MK-1-1, MK-1-2
HGM Class:	Slope and Riverine	Investigators:	Rickus, Thompson
LOCATION			
T1S R2W S36 SE			
Street/landmark	East of SW Grabhorn Rd, North of SW Tile Flat Rd.		
Legal/tax map:	1S2360001000, 1S2360000801, 1S2360000802, 1S2360000804, 1S2360000902		
Sub-basin code:	MK (McKernan Creek)		
WETLAND CHARACTERISTICS			
<p>Description: This wetland is situated within a relatively narrow riparian area of McKernan Creek in a gently sloped agricultural area just downslope of the confluence of several tributaries. It is fed by groundwater and a high water table associated with McKernan Creek, which is a tributary to the Tualatin River. The northwestern portion has been converted to a tree farm, and is dominated by the non-native grass meadow foxtail (<i>Alopecurus pratensis</i>), while the remainder consists of forested and scrub-shrub wetland along McKernan Creek, with a mix of agricultural and remnant forested wetland patches extending east within a swale in mapped hydric soil. This portion was visible only slightly and from a distance, and actual wetland composition and nature is unknown on TL 1S2360001000. Site access was granted for only TL 1S2360000801 and 1S2360000902, and the rest was viewed from adjacent lots and appeared to be similar in nature.</p> <p>Based on air photos the riparian zone of the creek has been reduced from historical condition, and has been converted to agriculture, with drainage alterations likely within much of the agricultural areas.</p> <p>Representative plots were taken in herbaceous and forested vegetative communities. Forested wetland dominant species are provided below. Herbaceous wetland was dominated by non-native grasses such as meadow foxtail. Vegetative diversity and wildlife use in the forested portions of the wetland was fairly high, and a yellow-breasted chat (an Oregon Conservation Strategy species) was heard within the McKernan Creek riparian area. Since it was during migration, it is not certain whether the species was resident, though the relatively large and undisturbed, shrubby nature of the area would provide habitat.</p> <p>Soils: Aloha silt loam, Cascade silt loam, 3 to 7 percent slopes, Cascade silt loam, 12 to 20 percent slopes, Huberly silt loam and Woodburn silt loam, 0 to 3 percent slopes, Delena silt loam, 3 to 12 percent slopes, Wapato silty clay loam, Woodburn silt loam, 0 to 3 percent slopes.</p> <p>Hydrologic Source: McKernan Creek; groundwater discharge</p>			



# LOCAL WETLANDS INVENTORY

## Wetland Summary Sheet

Wetland: W-MK-1

Dominant Vegetation					
Trees		Shrubs		Vines/Herbs	
Oregon ash	<i>Fraxinus latifolia</i>	Red twig dogwood	<i>Cornus sericea</i>	Himalayan blackberry	<i>Rubus armeniacus</i>
Pacific willow	<i>Salix lucida</i>	Nootka rose	<i>Rosa nutkana</i>	Reed canarygrass	<i>Phalaris arundinacea</i>
		Pacific willow	<i>Salix lucida</i>	Meadow foxtail	<i>Alopecurus pratensis</i>
				Curly dock	<i>Rumex crispus</i>
<p><b>Potential Enhancement Opportunities:</b></p> <ul style="list-style-type: none"> <li>-Weed removal and native plantings throughout. If the landowners are amenable, there are many opportunities to expand riparian buffers around agricultural wetlands to improve wildlife habitat and water quality. This could also benefit the yellow-breasted chat heard within the McKernan Creek riparian area, if it is a resident species.</li> <li>-Additional upland habitat buffer plantings with native trees and shrubs. Oregon white oak and native prairie species would help fulfill Oregon Conservation Strategy (OCS) goals.</li> <li>-Snag and downed wood creation would also benefit many OCS species.</li> <li>-Limiting herbicide/fertilizer application on upstream farm fields would further protect water quality.</li> </ul>					



