

# ENVIRONMENTAL OVERLAY ZONE MAP CORRECTION PROJECT

## VOLUME 3

Natural Resource  
Inventory, Compliance,  
and Appendix

**Recommended Draft**

January 2022



THE BUREAU OF  
**PLANNING &  
SUSTAINABILITY**

# How to Testify

You may submit comments to Portland City Council on the Environmental Overlay Zone Map Correction Project Recommended Draft in the following ways:

## Use the Map App:

Go to: <https://www.portlandmaps.com/bps/ezones/#/map/> and then click the "Testify" button.

**By email:** [cctestimony@portlandoregon.gov](mailto:cctestimony@portlandoregon.gov)

## By U.S. Mail

Council Clerk  
1221 SW 4th Avenue  
Room 130  
Portland, OR 97204

## In person at the public hearings

City Council will hold a public hearing on the Environmental Overlay Zone Map Correction Project on February 16, 2022. The meeting will be held virtually, by video conference. It can be viewed live, or after the meeting concludes. City Council meetings can be viewed on the City of Portland website: [www.portlandoregon.gov/video](http://www.portlandoregon.gov/video) or on the Portland eGov PDX YouTube channel:

<https://www.youtube.com/channel/UCcPIUh7CWwtBXisMPHWG65g>

To register to testify verbally, please visit the Portland City Council Agenda website: <https://www.portland.gov/council/agenda>. The deadline to sign up for the February 16 hearing is Tuesday, February 15 at 4:00 p.m.

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The Ezone Project Documents have been reorganized. After the PSC voted to recommend the Ezone Project to City Council, the Proposed Draft – As Amended Volume 1 Part A and Volume 1 Part B were consolidated into Volume 1 of the Recommended Draft. Volumes 3, 4, and 5 of the Proposed Draft – As Amended were consolidated into Volume 3 of the Recommended Draft.

# Part A: Natural Resource Inventory

## A. INTRODUCTION

Portland's Natural Resource Inventory, adopted in 2012, follows the Oregon Goal 5 rules as well as the Metro Title 13 methodology to document the location, quantity and quality of natural resources and evaluate the resources for significance. As part of this Ezone Map Correction Project plan, the Natural Resource Inventory follows the same rules and uses the same methodology as was adopted in 2012, but utilized up-to-date information and technology, as well as on-site verification, to map the location of rivers, streams, wetlands, flood areas, vegetation (forest, woodland, shrubland, herbaceous), steep slopes and unique habitat areas.

The results of the updated Natural Resource Inventory updates are presented in Volume 2.

## B. NATURAL RESOURCE DEFINITIONS

Below are the definitions of natural resource features documented in the Natural Resource Inventory.

### B.1 Waterbodies

Stream: A stream is a channel that has a defined bed and bank and carries water continuously for a week or more during at least the wet season (October through April). Streams may be naturally occurring or may be a relocated, altered or created channel. Streams may contribute water into another waterbody or the water may flow into a pipe or culvert. Streams may flow for some distance underground. Streams are also referred to as *drainageways*, *ditches*, or *drainages* in other City of Portland reports, codes and rules or by other agencies including but not limited to Oregon Department of State Land or US Army Corps of Engineers. Streams include:

- the water itself, including any vegetation, aquatic life or habitat;
- the channel, bed and banks located between the top-of-bank; the channel may contain water, whether or not water is actually present;
- intermittent streams, which flow continuously for weeks or months during the wet season and normally cease flowing for weeks or months during dry season;
- sloughs, which are slow-moving, canal-like channels that are primarily formed by tidal influences, backwater from a larger river system, or groundwater;
- oxbows and side channels connected by surface flow to the stream during a portion of the year; and
- drainage from wetlands, ponds, lakes, seeps or springs, which may or may not form a defined bed and bank.

Drainage: A drainage is an area on the land that conveys flowing water for only hours or days following a rainfall. If a drainage drains water from a wetland, pond, lake, seep, or spring even if it does not have a defined bed and bank, then it is classified as a stream.

Roadside Ditch: A roadside ditch is a constructed channel typically parallel and directly adjacent to a public or private road. A roadside ditch is designed to capture and convey stormwater runoff from the road and is routinely cleaned (i.e., mechanically scoured or scraped of vegetation and debris) to maintain water conveyance capacity. Naturally occurring streams and drainages that have been relocated due to the construction of a road are not considered a *roadside ditch*.

Wetlands: Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions; although due to landscaping, seeding, mowing or grazing wet-adopted vegetation (hydrophytes) may not be present.

Flood area: The combination of the FEMA 100-year floodplain, the Special Flood Hazard Area (those areas with a 1% or greater chance of flooding in any given year), as well as areas that were inundated with water during the February 1996 floods.

Floodway: The floodway consists of the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood (100-year flood) without cumulatively increasing the water surface elevation more than one foot.

Riparian Corridors: Rivers, streams, wetlands and flood areas plus the areas bordering the waterbodies; the width of the riparian corridor varies by waterbody size, as well as the vegetation and slopes surrounding the waterbody.

## **B.2. Vegetation**

Vegetation Patch: An area of contiguous vegetation greater than ½ acre in size containing a distinct pattern, distribution, and composition of vegetation relative to surrounding vegetated and non-vegetated areas.

Forest: Trees with their crowns overlapping, generally forming 60-100% of cover.

Woodland: Open stands of trees with crowns not usually touching, generally forming 25-60% of cover. Tree cover may be less than 25% in cases where it exceeds shrubland and herbaceous vegetation.

Shrubland: Shrubs generally greater than 0.5 m tall with individuals or clumps overlapping to not touching, generally forming more than 25% of cover with trees generally less than 25% of cover. Shrub cover may be less than 25% where it exceeds forest, woodland, and herbaceous vegetation. Vegetation dominated by woody vines (i.e., blackberry) is generally included in this class.

Herbaceous: Herbs (graminoids, forbs, ferns and shrubs less than 0.5m tall) dominant, generally forming at least 25% of cover. Herbaceous cover may be less than 25% where it exceeds forest, woodland and shrubland vegetation. This includes shrubs less than 0.5 m tall.

### **B.3 Terrestrial Features**

Land: The ground itself and any features associated with or located on the ground including but not limited to flood area, vegetation, rip rap, paved areas, structures, buildings, trails, etc.

Steep slopes: Land with a 25% or greater slope.

Wildlife Habitat: Land, vegetation and other features, including waterbodies and flood areas, that support fish and wildlife during one or more life cycle phase; manmade features may provide wildlife habitat.

Special Habitat Areas: Habitats designated by the City of Portland in accordance with Metro's Urban Growth Management Functional Plan Title 13, Nature in Neighborhoods, criteria for Habitat of Concern. These are areas that contain or support special status species, sensitive/unique plant populations, or other unique natural or manmade habitat features.

## C. RELATIONSHIP TO TITLE 13 INVENTORY

The Bureau of Planning and Sustainability (BPS) used Metro's Urban Growth Management Functional Plan Title 13, Nature in Neighborhoods, inventory of regionally significant riparian corridors and wildlife habitat as a starting point for citywide natural resource inventory development. The citywide inventory incorporates and builds on the extensive research, analysis, technical review and public scrutiny that went into the development of Metro's regional inventory. Metro's inventory was reviewed by the Independent Multidisciplinary Science Team and other local experts.

The Metro Council adopted the inventory as part of the Title 13, Nature in Neighborhoods, program in September 2005. In 2007, The Oregon Department of Land Conservation and Development acknowledged Title 13 as in compliance with Oregon State Land Use Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces, and Goal 6: Air, Water and Land Resources Quality. The development of Metro's inventory is documented in the Technical Report for Fish and Wildlife (Metro, 2005), Riparian Corridor and Wildlife Habitat Inventories (Metro, 2005) and Addendum and Update to Metro's Riparian Corridor and Wildlife Habitat Inventories (Metro, 2005).

Both the City's and Metro's inventories reflect fundamental information from Metro's extensive review of scientific literature pertaining to riparian corridors and wildlife habitat. The scientific foundation upon which both inventories are based.

### C.1. Riparian corridors

Riparian corridors are comprised of rivers and streams, drainageways, riparian vegetation and off-channel areas, including wetlands, side channels and floodplains. Riparian corridors usually contain a complex mix of vegetation consisting of trees or woody vegetation, shrubs and herbaceous plants. Portland's urban riparian corridors may also include riprap or other types of bank hardening, invasive species and development. Riparian corridors provide the transition between the stream banks and upland areas.

The predominance of riparian corridor functions occurs within 100 to 300 feet of a water body, but some functions, such as the microclimate effect associated with forest vegetation, can occur up to 780 feet from a water body. Functions provided by natural resources located in riparian corridors include:

1. Microclimate and shade – Open water bodies, wetlands, flood areas, and surrounding trees and woody vegetation are associated with localized air cooling, soil moisture and increased humidity.
2. Bank function and control of sediments, nutrients and pollutants – River, stream, drainageway channels and flood areas have a direct relationship to bank functions and the conveyance of sediments, nutrients and pollutants. Trees, vegetation, roots and leaf litter

intercept precipitation; hold soils, banks and steep slopes in place; slow surface water runoff; take up nutrients; and filter sediments and pollutants found in surface water. Structures, such as pilings, can also help stabilize banks and contain contaminants.

3. Stream flow moderation and flood storage – Waterways and floodplains provide for conveyance and storage of stream flows and floodwaters in channel and above and below the ground surface; trees and vegetation intercept precipitation and promote infiltration which tempers stream flow fluctuations or “flashiness” that often occurs in urban waterways.
4. Organic inputs, nutrient cycling and food web – Water bodies, wetlands, flood areas and nearby vegetation provide food (e.g., plants, leaves, twigs, insects) for aquatic and terrestrial species and are part of an ongoing chemical, physical and biological nutrient cycling system.
5. Large wood and channel dynamics – Rivers, streams, drainageways, riparian wetlands, flood areas and large trees and woody vegetation contribute to natural changes in location and configuration of the waterway channel over time.
6. Wildlife movement corridors – Rivers, streams, drainageways, wetlands, floodplains and vegetated corridors along waterways allow wildlife to migrate and disperse among different habitat areas and provide access to water.

## **C.2. Wildlife Habitat**

Wildlife habitats provide food, cover, and roosting and nesting sites for a broad array of birds, mammals, reptiles and amphibians. The terrestrial habitat features that provide these functions include forests, woodland, shrubland, grassland and meadows, wetlands, rocky slopes, buttes and other topographic features. (For the purposes of this inventory, rivers, streams and drainageways are included in the riparian corridor.) The following wildlife habitat attributes are indicators of habitat function and habitat fragmentation due to urbanization:

1. Habitat patch size – Larger habitat patches generally provide more food, cover, dispersal and nesting/denning opportunities for multiple wildlife species.
2. Interior habitat area – Larger, rounder-shaped habitat patches experience less “edge effect” (disturbance from urban land uses such as noise/light/vibration, predation and invasive species) and provide more interior habitat area, a requirement for some sensitive wildlife species, than narrow patches.
3. Connectivity between habitat patches (including distance and edge effect) – Patches located closer together allow for species dispersal and migration, and provide additional access to food, cover, nesting sites and reproduction opportunities.
4. Connectivity/proximity to water – Access to water is vital to wildlife survival.



### C.3. Habitats of Concern/Special Habitat Areas

The regional inventory recognizes specific habitat types or features that provide important functions for wildlife, including habitats and species at risk, rare or declining habitat types such as native oak assemblages, critical habitat for threatened or endangered species, and urban structures such as bridges that are utilized by Peregrine Falcons for nesting. Metro called these “Habitats of Concern” while Portland calls them “Special Habitat Areas”; however, the criteria to designate habitat area is the same and are found in Table 1.

Table 1: Special Habitat Area Criteria

<b>Code</b>	<b>Criteria</b>
P	Area contains sensitive or unique plant populations
W	Wetlands and associated seeps, springs and streams that are part of the wetland complex
O	Native oak
B	Bottomland hardwood forest
I	Riverine island
D	River delta
M	Migratory stopover habitat
C	Corridor between patches or habitats
S	An at-risk wildlife species uses the habitat area or feature on more than incidental basis to complete one or more life history stages
E	Elk migratory corridor
G	Upland grassland habitat or landscape feature important to individual grassland- associated species or assemblages of grassland- associated species on more than an incidental basis
U	Resource or structure that provides critical or unique habitat function in natural or built environments (such as bridges or street trees)

## D. NATURAL RESOURCE INVENTORY METHODOLOGY

The following steps were taken to produce the citywide Natural Resource Inventory. These steps are based on the Metro Title 13 rules found in 3.07.1340.

1. Verify habitat areas by compiling GIS data and mapping key natural resource features, including rivers, streams, wetlands, flood areas, vegetation and topography.
2. Designated Special Habitat Areas based on the regional Habitats of Concern criteria.
3. Developed GIS models to rank and map the relative functional values of existing natural resources.
4. Produced Habitat Classification Maps.

Each step is described below.

### D.1. Verifying Habitat Areas

In 2005, Metro provided the Title 13 natural resource feature GIS data to Portland and Portland assumed the responsibility of maintaining the data. The natural resource feature data are the primary inputs to Portland's GIS inventory models for riparian corridors and wildlife habitat. BPS improved the regional natural resource feature GIS data by:

- a. Remapping more than 160 miles of stream/drainageway centerlines and adding 100 stream/drainageway miles to the maps.
- b. Mapping smaller vegetation units (1/2 acre minimum), and classifying forest, woodland, shrubland and herbaceous vegetation over a wider area (using the National Vegetation Classification System as shown below). Vegetation mapping does not include land that is sparsely vegetated.<sup>1</sup>
- c. Verifying the location and extent of wetlands using state and city permits, USGS soils data, LiDAR derived topography, current aerial photography, and on-site or off-site wetland determinations following the US Army Corps of Engineers wetland degermination methodology.
- d. Updating the City's flood area data for use in the inventory, including incorporation of the FEMA 100-year floodplain and 1996 flood inundation area.
- e. Using Light Detection and Ranging (LiDAR), a method for precisely measuring the elevation of the Earth's surface, and objects on the surface (trees, buildings, etc.).

Mapping protocols for streams, wetlands and vegetation are presented below.

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<sup>1</sup> Sparse vegetation is defined as areas with a predominance of boulders, gravel, cobble, talus, consolidated rock and/or soil with unconsolidated, low-structure vegetation.

### D.1.a. Stream Mapping Protocol

A stream is a channel that has a defined bed and banks and carries water continuously for a week or more during the wet season (October through April). Streams may be naturally occurring or may be a relocated, altered or created channel. Streams may contribute water into another waterbody or the water may flow into a pipe or culvert or may flow for some distance underground. Streams may be referred to as *drainageways* or *ditches* in City reports, codes and rules and by other agencies including Oregon Department of State Lands or US Army Corps of Engineers.

Streams include:

- the water itself, including any vegetation, aquatic life or habitat;
- the channel, bed and banks located between the top-of-bank; the channel may contain water, whether or not water is actually present;
- intermittent streams, which flow continuously for weeks or months during the wet season and normally cease flowing for weeks or months during dry season;
- sloughs, which are slow-moving, canal-like channels that are primarily formed by tidal influences, backwater from a larger river system, or groundwater;
- oxbows and side channels connected by surface flow to the stream during a portion of the year; and
- drainage from wetlands, ponds, lakes, seeps or springs, which may or may not form a defined bed and bank.

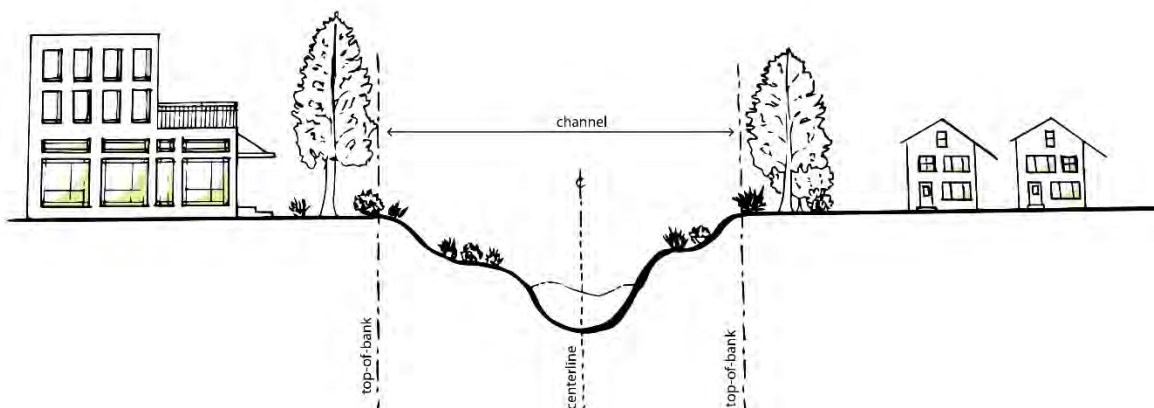


Figure 1: Stream Channel Cross Section

Ephemeral streams are called *drainages* for the purposes of Natural Resource Inventory. A drainage is an area on the land that conveys flowing water for only hours or days following a rainfall. If a drainage drains water from a wetland, pond or lake, even if it does not have a defined bed and bank, then it is classified as a stream.

A roadside ditch is a constructed channel typically parallel to and in close proximity (approx. 15 feet) to a public road and is routinely cleaned (i.e., mechanically scoured or scraped of

vegetation and debris) to maintain water conveyance capacity. Naturally occurring streams that have been relocated due to the construction of a road are not considered a roadside ditch.

For the purposes of the Natural Resource Inventory streams and drainageways are the same and are mapped in the inventory. A drainage is not included in the inventory nor are roadside ditches.

*Figure 2: Examples of Streams and a Roadside Ditch*



*Fanno Creek*



*Columbia Slough*



*Tryon Creek*



*Roadside Ditch (not a stream)*

The starting point for the stream mapping project in Portland was the 2003 regional stream centerlines developed by Metro for Title 13. More accurate stream centerline maps available for select areas around the City were also used as reference – including Columbia Slough centerlines created by BES and Powell Butte centerlines mapped by the Bureau of Parks and Recreation. All editing of stream data was done in ESRI's ArcGIS GIS software.

The BES collection line GIS data, LiDAR-derived elevation models, photogrammetric data (2' contours), and aerial photos were among the data sources referenced by the BPS when mapping the stream centerlines.

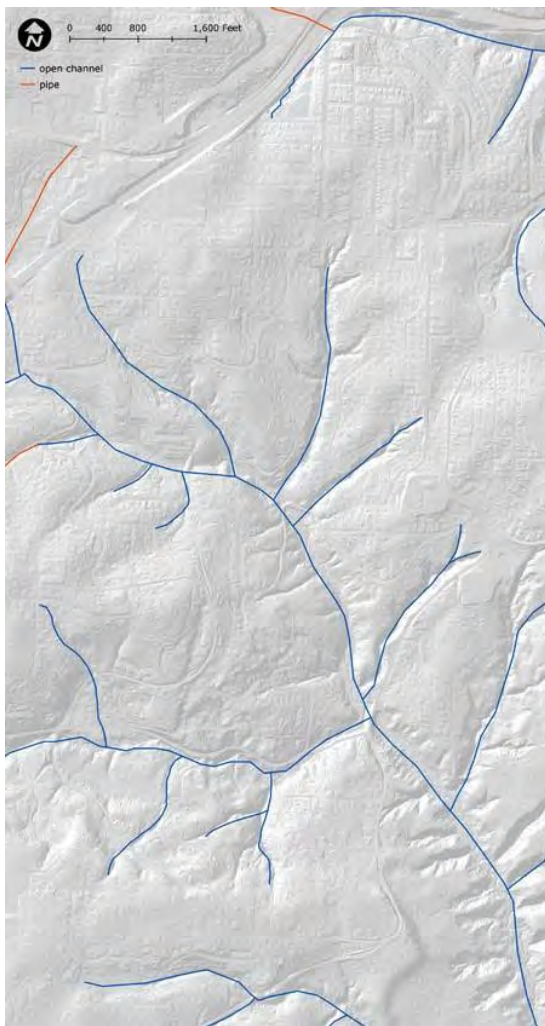


Streams that were previously-mapped by Metro were checked against all reference sources and re-mapped starting at the lowest confluence and moving up to the headwaters. Virtually all of the previously-mapped streams were re-mapped to correspond with the new and more detailed reference data. Any new streams apparent in the reference data were added to the map as they were encountered during the revision process (Figure 3).

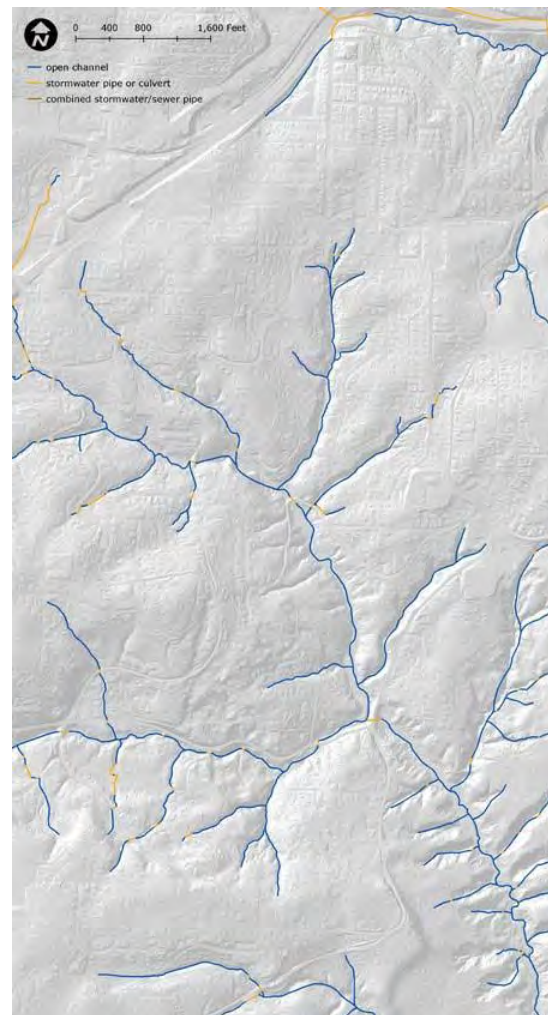
New streams were required to satisfy the following criteria in order to be added to the map:

1. A channel exists and appears to be formed, at least in part, by water flowing through it, flow may be comprised of water from streams, surface flow, subsurface flow, groundwater, or stormwater discharge. Channels that emerge downstream of a pipe were mapped as beginning at the pipe outlet.
2. The topographic information, aerial photo, BES collection line information or Multnomah County Drainage District information indicates that water on or upstream of the site drains to the channel.

*Figure 3: Comparison of Metro GIS Stream Data and Portland Remapped Stream GIS Data*



*Original Metro Centerlines*



*Remapped Centerlines*

Any stream segments satisfying the mapping criteria above were further evaluated based on the following:

1. If two or more reference sources affirmed the existence of a stream channel (e.g., topography indicates a channel and BES has mapped the channel), project staff deemed the stream “substantiated” and required no further verification. The stream was mapped based on the reference data.
2. If a stream channel was supported by only one reference source (e.g., topography suggests a channel), project staff “flagged” the channel for field verification.

BPS compiled a list of all property owners whose tax lot contained a channel flagged for field verification. Property owners were sent a letter requesting permission for City staff to enter their property for on-site stream verification. The request included a self-addressed stamped return envelope for property owners to reply. Approximately 46% of property owners contacted granted access.

Database attributes from the old stream centerlines were transferred to the new stream centerlines. Additional information about the new and revised streams was also captured, including the channel type, source of the geometry, and the date of the modification.

Project staff visited both publicly- and privately-owned properties where the owner had given written permission allowing access.

Because of time and staff constraints, staff was not able to visit every property that was accessible. Priority for visitation was given to stream segments flowing through properties where a larger percentage of property owners had given staff permission to enter and survey the stream. Staff also focused on visiting streams that were relatively easy to access given topography (e.g., not steep vs. steep) and vegetation (e.g., penetrable vs. overgrown).

Once the decision to visit a particular stream segment was made, a field crew visited the site and verified the presence and location of the stream channel. Field crews used both visual assessment and, when GPS-satellite coverage was available, differentially-corrected GPS data collection. Field crews also took written notes on the location and description of the stream segment.

Stream characteristics used to verify whether the channel met the stream criteria, include one or more of the following:

1. water flowing through the channel or evidence of periodic inundation, for example scouring that has removed vegetation and created a channel in the soil;
2. riparian-associated plants, including both native and non-native species;
3. presence of amphibians, aquatic reptiles (e.g. turtles) or fish, including both native and non-native species; or

4. evidence of wildlife use (e.g. beaver chews).

Field crews carried copies of a standard field visit form for notes and sketches, a map showing local topography, stream, etc., and a map with 6-inch-resolution aerial photographs of the property and surrounding area. All notes and maps for a particular field visit were scanned and stored in Acrobat PDF format. Digital photos of the stream were also taken in most cases. All digital documentation and photos are available from BPS.

Two survey-grade GPS receivers were used during the project – a Trimble Pathfinder Pro backpack system and a Trimble GeoXT handheld receiver. Both systems collected points and lines with an average horizontal error after differential correction of between 1 and 3 feet. Two types of GPS data were collected – point features and line features.

Point features represented a minimum of 10 GPS points collected at 1-second intervals at multiple locations along a stream channel. GPS points at each location on the stream were differentially-corrected, averaged, and exported to GIS shapefile format. Stream centerline segments were then digitized by manually “connecting” the field collected points in ArcInfo workstation. Digitized lines were “smoothed” to more realistically portray stream geometry. Most GPS data was collected as point features.

Line features were created by collecting a series of points at 1-second intervals while physically walking the centerline of a stream. The collected points were each differentially-corrected and exported to GIS shapefile format as the vertices of a line feature. The advantage of this method was that it produced an actual centerline that could be directly incorporated into the stream dataset, rather than a series of points that had to be manually connected. However, because the points were not averaged at a single location over time, this method was slightly less accurate than the point feature collection method. In addition, it was only practical when the stream channel was open enough to allow relatively long – 50’ or more – sections to be walked without obstruction.

Points were differentially-corrected using the base station located at the U.S. Forest Service/Bureau of Land Management building in downtown Portland. All GPS data was exported into the U.S. Stateplane coordinate system, in international feet, based on the NAD HARN/HPGN datum<sup>2</sup>. All GPS point and line features collected for the stream remapping project are available in ESRI Shapefile format from the City of Portland, Bureau of Planning.

Streams flagged for further verification and visited in the field were remapped to correspond with the visual assessment and/or GPS information collected for that segment. Streams located in this manner were assigned a “field date” in the stream centerline GIS database. Not all streams flagged for field verification were visited by project staff. Approximately 40% of

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<sup>2</sup> High Accuracy Reference Network (HARN) datum, a.k.a. High Precision GPS Network (HPGN), is a statewide upgrade to the NAD83 datum using Global Positioning System (GPS) observations.



flagged stream had been visited. Any flagged stream not visited were identified at the time in the GIS database.

In 2007, BPS GIS staff used the newly-release LiDAR data to refine the stream centerline data. LiDAR is remote-sensing satellite data that maps the surface of the earth. It has a high degree of accuracy.

In 2012, the Natural Resource Inventory was adopted by City Council and Metro approved the Natural Resource Inventory as being in substantial compliance with Urban Growth Management Functional Plan Title 13, Nature in Neighborhoods (see Volume 3 Part B for additional explanation).

In the spring of 2018, following adoption of the 2035 Comprehensive Plan, BPS staff launched a project to correct the location of the environmental overlay zone (ezone) boundaries to better match existing natural resource features including streams. The project began by using the adopted 2012 Natural Resource Inventory, which includes the results of the 2003 stream remapping project and the 2007 LiDAR refinements. It was assumed that all stream data had a high level of confidence.