**LOCAL WETLANDS INVENTORY**

Wetland Summary Sheet

Wetland: W-MK-1-1

<b>GENERAL INFORMATION</b>			
Wetland Code:	W-MK-1-1	Method:	Onsite and Offsite
Wetland Size:	1.31 acres	Field Date(s):	April 28, 2020
Cowardin Class:	PEM1B	Data Plot #s:	MK-1-1-1
HGM Class:	Slope	Investigators:	Rickus, Thompson
<b>LOCATION</b>			
T1S R2W S36 SE			
Street/landmark	Corner of SW Grabhorn Rd and SW Tile Flat Rd.		
Legal/tax map:	1S2360000901, 1S2360000902		
Sub-basin code:	MK (McKernan Creek)		
<b>WETLAND CHARACTERISTICS</b>			
<p>Description: W-MK-1-1 lies in the southwest corner of the study area and was delineated partially by DEA in 2017 (WD2017-0024); however, the majority of the wetland was mapped for the LWI using offsite methods since access was not granted. It is situated in a swale occupied by a tributary to McKernan Creek (MK-1-1), and consists of an old hay field that has reverted to emergent wetland. It is dominated by non-native grasses and is primarily fed by groundwater. Representative plots were taken in primarily herbaceous habitat. Vegetative diversity was minimal and wildlife use in the wetland was assumed to be relatively low, being at the corner of a busy street. However, since it is connected to larger open spaces and farms, habitat function is provided for common species and for a variety of migratory birds.</p> <p>Hydrologic Source: Groundwater discharge</p>			
<b>Dominant Vegetation</b>			
Trees	Shrubs		Vines/Herbs
None	Nootka rose	<i>Rosa nutkana</i>	Meadow foxtail <i>Alopecurus pratensis</i>
	Himalayan blackberry	<i>Rubus armeniacus</i>	Reed canarygrass <i>Phalaris arundinacea</i>
<b>Potential Enhancement Opportunities:</b>			
<p>-Weed removal and native plantings throughout. If the landowners are amenable, there are many opportunities to expand riparian buffers around agricultural wetlands to improve wildlife habitat and water quality.</p> <p>-Additional upland habitat buffer plantings with native trees and shrubs. Oregon white oak and native prairie species would help fulfill Oregon Conservation Strategy (OCS) goals.</p>			



# LOCAL WETLANDS INVENTORY

## Wetland Summary Sheet

Wetland: W-MK-4-1 and W-MK-4-a

<b>GENERAL INFORMATION</b>			
Wetland Code:	W-MK-4-1 and W-MK-4-a	Method:	Onsite and Offsite
Wetland Size:	1.51 acres total, 1.14 acres W-Mk_4-1, (portion in study area) and 0.37 acres W-MK-4-a	Field Date(s):	April 29, 2020
Cowardin Class:	PEM1B	Data Plot #s:	MK-4-1-1
HGM Class:	Slope	Investigators:	Rickus, Thompson
<b>LOCATION</b>			
T1S R1W S30 SE			
Street/landmark	Southeast of SW Stone Creek Drive (within Cooper Mountain Nature Park)		
Legal/tax map:	1S2360000100		
Sub-basin code:	MK-4 (Tributary to McKernan Creek)		
<b>WETLAND CHARACTERISTICS</b>			
<p>Description: W-MK-4-1 and W-MK-4-a lie within Cooper Mountain Nature Park and were delineated by others in 2007 (WD# 07-0284). The two wetlands are proximate to each other and have similar characteristics; therefore, they are being summarized and evaluated together. The wetlands are situated higher in the watershed on a moderately steep slope between two tributaries to McKernan Creek. Together they occupy 1.51 acres within the study area. The upper end of the wetland W-MK-4-1 lies outside the LWI study area, and was not included in this total, but according to WD# 07-0284 the total wetland size of this wetland is 2.03 acres. The wetlands are shallow-soil vernal wetlands and were dry during the LWI site visits, with plant communities that change rapidly as the wetland dries, often succeeding to species adapted to less soil moisture as the dry season progresses.</p> <p>A representative plot was taken in this herbaceous community. Vegetative diversity was high and wildlife use was presumed to be high given the vernal nature of the wetland, which is unusual and limited in the region. Actual wildlife use observed was primarily from insects (including butterflies, bees, and others) and foraging by migratory birds. According to WD# 07-0284, the area is burned for restoration frequently to maintain vegetative diversity and wildlife habitat.</p> <p>Soils: Saum silt loam, 12 to 20 percent slopes</p> <p>Hydrologic Source: Groundwater discharge</p>			



# LOCAL WETLANDS INVENTORY

## Wetland Summary Sheet

Wetland: W-MK-4-1 and W-MK-4-a

<b>Dominant Vegetation</b>			
<b>Herbs</b>		<b>Herbs</b>	
Slender rush-	<i>Juncus tenuis</i>	European centaury	<i>Centaurium erythraea</i>
Oregon saxifrage	<i>Saxifraga oregana</i>	Redstem stork's bill	<i>Erodium cicutarium</i>
Yellow glandweed	<i>Parentucellia viscosa</i>		
<b>Potential Enhancement Opportunities:</b>			
<p>-The area is already being managed by METRO for conservation and is burned frequently to maintain vegetative diversity and wildlife habitat. Since this and other Metro-owned parcels contain the last remaining large blocks of oak savannah in the area, they are highly valuable for conservation. The following opportunities are likely already being implemented by METRO.</p> <p>-Additional Oregon white oak and native prairie species would help fulfill Oregon Conservation Strategy (OCS) goals.</p> <p>-Snag and downed wood creation would also benefit many OCS species.</p> <p>-Limiting encroachment by recreational visitors appears to be working to preserve resources and should be continued. Poison oak in much of the grassy areas serves this purpose to some degree.</p> <p>-Weeds such as blackberry and common bedstraw are present in some areas. Reducing populations would help reduce spread of these weeds.</p>			



**LOCAL WETLANDS INVENTORY**

Wetland Summary Sheet

Wetland: W-MK-4-b

<b>GENERAL INFORMATION</b>	
Wetland Code:	W-MK-4-b
Wetland Size:	0.003 acre
Cowardin Class:	PEM1B
HGM Class:	Slope
Method:	Onsite
Field Date(s):	April 29, 2020
Data Plot #s:	none
Investigators:	Rosenthal
<b>LOCATION</b>	
T1S R1W S30 SE	
Street/landmark	Due south of the terminus of SW 190 <sup>th</sup> Ave adjacent to trail (within Cooper Mountain Nature Park)
Legal/tax map:	1S2360000100
Sub-basin code:	MK-4 (Tributary to McKernan Creek)
<b>WETLAND CHARACTERISTICS</b>	
<p>Description: W-MK-4-b lies within Cooper Mountain Nature Park and was delineated by others in 2007 (WD# 07-0284). The original delineation report did not map this wetland; however, it appears as Wetland H on the associated DSL concurrence letter dated March 10, 2008. It does not appear that a formal data plot was taken at this wetland.</p> <p>Based on the LWI site visit, a very small patch of soft rush (<i>Juncus effusus</i>) was observed adjacent to a park trail and is presumed to be the same wetland that occurs in the 2008 concurrence letter. The wetland occurs along a slight slope adjacent to the trail, perhaps a small cut slope associated with the trail construction. The wetland is presumed to experience saturated soil conditions during the wet season and dry out during the summer months. Vegetative diversity is low in the wetland. The wetland is bordered by upland vegetation, including bigleaf maple (<i>Acer macrophyllum</i>) and hazelnut (<i>Corylus cornuta</i>).</p> <p>Soils: Cornelius and Kinton silt loams, 2 to 7 percent slopes</p> <p>Hydrologic Source: Groundwater discharge and trail runoff</p>	
<b>Dominant Vegetation</b>	
Herbs	Herbs
Soft rush <i>Juncus effusus</i>	Tall fescue <i>Schedonorus arundinaceus</i>
<b>Potential Enhancement Opportunities:</b>	
-Due to the very small size, enhancement opportunities are limited.	