All property owners, public and private, with existing ezones or where ezones boundaries were proposed to change on the property where sent a postcard notifying them of the project and providing a link to an online interactive map. The online map allowed property owners to look up their address and see the mapped natural resource features, including streams, existing ezones and draft corrected ezones. Through the online map, property owners could request a site visit to verify the location of natural resources on their site. Any property owner that requested a site visit had one completed. Over 600 site visits were performed between 2018 and 2021.

Staff also attend neighborhood association meetings and held drop-in hours at local libraries to inform the community about the project and encourage property owners to request a site visit.

During the site visits staff assessed the location of the natural resource features, except wetlands (see Wetland Mapping Protocol). Staff used detailed maps of topography (LiDAR-based), vegetation, streams and wetlands, aerial photography and field notes to verify the location of features.

#### **D.1.b. Wetland Mapping Protocol**

A wetland is an area where shallow water is present long enough to create hydric soils and could support hydrophilic vegetation, although due to landscaping, seeding or mowing hydrophilic vegetation may not be present.

The starting point for the wetland inventory data was information from the National Wetlands Inventory (NWI). The NWI was derived from high-altitude aerial photography flown at a scale of 1:24,000. The boundaries of those wetlands were sometimes inaccurate, and since the minimum

mapping resolution was two-acres, smaller wetlands were generally not included. Seasonal wetlands may also not have been mapped since photographs were taken primarily in the summer months. In addition to the NWI, the City's existing GIS wetland data reflect ad hoc updates based on state and local site development or building permits.

In 2010, the Bureau of Planning and Sustainability began the wetland data refinement project. The first step in this process was to determine which information sources would be appropriate to support the project and then develop protocol for updating the wetland data. It was important that the information be provided by credible "qualified" sources and be adequate to meet City and regional mapping criteria.

Ultimately, the project relied on data generated by the following sources:

- City of Portland land use and permit reviews and wetland delineations
- Department of State Lands permits
- U.S. Army Corps of Engineers permits
- Environmental consultants' maps

NWI GIS data, LiDAR (Light Detection and Ranging) data, and aerial photos were also referenced during the project. LiDAR is a remote sensing system used to collect topographic data. LiDAR maps show land depressions that are common in wetland areas. Aerial photography was used to check for standing water and/or vegetation typical to wetland areas and also to double check if wetlands were removed from a site in conjunction with a DSL removal/fill permit. Based on the clarity of the information, data was either used for immediate mapping updates or to identify the appropriate follow up action according to the following protocol:

1. Accurate Wetlands – The existing City GIS wetland inventory data was deemed to be accurate when maps from qualified sources were in substantial conformance with this data.
2. New Wetlands – New wetlands were added to the City inventory data based on the following mapping information:
  - a. A survey or delineation from a qualified source clearly showed the boundaries of the wetland; or
  - b. The wetland was indicated on a topographic map or other map from a qualified source, and was supported by LiDAR data and documented field observations (see additional information about field observations below).
3. Modified Wetland Boundaries – Wetland boundaries of existing City inventory data were modified based on the following information:
  - a. A survey or delineation from a qualified source clearly showed that the boundaries of the wetland differ from the existing data; or

- b. The wetland boundaries were indicated on a topographic map or other map from a qualified source, and were supported by LiDAR data and documented field observations.
4. Deleted Wetlands – Wetlands were deleted from the City inventory data based on the following information:
  - a. A removal/fill permit from the Department of State Lands and verification with aerial photography; or
  - b. Any other map from a qualified source showed that the wetland did not exist or had been removed, and aerial photography verified this.
5. Probable Wetlands – Sometimes wetlands were referenced in a report or permit but could not be mapped or modified for the following reasons:
  - a. The map was not from a qualified source;
  - b. The referenced wetland was from a qualified source but did not include a survey or delineation and could not be confirmed because it was on private property; or
  - c. The proposed new wetlands or modifications to existing wetlands were located on sites that were undergoing land use or permit review by the City of Portland.These wetlands have been entered in a “probable wetland” database for follow up should the City proceed with further wetland inventory update projects.

Using the above criteria, staff compared maps and images from DSL and City permit records to existing City wetland inventory maps. Clear, well-documented information from qualified sources was used to update the data without further action. In some instances, these maps were either not clearly surveyed or were difficult to read. In these cases, BPS staff and experts from the Bureau of Parks and Recreation or the Bureau of Environmental Services visited the sites to confirm the presence and general location and configuration of wetlands. Field observations were conducted only on publicly owned property. Data sheets were used to record overall site conditions, vegetation, hydrology/drainage, soils and any indication of wildlife. No delineations were conducted. Soil pits were not dug, but National Resource Conservation Service mapping codes were noted on the data form. Sites with soils coded as “hydric” have a greater possibility of containing wetlands. Sites were also digitally photographed.

In 2018, the Bureau of Environmental Services began the Wetland Inventory Project to update maps of wetlands throughout the city. The following steps were taken to refine existing wetland boundaries and identify previously unmapped wetlands; for more details please refer to Appendix E: Wetland Mapping Protocol.

1. Supplement the City of Portland wetland inventory with the most current National Wetland Inventory (NWI). NWI data was updated in 2016 by US Fish and Wildlife Service. When the City’s wetland data has a high level of accuracy, such as when a determination or delineation was performed, the City’s data is retained. NWI data is typically used to identify previously unmapped wetlands and confirm removal of wetlands due to permitted activities.

2. Refine wetland boundaries based on existing wetland data. Existing wetland data comes from Oregon Department of State Lands, US Army Corps of Engineers or City of Portland Land Use permits or wetland determinations or delineations performed by a certified environmental consultant.
3. Identify previously unmapped wetland and refine existing wetland boundaries using LiDAR, hydric soil data, and aerial photography. LiDAR (Light Detection and Ranging) is a remote sensing system used to collect topographic data. LiDAR maps show land depressions that are common in wetland areas. This is also referred to as geomorphic position in wetland determination. LiDAR data was updated in 2014. Hydric soils are one indicator of wetland presence. Hydric soil data was updated by the State of Oregon in 2018. Aerial photography is used to check for standing water or wetland vegetation; photography from 2005 to 2017 was consulted. The combination of these data provides sufficient information to refine wetland boundaries and identify previously unmapped wetlands.
4. All property owners with mapped wetlands were notified via mail and invited to review the draft wetland inventory and request a site visit for an on-site wetland determination to be performed. Notification was sent by watershed: Johnson Creek in summer 2018 and Columbia Slough in winter 2018/2019 with verifications in spring 2019; and Northwest Hills in summer 2019 and Southwest Hills in spring 2020 with verifications in spring 2020. When a site visit was requested, a consultant hired by the Bureau of Environmental Services performed a wetland determination following the US Army Corps of Engineers protocol.<sup>3</sup> For properties where no site visit was requested, consultants made over-the-fence field observations (if possible) to confirm presence of standing water and/or wetland vegetation. Field verifications were performed March through May of 2019 and 2020 when wetland hydrology is visible. *Note* – Field verification is not required to refine wetland boundaries or add previously unmapped wetlands. However, field verification provides an opportunity to more accurately map the wetland boundaries.

#### **D.1.c. Vegetation Mapping Protocol**

A vegetation patch is an area of contiguous vegetation greater than ½ acre in size containing a distinct pattern, distribution, and composition of vegetation relative to surrounding vegetated and non-vegetated areas (Figure 4).

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<sup>3</sup> The mapping protocol is available at <https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/7646>



*Figure 4: Vegetation Patch*

Vegetation patches are classified based on The National Vegetation Classification System (NVCS) was derived by The Nature Conservancy (TNC) for the purpose of classifying properties for conservation purposes. The broadest level of the NVCS contains seven classifications: forest, woodland, shrubland, dwarf-shrubland, herbaceous, nonvascular and sparse vegetation.

For the purposes of this project, aerial photos were the primary reference for classifying vegetation patches into the following four NVCS classes (Grossman et al., 1998):

Forest: Trees with their crowns overlapping, generally forming 60-100% of cover.

Woodland: Open stands of trees with crowns not usually touching, generally forming 25-60% of cover. Tree cover may be less than 25% in cases where it exceeds shrubland and herbaceous vegetation.

Shrubland: Shrubs generally greater than 0.5 m tall with individuals or clumps overlapping to not touching, generally forming more than 25% of cover with trees generally less than 25% of cover. Shrub cover may be less than 25% where it exceeds forest, woodland, and herbaceous vegetation. Vegetation dominated by woody vines (i.e., blackberry) is generally included in this class.



Herbaceous: Herbs (graminoids, forbs, ferns and shrubs less than 0.5m tall) dominant, generally forming at least 25% of cover. Herbaceous cover may be less than 25% where it exceeds forest, woodland and shrubland vegetation. This includes shrubs less than 0.5 m tall.

*Figure 5: Examples of Vegetation Classifications*



Each vegetation patch was further classified into either “natural/semi-natural” or “cultivated” NVCS subgroups based on the following definitions (adapted from Grossman et al., 1998):

Natural/Semi-Natural Vegetation: Natural vegetation is that which appears to be unmodified by human activities, occurring spontaneously without regular management, maintenance or planting. Semi-natural vegetation has a composition or structure that has been sufficiently altered by anthropogenic disturbances such that it no longer has the characteristics of

natural vegetation assemblages found in comparable conditions the watershed. However, semi-natural vegetation is self-maintaining without significant human maintenance or management. This type of vegetation may be dominated by either native or non-native species.

Cultivated Vegetation: Vegetation that is consistent with traditional landscaping and is highly manicured and regularly (annually, semi-annually or more frequently) managed and maintained. Cultivated vegetation is often dominated by turf grasses and ornamental shrubs and trees. Cultivated vegetation typically has low species and structural diversity. It is assumed that cultivated areas are managed using a combination of mowing, pruning, fertilizers and pesticides. Residential yards, common areas, golf courses, parks and rights-of-way are included in this management class. In areas where agricultural land uses occur, cultivated fields and orchards are also included.

Most vegetation, particularly within an urban setting, has been subjected to human disturbance. Even where these impacts are apparent, if the patch appears to be self-sufficient and displays patterns consistent with uninhibited and un-maintained growth, the patch is identified as natural/semi-natural.

It is important to note that though natural/semi-natural areas may be dominated by native species, they need not be. An example of this would be a patch of Himalayan blackberry. Though these plants are not naturally-occurring in the Portland area, they are not generally planted or maintained and they distribute naturally, so they are mapped as a natural/semi-natural vegetation patch. The subgroup distinction is based on the pattern of plant distribution within the patch and the patch's proximity to human features (such as houses and park infrastructure) rather than the type of vegetation present in the patch (which is often unknown).

Vegetation that has been planted as part of a restoration or enhancement project, includes a predominance of native vegetation, and is managed as a natural area, is classified as "natural/semi-natural." While this type of vegetation is often routinely managed for multiple years, it is managed to create a more naturalistic vegetation assemblage that supports an array of ecologic functions.

Also note that forest vegetation is always designated as semi-natural/natural. This is appropriate because forested areas are dominated by trees which provide significant ecologic functions, such as rainwater capture, nutrient uptake, organic inputs, wildlife cover, etc. In addition, the forest canopy itself may be occasionally pruned, but is not regularly maintained.

The starting point for the vegetation mapping project was the 2000 regional vegetation map developed by Metro. More accurate vegetation information available for select areas around the City was incorporated into the regional dataset, superseding Metro data for these locations. This information includes vegetation maps created by the Bureau of Parks and Recreation for all of the natural area parks and habitat maps created by the Bureau of Planning & Sustainability for



areas along the Willamette River and Columbia Rivers. All editing is performed in ESRI's ArcGIS 9 using custom tools developed by the Bureau of Planning and Sustainability

Vegetation patches are mapped using the following protocol:

1. Understand the landscape and general character of the vegetation. At a scale of 1:8,000, which is approximately a quarter section, the general distribution and character of vegetation is observed. Other land use (e.g. residential, commercial) patterns are noted.
2. Look at previously mapped vegetation patches. Still at a scale of ~1:8,000, the previously mapped patches are reviewed to determine where refinements may be necessary. The patch should be refined if:
  - a. There are different patterns, distributions or character of vegetation included within the patch boundary;
  - b. Vegetation of the same character and patterns as adjacent vegetation is not included in the patch;
  - c. Patches that are not mapped to the smallest appropriate unit. For example, if a 4-acre area is mapped as woodland, but there are distinguishable ½-acre areas of herbaceous vegetation, then the herbaceous vegetation should be mapped as a separate patch;
  - d. In some cases, the boundary of a patch may be accurate but the vegetation type has changed. For example, a woodland patch may have developed into a forest patch.
3. Refining and creating patches. At a scale of approximately 1:3,000, distinct patches are mapped. This process includes both creating new patches and refined previously mapped patches. Below are the steps for refining and creating patches:
  - a. Vegetation that meets the forest or herbaceous NVCS classification is mapped. The guidelines to map forest vegetation patches are as follows:
    - i. A 4-lane road or highway splits a forest patch. Roads with less than 4 lanes split a patch where the road is clearly visible (i.e., no overhanging canopy). Where large vegetated areas located on two sides of a street are connected via a single tree overhanging the street, the two patches should be mapped separately;
    - ii. A narrow section of a forested area, which is one or two trees wide, can create a break between patches, provided that the two resulting vegetated areas are large enough to meet the ½ acre threshold;
    - iii. A significant change in character, even when the vegetation type and distribution is similar, can create a natural break between two forest patches. For example, a break between areas would likely occur where there is a significant shift from closed forest canopy with very few buildings or impervious area, to a primarily developed area with thin strips of trees between structures and yards. In this situation the closed forest canopy with few building/impervious would be a separate patch from the thin strip of trees that extends away from it.