# LOCAL WETLANDS INVENTORY

## Wetland Summary Sheet

Wetland: W-MK-6-1

<b>GENERAL INFORMATION</b>			
Wetland Code:	W-MK-6-1	Method:	Onsite and Offsite
Wetland Size:	6.05 acres	Field Date(s):	April 28, 2020
Cowardin Class:	PFO1B, PSS1B, PEM2Bf	Data Plot #s:	MK-6-1-1, MK-6-1-2
HGM Class:	Slope	Investigators:	Rickus, Thompson
<b>LOCATION</b>			
T1S R1W S30 SE			
Street/landmark	West of SW 175 <sup>th</sup> Ave, S of SW Kemmer Rd.		
Legal/tax map:	1S130C000201, 1S130CD00100, 1S130CC00100, 1S1310000800		
Sub-basin code:	MK-6 (Tributary to McKernan Creek)		
<b>WETLAND CHARACTERISTICS</b>			
<p>Description: This wetland lies in a swale in the upper portion of the watershed. It is fed by groundwater and consists of a mix of agricultural and remnant forested wetland patches extending southwest in a swale within mapped hydric soil. W-MK-6-1 originates near the topographic high point of the area, and apparently collects groundwater from the top of the ridgeline above, which consists primarily of scrub forest and recently converted farmland.</p> <p>Biologists were not granted right of entry to the upper extent of the wetland (on TL 1S130C000201), which was mapped based on contours and the significant amount of groundwater found moving through accessible parcels. The wetland passes through hay fields, a short section of ash-dominated wetland. It then spreads out in a grazed pasture and is impounded in a dam with a weir (OW-MK-6-1), which then forms tributary MK-6 where the wetland turns into a channel that becomes more incised as it flows downhill. MK-6 is a tributary to McKernan Creek, which is a tributary to the Tualatin River.</p> <p>Representative plots were taken in herbaceous and forested vegetative communities. Forested wetland dominant species are provided below. The herbaceous community was dominated by non-native grasses such as meadow foxtail. Vegetative diversity and wildlife use in the forested portions of the wetland was moderate given the relatively small size of forest remaining. Recent conversion of forest to the north and west of the wetland has further reduced potential for wildlife, although the forest to the east remains relatively undisturbed, as do nearby Metro-owned parcels west and south of Winkleman Park.</p> <p>Soils: Cascade silt loam, 3 to 7 percent slopes, Cascade silt loam, 7 to 12 percent slopes, Delena silt loam, 3 to 12 percent slopes, Cornelius and Kinton silt loams, 2 to 7 percent slopes</p> <p>Hydrologic Source: Groundwater discharge</p>			



# LOCAL WETLANDS INVENTORY

## Wetland Summary Sheet

Wetland: W-MK-6-1

Dominant Vegetation					
Trees		Shrubs		Vines/Herbs	
Oregon ash	<i>Fraxinus latifolia</i>	Red twig dogwood	<i>Cornus sericea</i>	Himalayan blackberry	<i>Rubus armeniacus</i>
Shining willow	<i>Salix lucida</i>	Nootka rose	<i>Rosa nutkana</i>	Reed canarygrass	<i>Phalaris arundinacea</i>
		Pacific ninebark	<i>Physocarpus capitatus</i>	Meadow foxtail	<i>Alopecurus pratensis</i>

**Potential Enhancement Opportunities:**

- Given the apparently abundant source of groundwater in the wetland, restoration of any degraded portions of the wetland to conditions found in the southeast corner of TL 1S130CC00100 would greatly improve a valuable natural resource within a rapidly urbanizing area. Weed removal and native plantings could be completed in many areas.
- Additional upland habitat buffer plantings with native trees and shrubs. Oregon white oak and native prairie species would help fulfill Oregon Conservation Strategy (OCS) goals and supplement the oak habitat round on Metro parcels just to the west.
- Snag and downed wood creation would also benefit many OCS species.
- Limiting grazing and herbicide/fertilizer application on upstream farm fields would further protect water quality.
- Weeds such as thistle, blackberry, and common bedstraw are common in some agricultural areas. Reducing populations would help reduce spread of these weeds to neighboring parcels.





# LOCAL WETLANDS INVENTORY

## Wetland Summary Sheet

Wetland: W-SM-c

GENERAL INFORMATION	
Wetland Code:	W-SM-c
Wetland Size:	0.11 acre
Cowardin Class:	PEM1B
HGM Class:	Slope
Method:	Onsite
Field Date(s):	April 29, 2020
Data Plot #s:	none
Investigators:	Rickus
LOCATION	
T1S R1W S30 SE	
Street/landmark	Southeast of SW SW Weir Rd and SW 175 <sup>th</sup> Ave intersection
Legal/tax map:	1S1310000504
Sub-basin code:	MK-4 (Tributary to McKernan Creek)
WETLAND CHARACTERISTICS	
<p>Description: W-SM-c occurs at the current headwaters of Summer Creek, where a culvert delivers upslope storm drainage to the wetland and creek channel. Historically, Summer Creek likely extended further up the slope of Cooper Mountain, but this area is now developed. The wetland likely receives hydrology from the creek during high precipitation events; however, the dominant hydrology source is a season shallow groundwater table that results in seasonal soil saturation. The wetland likely dries out during the summer months. Plant diversity is low and dominated by non-native and invasive herbaceous grasses.</p> <p>Soils: Cornelius and Kinton silt loams, 7 to 12 percent slopes</p> <p>Hydrologic Source: Groundwater discharge from side slopes, lesser inputs from small headwater stream during high flow events.</p>	
Dominant Vegetation	
Herbs	Herbs
Meadow foxtail- <i>Alopecurus pratensis</i>	Reed canarygrass- <i>Phalaris arundinacea</i>
Potential Enhancement Opportunities:	
<p>-Non-native grass occupies the entire wetland and could be removed and replaced with native species. However, full remediation could be challenging/costly for the property owner and so just planting with native wetland shrubs and/or trees with localized mowing/weed control around the plantings may be a preferred option.</p>	

## ***APPENDIX D: Wetland Functional Assessment Results***

**OAR 141-086-0220(3)(c)** *OFWAM assessment results for each wetland assessment unit that must include:*

*(A) Wetlands of Special Interest for Protection (OFWAM, Chapter Five);*

*(B) Wetland Characterization results (OFWAM, Appendix B);*

*(C) Assessment results represented in table format;*

*(D) Answer sheets for all wetland assessment questions (OFWAM, Appendix C);*

*(E) Function and condition summary sheets for fish habitat, wildlife habitat, water quality, hydrologic control and, if applicable, education and recreation (OFWAM, Appendix C);*