- b. The guidelines to map herbaceous patches are:
  - i. When an area of predominantly herbaceous vegetation contains a narrow area of trees or shrubs located along its perimeter, and the trees do not meet the ½ acre criterion, the trees or shrubs should be included within the boundary of the herbaceous patch;
  - ii. When an area of predominantly forest, woodland or shrubland vegetation has a narrow area of herbaceous vegetation located along its perimeter, and the herbaceous vegetation does not meet the ½ acre criterion, the herbaceous vegetation should not be included within the boundary of the patch;
  - iii. Within developed areas, highly managed herbaceous vegetation that is fragmented or separated from larger vegetated areas by buildings, driveways, parking areas, etc. is generally excluded. The intent is to include larger structure vegetation when appropriate.
  
- c. Woodland and shrubland vegetation is mapped. There is a range of vegetation that meets woodland and shrubland vegetation classifications and often the differentiation is not clear. The following guidelines are used to differentiate between woodland and shrubland vegetation:
  - i. Trees within a woodland patch generally make up about half the land cover but do not create significant closed canopy. The understory could be shrubs or herbs or sparsely vegetated; native or non-native;
  - ii. The trees should be distributed across the patch;
  - iii. When a vegetation contains relatively minimal canopy coverage (e.g. 25-30%) and the character of the vegetation doesn't appear to be woodland (e.g. intensely managed turf grass understory with very few, non- consolidated trees and shrubs), the patch should be classified as herbaceous vegetation;
  - iv. Shrubland vegetation should have a predominance of shrubs throughout the patch. Trees and grass may be present, but should occur throughout less than half the patch.
  
- d. The vegetation management classification of semi-natural/natural or cultivated, is determined as follows:
  - i. Forest is always classified as natural/semi-natural;
  - ii. Cultivated areas typically include yards, landscaped areas around buildings, golf-courses, ball parks and soccer fields, and rights-of-way. These areas are intensely managed and typically include turf grass and ornamental shrubs and trees. These areas generally lack structural diversity (e.g. sparse trees interspersed across lawn);
  - iii. Irrigated areas are usually, but not always, classified as cultivated. Other indicators, such as structural diversity, are used to determine if irrigated areas should be classified as semi-natural/natural;
  - iv. Semi-natural/natural vegetation is typically, but not always, found around rivers, streams and wetlands and in parks and natural areas. However, semi-

- natural/natural vegetation can be found in yards, around buildings, and adjacent to ball parks and soccer fields. These areas typically include a mix of trees, shrubs and grasses that do not appear to be mowed, pruned or otherwise treated. The vegetation may be dormant in the summer due to lack of irrigation;
- v. Areas maintained to restore a more natural vegetation pattern are considered semi-natural. These areas may be managed to remove invasive plant species and irrigation may occur;
  - vi. Topography is used to help differentiate between areas that are cultivated and areas that are not. Very steep areas are not typically cultivated.
  - vii. In cases where a patch meets one vegetation type, but two management types are present, the patch is split to differentiate between the management types.
- e. Visible, non-vegetated areas (e.g. buildings, bare soil) are excluded or removed from vegetation patches as necessary using the following guidelines:
- i. Visible buildings, driveways, parking areas are removed from vegetation patches;
  - ii. Vegetation that overhangs a non-vegetated area (e.g. a driveway) is included within the vegetation patch;
  - iii. Areas of bare soil, gravel, rocks are removed from a vegetation patch when the area is greater than  $\frac{1}{4}$  acre in size;
  - iv. Large trails (5' wide or more) visible on the aerial photos are not included in the vegetation patch.
4. Reassess the general pattern and distribution of vegetation. Returning to a scale of 1:8,000, the general pattern, distribution and character of vegetation is assessed based on the refined vegetation patches.

Between 2018 and 2021, staff conducted more than 600 site visits to confirm vegetation mapping. The primary goal was to more accurately map the edge of forest and woodland patches. Staff also used aerial photography, photography, topography, property boundaries and building footprints to refine mapping of the edge of the canopy.

## D.2. Updating Habitat Classifications

Like Metro, the City produced GIS models to assess the relative functional value of riparian corridors and wildlife habitat (see Figure 6). The riparian corridor and wildlife habitat GIS models assign relative classifications of I, II or III for riparian corridors and A, B or C for wildlife habitat.<sup>4</sup> The relative classifications are produced using a consistent and replicable scoring method based on the number and types of functions provided by specific natural resource features in the city. The classifications are not tied to a reference or baseline condition but allow comparison of the relative condition of natural resources within the region or city. In other words, a Class III/C resource is still providing important natural resource functions; however, it is providing less functions than a Class II/B or Class I/A resource.

Science-based model criteria were developed to score, assign relative classifications and map the natural resources that provide the specific riparian functions and wildlife habitat attributes listed above. The City's model criteria focus on the presence, type and extent of specific natural resource features. Additional descriptive information on natural resources and disturbances (e.g., development, contamination and invasive species) are provided in the resource site narratives.

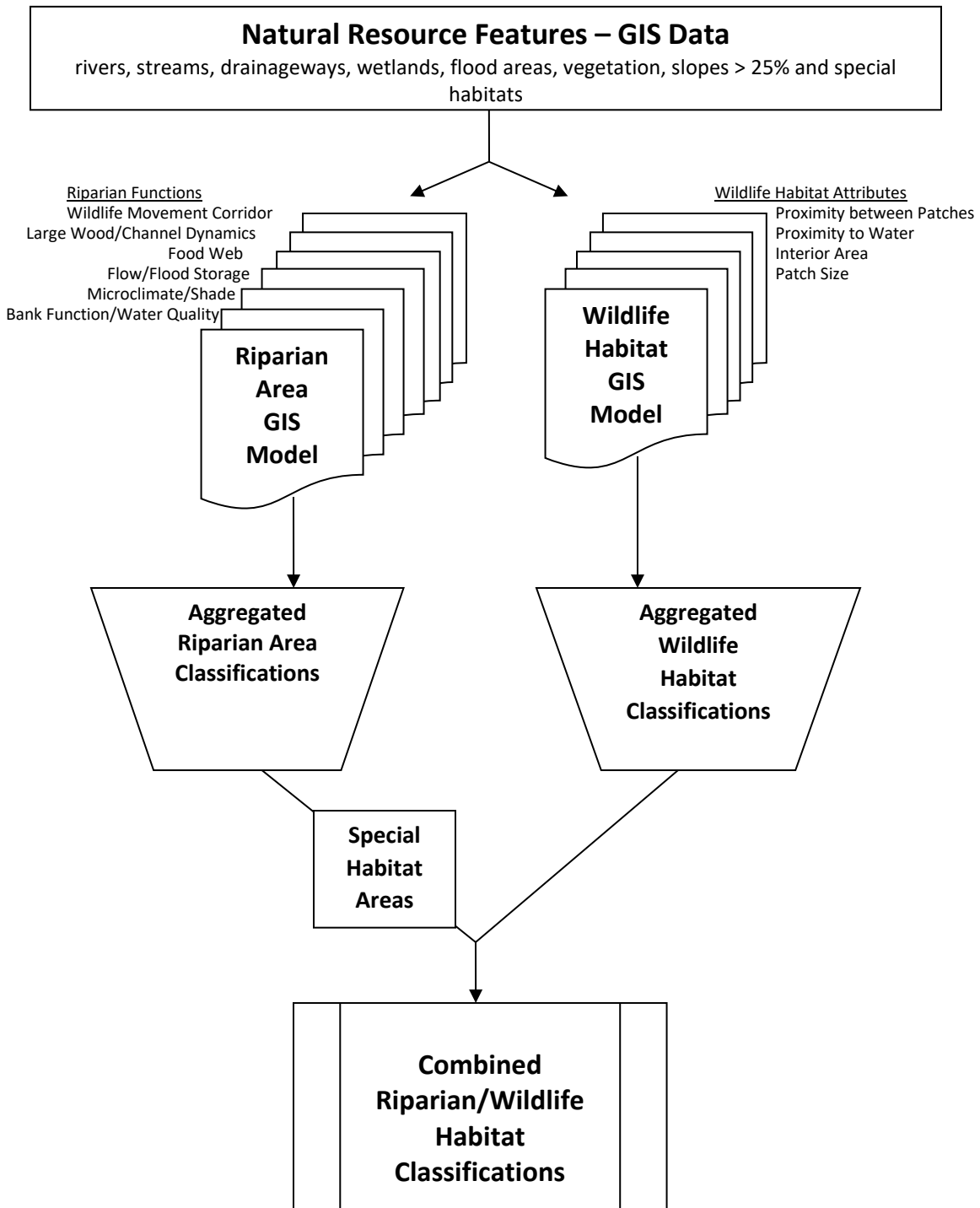
The City's inventory models apply the same general sets of evaluation criteria that Metro developed for Title 13. However, BPS refined some of the regional criteria to reflect additional detail, more recent data and studies, and local conditions. For example, the City's wildlife habitat model was refined to assign a higher value to somewhat smaller habitat patches than Metro's model. Shifts in the patch size scoring thresholds were based on additional scientific studies and recent wildlife studies conducted in Portland's natural areas.

The City worked closely with Metro and technical experts to ensure that refinements to the regional inventory would be consistent with Metro's work and would support the City's watershed health goals. Metro determined that Portland's NRI, with refinements, was in substantial compliance with Title 13 in 2012.

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<sup>4</sup> Class I/A is high ranked, Class II/B is medium ranked and Class III/C is low ranked resources.

**Figure 6: Natural Resources Inventory GIS Model Flow Diagram**



### **D.2.a. Riparian Corridor Model**

The City worked closely with Metro to clarify and in some cases refine the criteria to be appropriate for Portland's urbanized environment. In 2012, Metro found Portland's Natural Resource Inventory riparian area modelling criteria to be substantially consistent with Title 13.

The riparian area GIS model assigns primary and secondary scores to natural resources for six riparian functions. The scores reflect the types of landscape features present and the proximity of those features to a river, stream or wetland. Primary scores are applied to features that provide the most direct and substantial contribution to a particular riparian function. Secondary scores are assigned to features that provide lesser, but still important, contribution to riparian functions. The water features themselves – rivers, streams and wetlands – are assigned primary scores for all features. This is consistent with Title 13 which designated the rivers, streams and wetlands as Class I riparian area (see Title 13 Table 3.07-13d)

The scientific literature indicates that the preponderance of riparian functions, such as nutrient cycling, occurs within 30 to 100 meters (approximately 100 to 300 feet) of a water body. The microclimate effect associated with forest vegetation can occur up to several hundred feet from a water body. The model criteria are not sensitive to the species of vegetation present or whether vegetation is native or non-native. However, the model criteria do assign different riparian functional values to cultivated, heavily manicured and managed landscapes versus semi-natural and natural vegetation.

Table 2 presents the riparian area GIS model criteria. The criteria reflect some refinements to the criteria Metro used to map riparian corridors across the region. For example, Metro assigned a medium or high rank to all land within 50 feet of rivers and streams to recognize the direct and important impact of those areas on the river or stream. This methodology was reviewed by independent experts and adopted as part of Title 13, Nature in Neighborhoods. The City refined the regional inventory to further recognize the variability of riverbank conditions in Portland. The refinement resulted in a lesser level of function being assigned to hardened, non-vegetated banks along specific segments of the Willamette and Columbia rivers. This refinement was made to recognize the impact of extensive riverbank hardening associated with Portland Harbor marine terminal facilities. This recognizes the lower level of function but continues to highlight the importance of the riverbanks and adjacent land to overall riparian function.

**Table 2: Riparian Area GIS Model Criteria**

<b>Riparian Function</b>	<b>Landscape Feature</b>	<b>Features Assigned a Primary Score</b>	<b>Footnotes</b>	<b>Features Assigned a Secondary Score</b>	<b>Footnotes</b>
Microclimate and Shade	Water bodies	River, stream/drainageway or wetland	2, 5		
	Vegetation	Forest vegetation within the flood area (except within a drainage district)	3, 4	Woodland vegetation within the flood area (except within a drainage district)	3, 4
		Forest vegetation that is outside the flood area and contiguous to and within 100 feet of a river, stream/drainageway or wetland	1, 2	Forest vegetation that is outside the flood area, contiguous to primary vegetation and between 100 feet and 780 feet of a river, stream/drainageway or wetland	1, 2
				Woodland vegetation that is outside the flood area and contiguous to and within 100 feet of a river, stream/drainageway or wetland	1, 2
				Shrubland vegetation that is contiguous to and within 50 feet of a stream/drainageway or wetland	1, 2
Stream Flow Moderation and Water Storage	Water bodies	River, stream/drainageway or wetland	2, 5		
	Flood area	Vegetation within the flood area (except within a drainage district)	3, 4	Non-vegetated land within the flood area (except within a drainage district)	3, 4
	Vegetation			Woodland or shrubland vegetation that is outside the flood area and within 300 feet of a river, stream/drainageway or wetland	1, 2
				Forest vegetation that is contiguous to primary forest vegetation or starts within 300 feet of a river, stream/drainageway or wetland and is within 780 feet of a river, stream/drainageway or wetland	1, 2
				Herbaceous vegetation that is outside the flood area and within 100 feet of a river, stream/drainageway or wetland	1, 2
Where the slope is at least 25%: herbaceous vegetation that is outside the flood area, that starts within 100 feet and is within 200 feet of a river, stream/drainageway or wetland				1, 2	