*(F) Watershed summary sheet (OFWAM, Appendix C); and*

*(G) Technical staff members and qualifications.*

## Watershed summary sheet for the Oregon Method

### Watershed or community identification: Lower Willamette Drainage Basin

Characteristic	Description
<b>Physical characteristics of the watershed</b>	<p>Gentle to fairly steep slope south facing watershed. Drains to Tualatin River or tributaries of the Tualatin River, with most of the watershed draining southwest via McKernan Creek. Drainages typically begin as headwater drainages or wetlands, with much of the stream length likely only flowing intermittently, drying out in the late summer. A historical cattle pond dam/water control structure occurs near the headwaters of tributary 6 to McKernan Creek (S-MK-6-1). McKernan Creek itself, as mapped, originates in a small wetland in the southwest corner of Winkelman Park, along SW 175th Avenue.</p> <p>Four watersheds draining the LWI study area cover an area of approximately 1,241 acres, with Lindow Creek/Jackson Creek, which contains McKernan Creek draining the greatest area (791.8 acres) followed by Summer Creek tributaries to the north and east (305.7 acres), Tualatin River tributaries to the south (131.8 acres), and Johnson Creek tributaries to the south (11.27 acres). The average slope of the watersheds is approximately 8 percent, with lower gradient slopes occurring in the southern/lower portion and steeper slopes occurring in the northern/upper portion. Most streams in the watershed have been modified to varying degrees by incision, channelization, or other manipulations for agriculture. For the most part, water is not being taken out of the streams through diking, drainage or irrigation districts in the watershed upstream of the assessment area, but most of the area to the north and east is being rapidly urbanized as a new part of the Urban Growth Boundary.</p>
<b>Land uses within the watershed</b>	<p>The dominant land use in the watershed upstream from the assessment area is rapidly urbanizing previously agricultural, forested, and rural residential areas. The area within the assessment area is dominated by the Cooper Mountain Nature Park, remnant patches of forest, rural residential, agricultural land uses, including a mix of annual crops, pasture, orchards, and viticulture.</p>
<b>Water quality</b>	<p>No streams within the study area are listed as water quality limited according to DEQ 303(d) databases. A recent Oregon Statewide Assessment of Nonpoint Sources of Water Pollution was not available. It is assumed that most project stream reaches would be classified as "no data available" since they are intermittent headwater streams. Many of these tributaries pass through dense forest and contain relatively intact riparian areas in spite of the presence of rural residences. However, portions of S-MK-6-1 are lacking substantial native vegetation, especially trees and shrubs, along stream reaches. This results in a lack of stream shading and affective water quality buffers to capture sediment from agricultural fields. These factors likely lead to somewhat reduced water quality compared to more intact reaches.</p>
<b>Biological characteristics of the watershed</b>	<p>Assessment area streams are intermittent streams and contain fish passage barriers at the downstream end of the assessment area. They drain to stream reaches that support an anadromous fishery, including designated Essential Salmonid Habitat within the HUC12 of McKernan Creek.</p> <p>Native plant communities persist in patches, while in many areas they have largely been replaced by agricultural lands or urbanization. No sensitive wildlife or plant species are known to exist, although remnant habitat may be present, and a yellow-breasted chat (<i>Icteria virens auricollis</i>), a Federal Species of Concern and State Sensitive species, was heard along the lower reaches of McKernan Creek during fieldwork conducted for the LWI. Wildlife that persist or thrive in agricultural settings, such as deer, coyote, raccoon, etc. are present within the watershed. High quality native habitat exists within Cooper Mountain Nature Park and in patches along McKernan Creek.</p>

## Narrative summary of watershed description

The southwestern and central portion of the project study area primarily consists of rural agricultural lands with scattered residences and the riparian zone of McKernan Creek and its tributaries. Open spaces and forest owned primarily by Metro occupies much of the northern portion, and includes Cooper Mountain Nature Park.

The upper reaches of McKernan Creek flow through primarily forested lots with large residences along SW Horse Tail Dr, and the headwaters originate in a small wetland in the southwest corner of Winkleman Park, a large recreational open space west of SW 175th Ave. East of SW 175th Ave, lots and residences are somewhat smaller, and are bordered to the east, north, and south by suburban development and recent heavy urbanization within the UGB.

Slopes range from gently rolling in the south half to moderately steep in the north half of the study area. The majority of the land drains to the south, with a small portion of the northeast corner draining to the east along Summer Creek. Land use is predominantly rural residential and agricultural, with a mix of annual crop production, pasture, orchards, and viticulture. Many medium and large remnant patches of native forest habitat occur within the area, including mixed upland fir-deciduous forest in much of the eastern residential area and to the north, Oregon ash dominated wetland forest along McKernan Creek and its tributaries, and patches of Oregon oak forest. Most Oregon oak forest lies in Metro properties to the north, and the Oregon oak forest mapped north of SW Horse Tale Dr has been logged in recent years, with only a few trees remaining to the southwest on properties where access was not granted. Several fir dominated lots were being logged or had recently been logged as observed during the April 2020 site visits. Most significantly, the majority of the forested areas in the northernmost portion of the study area had been cleared within the previous year, and converted to grass fields, with slash piled along the perimeter.

**Wetland Summary Sheet Questions: Answer Sheet**

Wetland	W-MK-1 (12.37 acres)	W-MK-1-1 (1.31 acres)	W-MK-4-1 and W-MK-4-a (1.51 acre total)	W-MK-4-b (0.003)	W-MK-6-1 (6.05 acres)	W-SM-c (0.11)
<b>Question #</b>						
1	Lower Willamette	Lower Willamette	Lower Willamette	Lower Willamette	Lower Willamette	Lower Willamette
2	927 acres	145 acres	98 acres	4.3 acres	129 acres	45 acres
3	6.37%	4.42%	9.15%	8.00%	8.83%	5.50%
4	a	b	a	a	b	a
5	b	b	b	b	b	b
6	b	b	b	b	b	b
7	b	b	b	b	b	b
8	a	a	a	a	a	a
9	f	f	f	f	f	f
10	b	b	b	b	b	b
11	a, c	a, c	a, c	a, c	a, c	a, c
12	b	b	b	b	b	b
13	a	a	a	a	a	c
14	b	b	b	b	b	b
15	1-b, 2-c, 4-a	1-b, 2-c, 4-a	1-c, 3-b	1-c	1-b, 2-c, 4-a	1-b, 2-b, 4-b
16	1-b, 2-c, 4-a	1-b, 2-c, 4-a	1-c, 3-b	1-c	1-b, 2-c, 4-a	1-b, 4-b
17	a	a	b	c	a	c
18	a	a	b	b	a	a
19	b	b	b	b	b	b
20	2-b, 3-b	2-b, 3-b	1-c, 3-b	1-c	2-b, 3-b	1-a, 4-c
21	1-n/a, 2-c, 3-c, 4-c	1-n/a, 2-b, 3-c, 4-c	2-a	2-a	1-n/a, 2-b, 3-c, 4-c	2-a
22	NA, currently rural	NA, currently rural	NA, currently rural	NA, currently rural	NA, currently rural	b
23	a	c	c	c	c	c
24	b	b	c	c	b	c
25	a	b	a	a	b	NA, currently urban
26	NA, currently rural	NA, currently rural	NA, currently rural	NA, currently rural	NA, currently rural	b
27	a	a	b	b	a	a
28	d	d	d	d	d	d
29	b	c	c	c	c	c
30	a	b	NA, no stream	NA, no stream	b	c
31	a	c	NA, no stream	NA, no stream	c	c
32	b	c	NA, no stream	NA, no stream	c	c
33	NA, no lake	NA, no lake	NA, no lake	NA, no lake	NA, no lake	NA, no lake
34	NA, no lake	NA, no lake	NA, no lake	NA, no lake	NA, no lake	NA, no lake
35	NA, no lake	NA, no lake	NA, no lake	NA, no lake	NA, no lake	NA, no lake
36	c	c	c	c	c	c
37	a, sediment deposits	c	c	c	c	a, landscape position
38	b	a	a	a	a	c
39	a	NA	NA	NA	NA	NA
40	a	b	b	NA	b	a
41	c	c	b	b	c	c
42	a	a	b- poison oak	b- poison oak	a	a
43	a, forest and ag land	a, forest and ag land	a, forest and	a, forest and	a, forest and ag land	b
44	b	b	a	a	b	c
45	b, rough ground	b, rough ground	b, rough ground	b, steep slope	b, rough ground	b, private property
46	c	c	a, CMNP trails near	a, trail	c	c
47	c	c	c	c	c	c
48	c	c	c	a	c	c
49	b	c	c	c	c	c
50	b	b	b	b	b	b
51	b	b	a	c	b	NA, currently urban
52	NA, currently rural	NA, currently rural	NA, currently rural	NA, currently rural	NA, currently rural	b
53	b	b	b	b	b	a, private home
54	NA, no visual detractor	NA, no visual detractor	NA, no visual detractor	NA, no visual detractor	NA, no visual detractor	b
55	a	a	a	a	a	b
56	a	b	a	a	b	b
57	c	b	b	a	b	a
58	a	b	c	c	b	c