<b>Riparian Function</b>	<b>Landscape Feature</b>	<b>Features Assigned a Primary Score</b>	<b>Footnotes</b>	<b>Features Assigned a Secondary Score</b>	<b>Footnotes</b>
Bank Function, and Sediment, Pollution and Nutrient Control	Water bodies	River, stream/drainageway or wetland (except Willamette River North and Central Reach)	2, 5	Willamette River North and Central Reach	
	Land	Land within 50 feet of a river, stream/drainageway or wetland except land within 50 feet of a hardened, non-vegetated river bank in the Willamette River North and Central Reaches and the Columbia River within the Hayden Island NRI study area	1, 2, 7	Land within 50 feet of a hardened, non-vegetated river bank in the Willamette River North and Central Reaches and the Columbia River within the Hayden Island NRI study area	7
	Vegetation	Forest, woodland or shrubland vegetation within the flood area (except within a drainage district)	3, 4	Herbaceous vegetation within the flood area (except within a drainage district)	3, 4
		Forest and natural/semi-natural woodland or shrubland vegetation outside a flood area, between 50 feet and 100 feet of a river	1, 6, 8	Herbaceous or cultivated woodland or shrubland vegetation outside the flood area and between 50 feet and 100 feet of a river	1, 6, 8
		Forest, woodland or shrubland vegetation outside a flood area, between 50 feet and 100 feet of a stream/drainageway or wetland	1, 2	Herbaceous vegetation outside the flood area and between 50 feet and 100 feet of a stream/drainageway or wetland	1, 2
		Where the slope is at least 25%: forest and natural/semi-natural woodland or shrubland vegetation that is outside the flood area and between 100 feet and 200 feet of a river	1, 6, 8		
		Where the slope is at least 25%: forest, woodland or shrubland vegetation that is outside the flood area and between 100 feet and 200 feet of a stream/drainageway or wetland	1, 2	Where the slope is at least 25%: forest, woodland or shrubland vegetation that is outside the flood area, contiguous with primary vegetation and more than 200 feet of a river, stream/drainageway or wetland, but does not extend beyond the area with at least 25% slope.	1, 2
			Where the slope is at least 25%: herbaceous vegetation that is outside the flood area, contiguous to vegetation within 100 feet and between 100 feet and 200 feet of a river, stream/drainageway or wetland	1, 2	

<b>Riparian Function</b>	<b>Landscape Feature</b>	<b>Features Assigned a Primary Score</b>	<b>Footnotes</b>	<b>Features Assigned a Secondary Score</b>	<b>Footnotes</b>	
Large Wood and Channel Dynamics	Water bodies	River (including Willamette and Columbia River beaches) or stream/drainageway	2, 5			
	Land	Land within 50 feet of a river, stream or wetland, except land within 50 feet of a river in the Willamette River North and Central Reaches and the Columbia River within the Hayden Island NRI study area	1, 4			
	Vegetation	Forest vegetation within 50 feet of a river in the Willamette River North Reach and Columbia River surrounding Hayden Island			Woodland, shrubland, herbaceous or non-vegetated land within 50 feet of the river within the Willamette River North Reach and Columbia River surrounding Hayden Island	
		Forest vegetation within the flood area (except within a drainage district)	3, 4		Woodland, shrubland or herbaceous vegetation within a flood area (except within a drainage district)	3, 4
		Forest vegetation that is outside the flood area, contiguous to and within 150 feet of a river or stream/drainageway (except within a drainage district)	1, 3, 4		Where the slope is at least 25%: forest vegetation that is outside the flood area, contiguous with primary forest vegetation and between 150 feet and 260 feet of a river or stream/drainageway (except within a drainage district)	1, 3, 4
					Within a drainage district, forest vegetation that is contiguous to and within 150 feet of stream/drainageway	1, 4
		Forest that is contiguous to and within 150 feet of a wetland that is located completely or partially within the flood area or 150 feet of a river or stream (except within a drainage district)	1, 2, 3, 4		Where the slope is at least 25%: forest vegetation that is contiguous with primary forest vegetation and is between 150 feet and 260 feet of a wetland, where the wetland is located completely or partially in a flood area or within 150 feet of a river or stream/drainageway (except within a drainage district)	1, 2, 3, 4
	Water bodies	Wetland located completely or partially within the flood area or within 150 feet of a river or stream/drainageway (except within a drainage district)	1, 2, 3, 4			

Riparian Function	Landscape Feature	Features Assigned a Primary Score	Footnotes	Features Assigned a Secondary Score	Footnotes
Organic Inputs, Food Web and Nutrient Cycling	Water bodies	River, stream/drainageway or wetland	2, 5		
	Vegetation	Forest and natural/semi-natural woodland or shrubland vegetation within the flood area (except within a drainage district)	3, 4, 8	Cultivated woodland and shrubland vegetation within a flood area (except within a drainage district)	3, 6, 8
		Forest and natural/semi-natural woodland or shrubland vegetation that is outside the flood area and within 100 feet of a river	1, 2, 6	Forest and natural/semi-natural woodland or shrubland vegetation that is outside the flood area, contiguous to primary or secondary vegetation and within 170 feet of a river	1, 2, 6
				Cultivated woodland or shrubland vegetation that is outside the flood area and within 100 feet of a river	1, 2, 6, 8
		Forest, woodland or shrubland vegetation that is outside the flood area and within 100 feet of a stream/drainageway or wetland	1, 2	Forest, woodland or shrubland vegetation that is contiguous to primary vegetation and within 170 feet of a stream/drainageway or wetland	1, 2
Riparian Wildlife Movement Corridor	Water bodies	River, stream/drainageway or wetland	2, 5		
	Vegetation	Vegetation that is contiguous to and within 100 feet of a river, stream/drainageway or wetland	1, 2	Vegetation that is contiguous to primary vegetation and within 300 feet of a river, stream/drainageway or wetland	1, 2

Footnotes:

1. Rivers, streams/drainageways and wetlands are primary features for riparian functions under evaluation. The model produces functional rankings for such features if open water area has been mapped. Map notations will indicate relative riparian function levels associated with streams or drainageways where only centerline data are available.
2. All riparian search distances are measured from either a) top-of-bank, b) the Ordinary High Water Mark, b) the edge of the mapped water body or c) the stream/drainageway centerline.
3. "Wetland" refers to all mapped regional wetlands fully or partially within 1/4 mile of a river or stream/drainageway, unless otherwise specified.
4. "Flood area" is comprised of the combined FEMA 100-year floodplain (2004/2010) and the 1996 flood inundation area as initially adjusted, and to reflect recent permitted activities affecting site elevation.
5. Portland-area drainage districts: Peninsula Drainage District #1, Peninsula Drainage District #2 and Multnomah County Drainage District #1.
6. Hardened, non-vegetated river banks are defined as seawalls, pilings and non-vegetated riprap and adjacent land within 50 feet of the North or Central Reach of the Willamette River.
7. Natural/semi-natural vegetation has a composition or structure that is self-maintaining, can include native and non-native species, or is managed as a natural area or restoration/enhancement project. Cultivated vegetation is consistent with traditional landscaping and is highly manicured and regularly managed and maintained. Cultivated vegetation is often dominated by turf grasses and ornamental shrubs and trees and may be managed using a combination of mowing, pruning, fertilizers and pesticides. Residential yards, common areas, golf courses, parks and right-of-ways are typically considered cultivated.

The primary and secondary scores for each function are combined to produce aggregated relative riparian area classifications of I, II or III (also referred to as high, medium or low). The formula is similar to those that Metro used for the regional inventory and also reflects the distribution of primary scores assigned to features in the city (Table 3).

Table 3: Riparian Area Aggregated Relative Ranking Formula

Riparian Area Relative Classification	Ranking Formula	
	Primary Functions	Secondary Functions
Class I/High Rank	4-6	0-6
Class II/Medium Rank	1-3	0-6
Class III/Low Rank	0	1-6

Features that receive any score, whether primary or secondary, provide significant riparian area functions. Features that receive at least one secondary score and no primary scores receive a low relative classification. Features that receive one or more primary scores receive a medium or high relative classification. The number of secondary scores does not affect medium and high classifications.

Typically, the riparian area model assigns aggregated relative classifications to natural resource features as follows:

1. Class I – Rivers, streams and wetlands; forest or woodland vegetation within a flood area or in close proximity (0 to 100 feet) to a water feature.
2. Class II – Shrubland and herbaceous vegetation within a flood area or in close proximity (0 to 100 feet) to a water feature; and forest or woodland vegetation on steep slopes out to 200 feet from a water feature.
3. Class III – Vegetated areas outside the flood area and further from a water feature; developed, non-vegetated flood areas; forest or woodland vegetation on steep slopes further than 200 feet from a water feature; and hardened, non-vegetated banks of the Willamette River North Reach and Central Reach and Columbia River surrounding Hayden Island.

Within the city, natural resources generally reflect the impacts of urbanization; however, the resources still provide critical riparian functions. For example, vegetation in riparian area are often comprised of a mix of native, non-native and invasive plants. Native plant species generally provide a broader suite of benefits, such as more effective slope stabilization. However, non-native plants still provide important watershed functions such as water storage, nutrient cycling, erosion control and organic inputs. Other examples of the effects of urbanization include constrained or altered stream channels, contaminated soil, and developed floodplains. These resources have experienced degradation but still provide important functions such as water conveyance.

### D.2.b. Wildlife Habitat Model

The wildlife habitat GIS model assigns scores to mapped habitat patches based on their size, shape and connectivity to other patches or water bodies as shown in Table 4 below. For purposes of the inventory model, habitat patches are defined as areas of forest vegetation and wetland that are at least 2 acres in size, plus adjacent woodland vegetation. The model does not assign scores to habitat areas smaller than 2 acres, or to shrubland or grassland habitats or woodland that is not associated with a 2 acre forest/wetland patch. However, these habitats may be designated Special Habitat Areas if the habitats meet specific criteria.

<b>Table 4: Wildlife Habitat GIS Model Criteria</b>		
<b>High Value (3 points)</b>	<b>Medium Value (2 points)</b>	<b>Low Value (1 point)</b>
<b>Habitat Patch Size<sup>1</sup></b>		
Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is 585 acres or larger.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 30 up to 585 acres.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 up to 30 acres.
<b>Interior Habitat Area<sup>2</sup></b>		
Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the interior area of the forest vegetation and/or wetland patch area is 500 acres or larger.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the interior area of the forest vegetation and/or wetland patch area is at least 15 up to 500 acres.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the interior area of the forest vegetation and/or wetland patch area is at least 2 up to 15 acres.
<b>Proximity to Other Patches<sup>3</sup></b>		
Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and the patch proximity index value is 100 or more.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and the patch proximity index value is at least 30 up to 100.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres and the patch proximity index value is less than 30 acres.
<b>Proximity to Water<sup>4</sup></b>		
Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and where at least 75% of the patch area is within 300 feet of a river, stream/drainageway or wetland.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and where at least 25% and less than 75% of the patch area is within 300 feet of a river, stream/drainageway or wetland.	Patches of forest vegetation and/or wetland, with adjoining woodland vegetation, where the area in forest vegetation and/or wetland area is at least 2 acres, and less than 25% of the patch area is within 300 feet of a river, stream/drainageway or wetland.

Footnotes:

1. A “habitat patch” is defined as an area of contiguous forest and/or wetland greater than 2 acres in size, plus any woodland vegetation adjacent and contiguous to the core forest/wetland area.
2. “Interior area” is defined as the area within the forest and/or wetland portion of a habitat patch that is situated at least 200 feet from the edge of that portion of the patch.
3. Proximity to water relative value thresholds were determined by identifying “natural breaks” in the distribution of the values using the Jenk’s Natural Breaks method, which determines the best arrangement of values into a specified number of classes by comparing and minimizing the sum of the squared differences of values from the means of potential classes.
4. Proximity to other patches is calculated using the Fragstats 3.3 proximity index (PROX). The specified search radius is ¼ mile. The proximity index is a dimensionless measure of the relative size and distance of all patches whose edges are within the specified search radius of each vegetation patch. For more information, refer to [www.umass.edu/landeco/research/fragstats/fragstats.html](http://www.umass.edu/landeco/research/fragstats/fragstats.html).

Features that receive scores for one or more attributes provide significant wildlife habitat functions. Individual scores for each attribute are combined to produce an aggregated relative ranking of high, medium or low for each wildlife habitat patch. As with the riparian corridor model, the formula used to generate the aggregated wildlife habitat rank is similar to those Metro used for the regional inventory (see Table 5).

Wildlife Habitat Relative Rank	Ranking Formula
Class A/High Rank	9 or more points
Class B/Medium Rank	4-8 points
Class C/Low Rank	1-3 points

Natural resource features that receive points for one or more of these attributes provide important wildlife habitat functions. Typically, the wildlife habitat model assigns aggregated relative ranks to natural resource features as follows:

1. Class A – Large (>30 acres) forest and wetland areas such as Forest Park, Smith and Bybee Wetlands, and Tryon Creek State Natural Area.
2. Class B – Moderate-sized (2-30 acres) forest and wetland areas such as those at Rocky Butte Natural Area.
3. Class C – Numerous smaller (<2 acres) forest and wetland areas throughout the city.

Within the city, natural resources generally reflect the impacts of urbanization; however, the resources still provide critical wildlife habitat functions. For example, vegetated areas in upland habitats are often comprised of a mix of native, non-native and invasive plants. Native plant species generally provide a broader suite of benefits, such as varied wildlife food sources. However, non-native plants still provide important watershed functions such as cover and nesting opportunities for wildlife. Other examples of the effects of urbanization include rivers and streams with constrained or altered channels, wetlands with soil contamination and developed floodplains. In each of these cases, the resource has experienced some degradation but still provides important functions such as fish and wildlife habitat.

### **D.2.c. Special Habitat Areas and Regional Species List**

Portland uses the same criteria as Metro did for Habitats of Concern; however, Portland calls these Special Habitat Areas (SHA).

The BPS worked closely with the Metro to update and hone the descriptions and boundaries for the Special Habitat Areas. The Special Habitat Areas (SHA) boundaries generally follow the adopted regional Habitat of Concern (HOC) boundaries. However, the boundaries have been updated to:

- Reflect more detailed analysis of resource location.
- Incorporate new stream or vegetation information.
- Consider information from more recent studies.
- Improve mapping consistency (e.g., removing peripheral buildings, streets and other structures; eliminating small holes in areas where they suggest a greater level of mapping precision than is warranted).

SHAs differ from the GIS natural resource feature and model-based riparian area and wildlife habitat ranking maps in some important ways. First, while the natural resource feature and ranking maps were developed using citywide data sets, the SHAs are based on information developed by different agencies and organizations for specific areas or sites. As such, the SHA information may vary from one area to another. In addition, some special habitats may be left out of the inventory due to lack of available information. Nevertheless, the SHA information enriches the inventory by providing more current and detailed information about important habitat areas throughout the city.

Second, the model-based rankings maps correspond directly with specific landscape feature data, while many SHA boundaries were mapped more generally to capture areas that contain specific features, provide special functions, and/or support special-status fish and wildlife species within their boundaries. For example, the Forest Park has been designated as an SHA in its entirety because it provides habitat for special-status species such as Pileated Woodpecker as well as an elk migratory corridor. Within the West Wye/T-5 Powerline Wetlands SHA are wetlands that provide critical habitat for the Western Painted Turtle.

Portland's SHA are bounded by the urban services boundary. Where a SHA corresponds with a regional Habitat of Concern that crosses jurisdictional boundaries, the City's inventory maps will show SHA boundary and the HOC boundary. This will help inform resource management decisions and inter-jurisdictional coordination.

SHA eligibility criteria are outlined below. These criteria are generally consistent with the criteria Metro used to designate Habitats of Concern; however, the City has updated, clarified, and further defined the eligibility criteria. Some criteria have also been broadened to address habitat features and other agency habitat designations found specifically in Portland. For example, the City inventory includes certain urban structures that provide important habitat for special-status species, e.g., bridges that provide nesting habitat for Peregrine falcons. In 2012, Metro deemed Portland refined SHA criteria to be in substantial compliance with Title 13.

Metro Table 3.07-13d stated that Habitats of Concern shall be treated as Class I riparian habitat areas in all cases. Table 3.07-13d went on to provide examples of Habitats of Concern that shall be treated as Class I riparian areas: Oregon white oak woodlands, bottomland hardwood forests, wetlands, grasslands, riverine islands and important wildlife migration corridors. Therefore, all SHA are designated as Class I riparian areas.

P - Area contains sensitive or unique plant species

This criterion applies to areas containing the following plant species:

1. Those listed by USFWS or NOAA Fisheries as Endangered, Threatened, Proposed Endangered, or Proposed Threatened under the Endangered Species Act or by the ODA or ODFW under the Oregon Endangered Species Act; OR
2. Species that receive an Oregon Natural Heritage rank 1, 2 or 3
  - a. 1 = Critically imperiled because of extreme rarity or especially vulnerable to extinction or extirpation
  - b. 2 = Imperiled because of extreme rarity or especially vulnerable to extinction or extirpation
  - c. 3 = Rare, uncommon or threatened, but not immediately imperiled

Not included are plant populations that are listed by USFWS/NOAA or ODA/ODFW as Candidate Taxa or Species of Concern, unless the plant population received an Oregon Natural Heritage rank of 1-3 or is a wetland indicator species. Also not included are those plant populations that received an Oregon

Natural Heritage rank of 4 = not rare and apparently secure, but with cause for long-term concern, or 5 = demonstrably widespread and secure.

W – Wetlands and associated seeps, springs and streams

This criterion applies to wetlands, and associated seeps, springs and streams that provide critical watershed functions (i.e., water quality, hydrology, wildlife habitat, etc.) and are increasingly rare within Portland. SHAs include primarily those wetlands that:

1. Have a surface or groundwater connection to a stream or flood area;
2. Are part of a larger resource area, such as a wetland located within or adjacent to a forest;
3. Provide important stormwater management functions such as water storage that reduces in-stream erosion or flooding; or
4. Provide connectivity between other high value habitats.

This criterion may incorporate constructed wetlands where the purpose of the wetland includes providing fish and wildlife habitat. Upland wetlands that are very small and are surrounded by development or intense land uses, such as golf courses, and certain water quality facilities may not be designated as SHAs unless they provide important water storage functions for the surrounding area.



### O – Native oak

The native oak criterion applies to areas that contain Oregon white oaks. Other tree species and vegetation, including invasive plants such as Himalayan blackberries, may be present.

### B – Bottomland hardwood forest

This criterion applies to selected areas that contain remnant bottomland hardwood. Not all bottomland hardwood forests in the city are designated as a SHA. To be designated, an area must be considered unique, rare or declining within a particular watershed.

### I – Riverine island

This criterion applies to islands or the portions of riverine islands that provide habitat for shorebirds, waterfowl, terns, gulls, Bald Eagles, river otter and other river/island-associated resident and/or migrating wildlife species. Beaches, mudflats, shoals and areas of large wood deposits are included along with other relevant resource features.

### D – River delta

This criterion applies to river deltas that provide habitat for shorebirds, waterfowl, terns and gulls, Bald Eagles or other wildlife. The area shall contain beaches, mudflats and/or large wood deposits.

### M – Migratory stopover habitat

This criterion is applied to vegetated areas and other landscape features (e.g., buttes) where use by migratory bird species has been documented, or is reasonably expected to occur, on more than an incidental basis. The criterion applies to areas that:

1. Provide nesting opportunities;
2. Provide food and resting opportunities;
3. Provide sufficient cover to reduce predation; and
4. Support a diverse assemblage or high concentration of migratory species

On more than an incidental basis means the identified species is documented to repeatedly or periodically use the habitat or feature.

Reasonably expected to occur generally applies to resource features that typically provide the functions listed above (e.g., buttes, ridge-tops/high elevation features, wetlands, mudflats, riparian areas or focal sites) and where local or regional technical experts state such uses by migratory birds is expected based on existing information or observations.

### C – Corridor between patches or habitats

This criterion applies to vegetated areas that:

1. Provide connectivity between high value habitats including other Special Habitat Areas;
2. Provide connectivity between water bodies, riparian areas and upland habitats; or
3. Extend outward from another SHA to provide a wildlife movement corridor.

S – An at risk wildlife species uses the habitat area or feature on more than incidental basis to complete one or more life history stages. This criterion applies to areas with documented use by the following wildlife species:

1. Species listed by USFWS or NOAA Fisheries as:
  - a. LE Listed Endangered
  - b. LT Listed Threatened
  - c. PE Proposed Endangered
  - d. PT Proposed Threatened
  - e. SoC Species of Concern
  - f. C Candidate
  - g. Includes areas designated as Critical Habitats by NOAA Fisheries
2. Species Listed by Oregon Department of Agriculture (ODA) or ODFW as:
  - a. LE Listed Endangered
  - b. LT Listed Threatened
  - c. SC Critical
  - d. SV Vulnerable
3. Species that received an Oregon Natural Heritage rank or list 1, 2 or 3.
  - a. 1 = Critically imperiled because of extreme rarity or especially vulnerable to extinction or extirpation
  - b. 2 = Imperiled because of extreme rarity or especially vulnerable to extinction or extirpation
  - c. 3 = Rare, uncommon or threatened, but not immediately imperiled

Life cycle phases include but are not limited to:

- courtship, nesting, breeding
- cover/protection from predators or disturbances
- rearing young, juvenile development (e.g. noise, light)
- feeding, foraging, hunting
- dispersal, migration, migratory stopover
- resting, basking, perching
- over-wintering

This criterion may apply to individuals that make up a local population, pairs, colonies or a regional population. On more than an incidental basis means the identified species is documented to repeatedly or periodically use the habitat or feature.

#### E – Elk migratory corridor

This criterion is applied to areas that ODFW has designated as elk migratory corridors.

#### G – Upland Grassland

Upland habitat or landscape feature important to individual grassland-associated species or assemblages of grassland-associated species on more than an incidental basis

This criterion is applied to areas that contain vegetative structure, topography or soil substrates that provide functions similar to a native meadow, prairie or grassland and where use by grassland-associated wildlife species has been documented. This criterion is also applied to areas that:

1. Are part of a larger resource area, such as a grassy area located adjacent to a forest;
2. Provide connectivity between other high value habitats; or
3. Extend outward from an SHA to provide a wildlife movement corridor.

On more than an incidental basis means the identified species is documented to repeatedly or periodically use the habitat or feature.

#### U – Unique Habitat

Resource or structure that provides critical or unique habitat function in natural or built environments. This criterion applies to resources or structures that are generally not accounted for by other criteria, and that provide a documented critical or unique habitat function. Examples include bridges, chimneys, rock outcrops, groundwater upwelling areas, and street trees.

As noted above, Special Habitat Areas have been designated based on documented information about specific sites or areas. In addition, some of the SHAs reflect specific watershed conditions. For instance, areas of bottomland forest along the Willamette River has been designated as Special Habitat Areas, in part because there are so few such areas left along the Willamette in the city. Bottomland forest is more common along the Columbia Slough and may not be designated as Special Habitat Area in that watershed.

## **E. NATURAL RESOURCE INVENTORY RESULTS**

Sections C and D of this report describe the methodology used to verify habitat areas and update habitat classifications for existing natural resource features. The results are reported in detail in Volume 2, Part A through G, for each resources site in the project area. The following Map 1 through 6 depict the citywide results on the Natural Resource Inventory:

Map 1 – Water Features

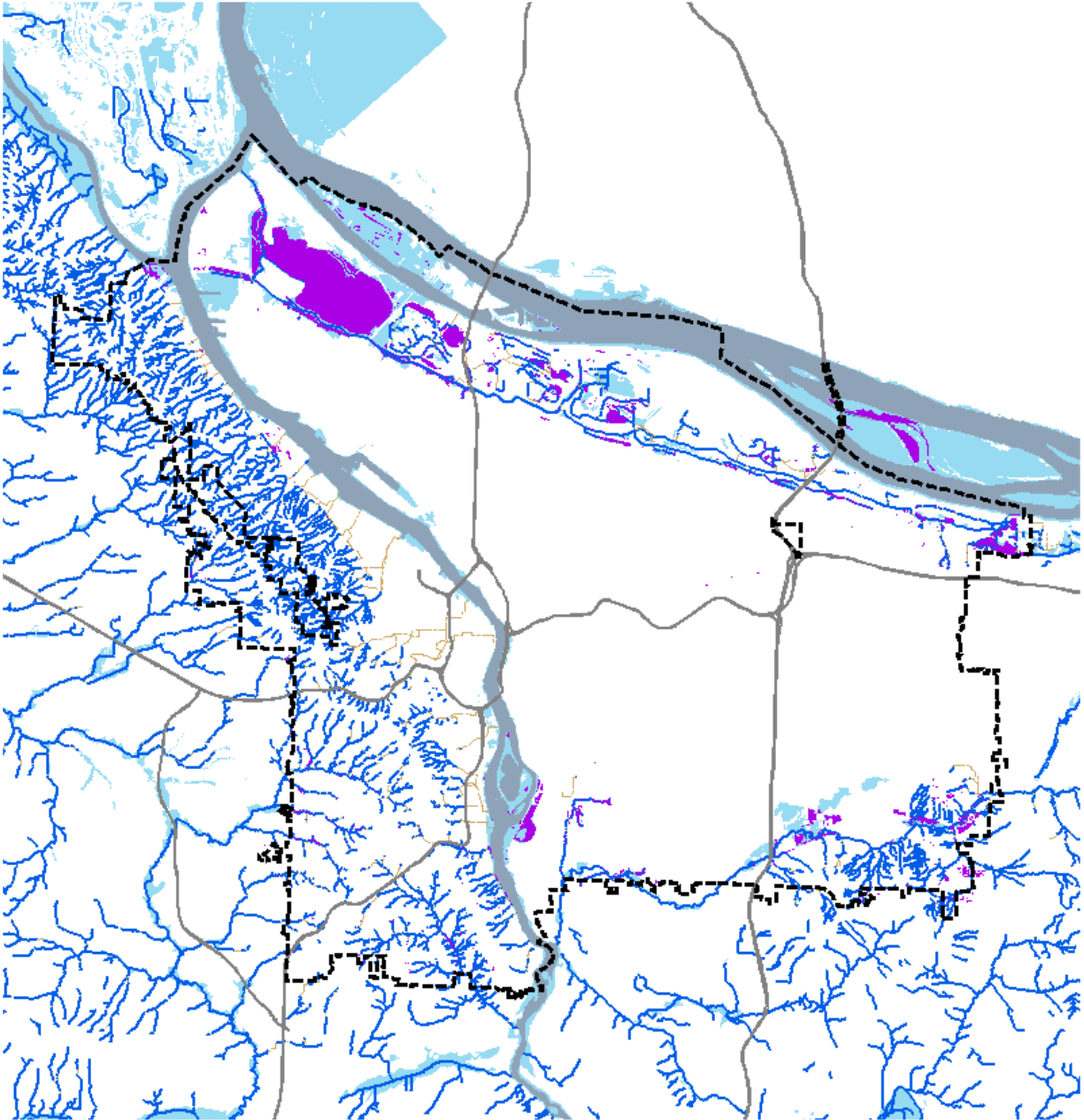
Map 2 – Vegetation Features

Map 3 – Steep Slopes

Map 4 – Special Habitat Areas

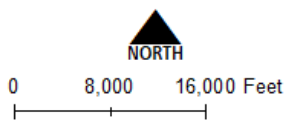
Map 5 – Riparian Corridor Classifications