**Wetland Assessment Questions: Answer Sheet**

Wetland Identifier	W-MK-1 (12.37 acres)	W-MK-1-1 (1.31 acres)	W-MK-4-1 and W-MK-4-a (1.51 acres)	W-MK-4-b	W-MK-6-1 (6.05 acres)	W-SM-c
<b>Wildlife habitat</b>						
Question 1	a	c	c	c	a	c
Question 2	a	c	c	c	c	c
Question 3	b	c	b	c	b	c
Question 4	c	c	c	c	c	c
Question 5	a	a	a	b	a	a
Question 6	a	a	a	b	a	a
Question 7	a	a	a	a	a	a
Question 8	b	b	b	a	b	d
Question 9	a	b	a	a	b	b
Assessment Descriptor	Diverse	Some	Some	Some	Some	Some

<b>Fish habitat</b>						
<i>Streams and rivers</i>						
Question 1	a	c	-	-	c	b
Question 2	a	c	-	-	b	c
Question 3	b	c	-	-	c	c
Question 4	a	a	-	-	a	a
Question 5	b	b	-	-	b	c
Question 6	b	c	-	-	c	c
<i>Lakes and ponds</i>						
Question 1	-	-	-	-	-	-
Question 2	-	-	-	-	-	-
Question 3	-	-	-	-	-	-
Question 4	-	-	-	-	-	-
Question 5	-	-	-	-	-	-
Question 6	-	-	-	-	-	-
Assessment Descriptor	Intact	Degraded	NA	NA	Degraded	Degraded

<b>Water quality</b>						
Question 1	a	b	b	c	c	c
Question 2	a	c	c	c	c	a
Question 3	a	a	c	a	a	a
Question 4	a	b	b	c	a	b
Question 5	a	b	c	c	a	a
Question 6	c	c	c	c	c	c
Assessment Descriptor	Degraded	Degraded	Not present	Not present	Degraded	Degraded

<b>Hydrologic control</b>						
Question 1	a	a	b	b	b	b
Question 2	a	c	c	c	c	a
Question 3	a	b	b	c	b	c
Question 4	c	b	a	a	a	c
Question 5	a	c	c	c	c	c
Question 6	b	b	c	c	b	a
Question 7	b	b	c	c	a	a
Assessment Descriptor	Intact	Degraded	Not present	No present	Degraded	Degraded

**Wetlands of Special Interest for Protection Questions: Answer Sheet**

Wetland Identifier	W-MK-1 (12.37 acres)	W-MK-1-1 (1.31 acres)	W-MK-4-1 and W-MK-4-a (1.51 acres)	W-MK-4-b	W-MK-6-1 (5.35 acres)	W-SM-c
Question 1	b	b	b	b	b	b
Question 2	b	b	b	b	b	b
Question 3	b	b	b	b	b	b
Question 4	b	b	b	b	b	b
Question 5	a (portion of	b	b	b	a (portion of	b
Question 6	b	b	b	b	b	b
Question 7	b	b	b	b	b	b
Question 8	b	b	b	b	b	b
Question 9	b	b	b	b	b	b
Question 10	b	b	b	b	b	b
<i>Meets WISP criteria*</i>	yes (portion of wetl)	no	no	no	yes (portion of wetl)	no

\*Only one question out of the ten needs to be answered as "a" in order to meet WISP criteria.

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