Map 6 – Wildlife Habitat Classifications



**Map 1: Water Features**

Updated: July 2021

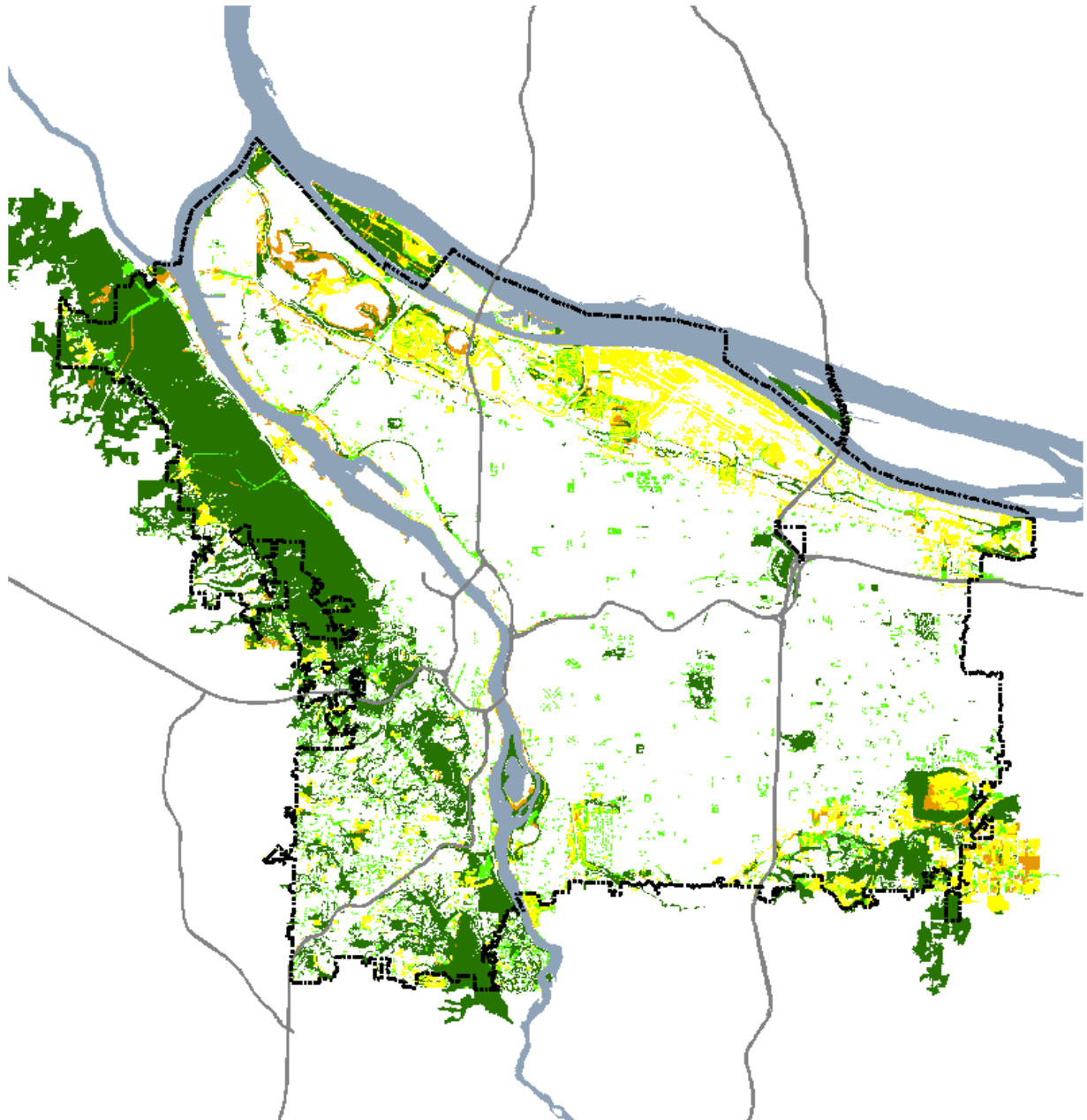


-  City of Portland (USB)
-  Rivers
-  Wetlands
-  Open Stream Channel
-  Piped Stream Segment
-  Flood Area



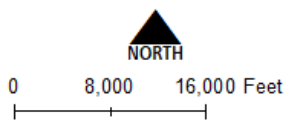
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**Map 2: Vegetation**

Updated: July 2021

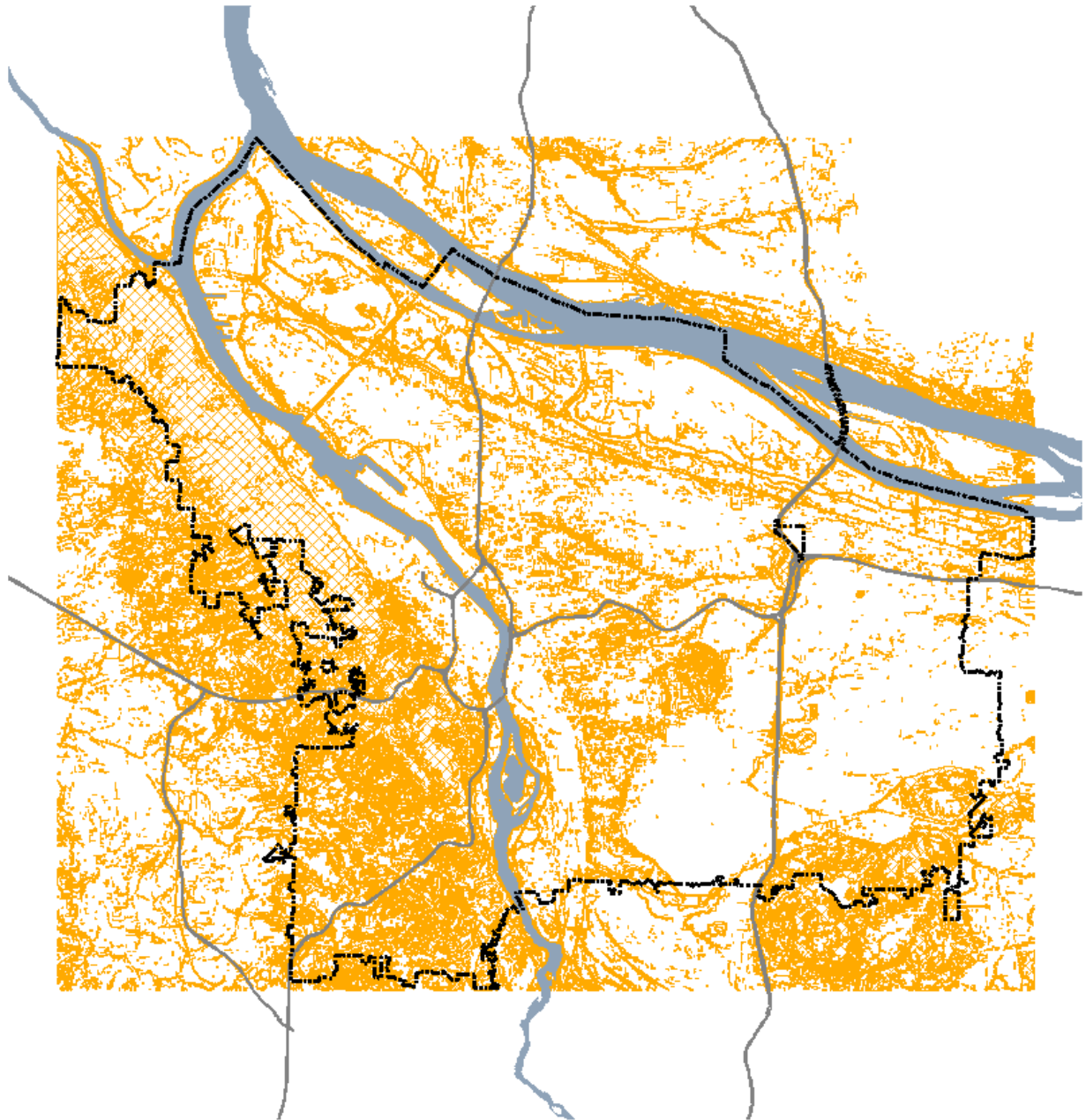


-  City of Portland
-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Rivers






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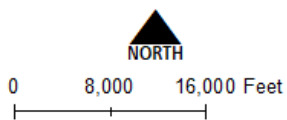
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**Map 3: Steep Slopes**

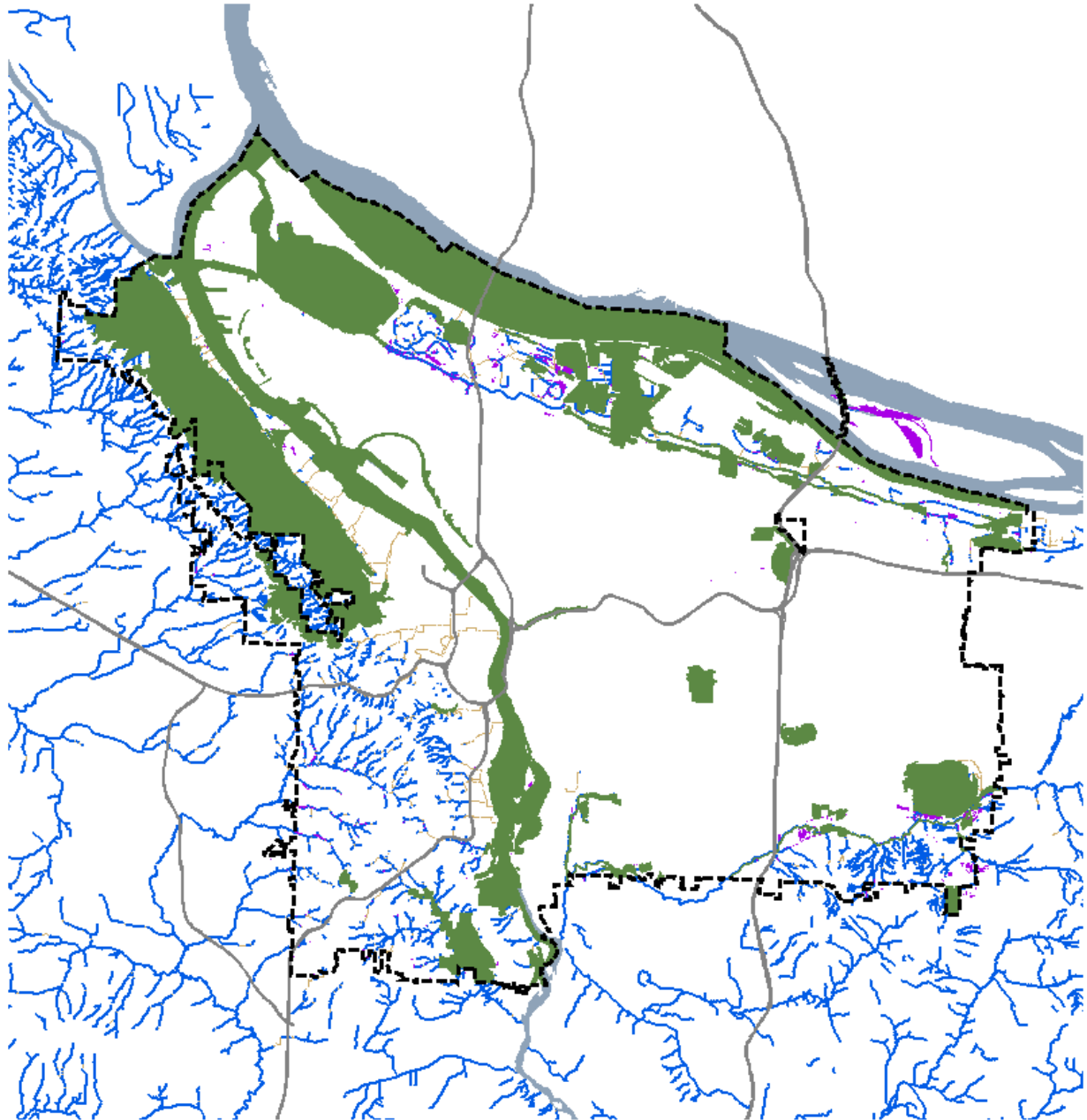
Updated: July 2021

-  City of Portland
-  Rivers
-  Steep Slopes (25% or more)



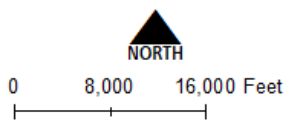
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**Map 4: Special Habitat Areas**

Updated: July 2021



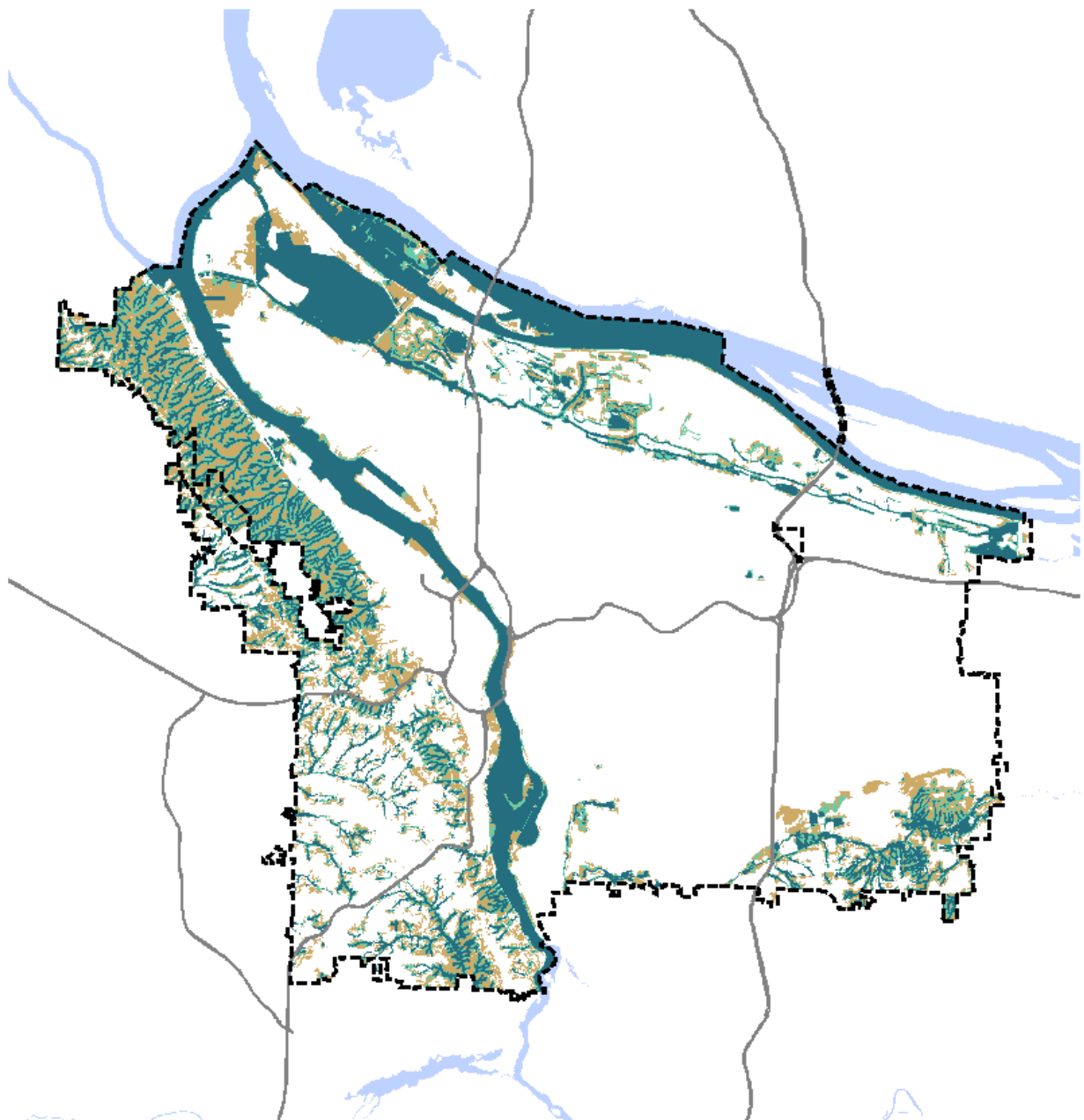
-  City of Portland (USB)
-  Special Habitat Areas (SHAs)
-  Rivers
-  Wetlands
-  Open Stream Channel
-  Piped Stream Segment



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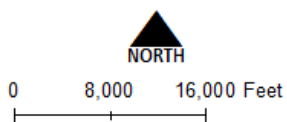
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**Map 5: Riparian Corridors  
Habitat Classification**

Updated: July 2021



- City of Portland (USB)
- Major Waterbodies
- City of Portland (USB)

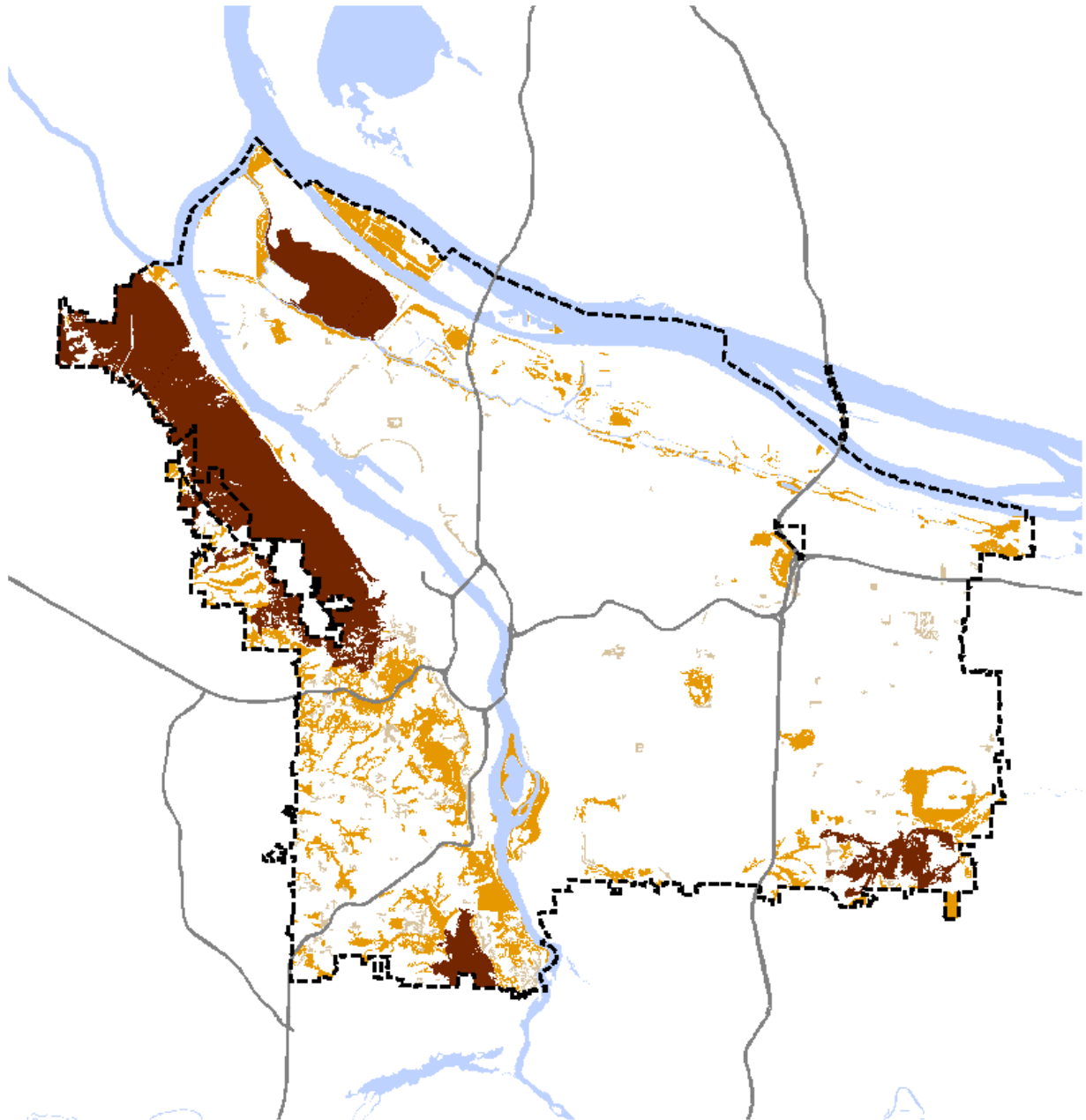
**Riparian Corridors**

- Class I (high rank)
- Class II (medium rank)
- Class III (low rank)



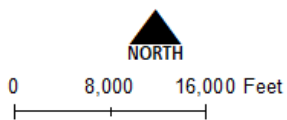
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**Map 6: Wildlife  
Habitat Classification**

Updated: July 2021



--- City of Portland (USB)

Blue Rivers

**Wildlife Habitat**

Dark Brown Class A (high rank)

Orange Class B (medium rank)

Light Tan Class C (low rank)



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# Part B: Compliance Report

## A. INTRODUCTION

Through the Environmental Overlay Zone Map Correction Project, Portland is amending its compliance with Metro Urban Growth Management Functional Plan Title 13, Nature in Neighborhoods, and Oregon Statewide Land Use Planning Goal 5, Open Spaces, Scenic and Historic Areas, and Natural Resources. Portland has been in substantial compliance with Metro Title 13 since 2012 and with Oregon Goal 5, for riparian corridors and wildlife habitat, since 2002. This document explains how Portland is amending its environmental program to remain in compliance with both rules. Section C of this document addresses Metro Title 13 compliance and Section D of this document addresses Oregon Goal 5. The results are presented in Volume 2, Parts A – G, for each sub-geography in Portland.

## B. BACKGROUND

Beginning in 1989 and finishing in 2002, Portland adopted 12 natural resource conservation and protection plans for areas in the city where there are significant natural resources (Figure 7). Each of these plans was originally adopted to comply with Oregon Goal 5 for riparian corridors and wildlife habitat, as well as contributing towards compliance with Goal 6, Air, Water and Land Resources Quality and Goal 7, Areas Subject to Natural Hazards. In 2002, protection and conservation plans had been adopted and environmental overlay zones applied to resources throughout all of Portland and Portland was deemed fully in compliance with Oregon Goal 5.

In September 2005, Metro adopted Title 13, Nature in Neighborhoods, of the Urban Growth Management Functional Plan (UGMFP). Metro Title 13 established baseline requirements to protect, conserve and restore the region's significant riparian corridors and wildlife habitat resources, which are collectively referred to as Habitat Conservation Areas. These Habitat Conservation Areas include rivers, streams, wetlands, and adjacent resource areas, as well as Habitats of Concern. Metro Title 13 was acknowledged by the Land Conservation and Development Commission as complying with portions of Oregon Planning Goals 5 specific to riparian corridors and wildlife habitat, as well as Goal 6, Air, Water and Land Resources Quality for water quality protection. By adopting a UGMFP title, cities and counties within Metro's jurisdiction must comply with Title 13 instead of Goal 5 for Habitat Conservation Areas.

In December 2012, Metro found Portland to be in substantial compliance with Title 13. Portland's compliance relied on existing programs including environmental overlay zoning codes and maps, as well as section of Title 17 Public Improvements that include the Stormwater Management Manual and Drainage Reserve rules, City Title 10 Erosion Control and City Title 11

Trees and non-regulatory programs such as the Willing Seller Land Acquisition program and Watershed Revegetation Program.



Figure 7: City of Portland History of Protection Plans

## C. METRO TITLE 13 COMPLIANCE

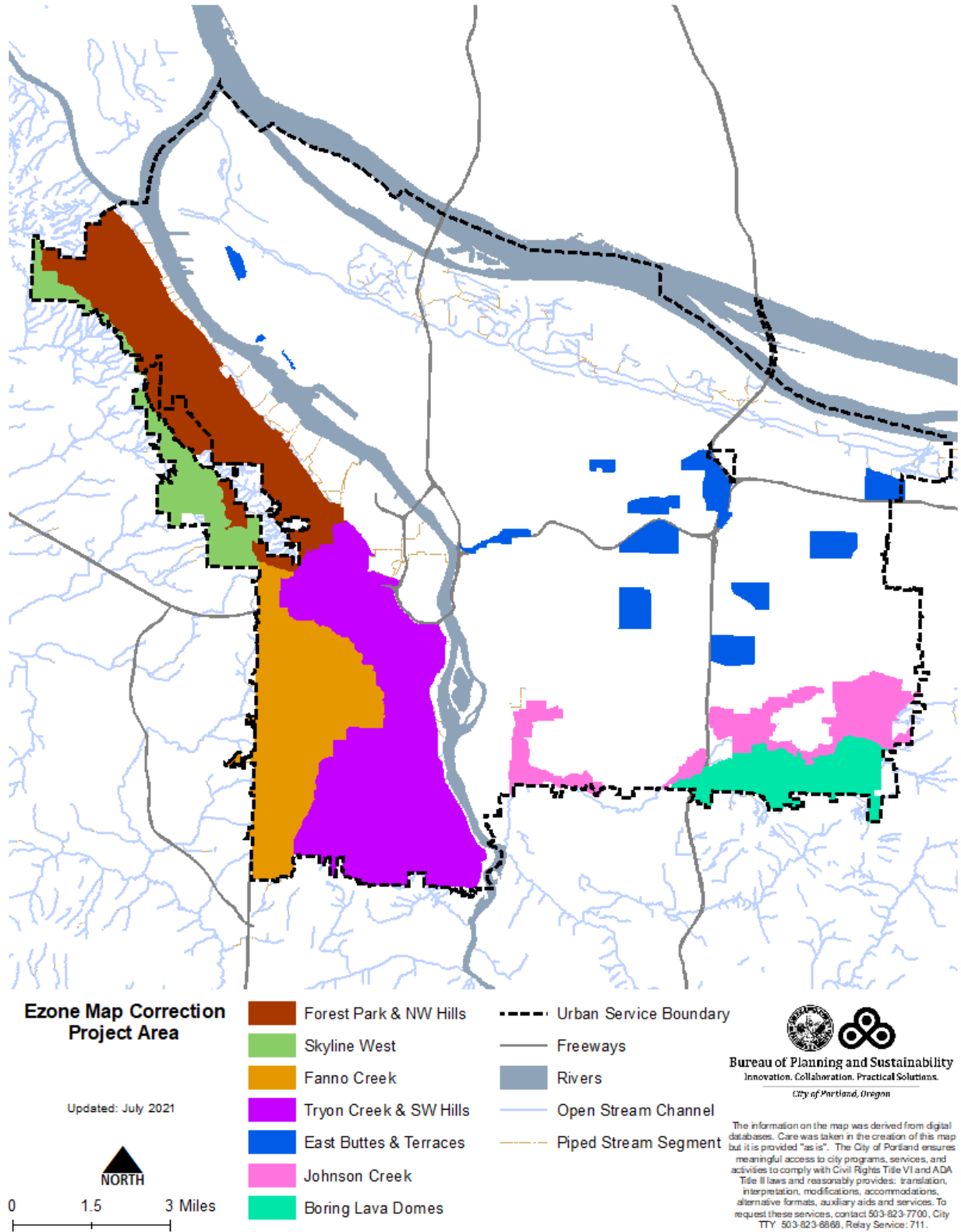
The Environmental Overlay Zone Map Correction Project only amends the application of conservation and protection overlay zones, and associated zoning codes, for the project area (Map 7). All other elements of the 2012 Metro Title 13 compliance (e.g., City Titles 10, 11 and 17, and non-regulatory programs) remain in place and are not amended.

Summarized from Metro Title 13, the general intent of the title rules are to:

- Protect, conserve and restore a continuously viable stream corridor system, in a manner that is integrated with upland wildlife habitat and the urban landscape; and
- Control and prevent water pollution for the protection of public health and safety, and to maintain and improve water quality throughout the region.

As stated in Metro Title 13, the rules are also intended to:

- Achieve its purpose through conservation, protection and restoration of fish and wildlife habitat using voluntary and incentive-based, educational and regulatory components;
- Balance and integrate goals of protecting and restoring habitat with regional goals for livable communities, a strong economy, preventing pollution, and compliance with federal laws including the Clean Water Act and Endangered Species Act;
- Include provisions to monitor and evaluate program performance over time, including meeting program objectives and targets, and local compliance; and,
- Establish minimum requirements and is not intended to repeal or replace existing local resource protections, nor is it intended to prohibit cities and counties from adopting or enforcing fish and wildlife habitat protection and restoration programs that exceed the requirements of this title.



Map 7: Environmental Overlay Zone Map Correction Project Area

The City of Portland was an active participant in the development of Metro Title 13. City staff participated in advisory committees and provided updated natural resource data throughout the project. City managers and elected officials contributed to Title 13 through participation in the Metro Technical Advisory Committee (MTAC) and Metro Policy Advisory Committee (MPAC).

The outcome of Title 13 is that Metro-area cities and counties must demonstrate that their environmental programs substantially comply with Title 13 requirements, including programs to prevent detrimental impacts on Habitat Conservation Areas and to mitigate for unavoidable impacts on these resource areas. Title 13 allows local jurisdictions to achieve substantial compliance through a combination of regulatory and non-regulatory tools such as comprehensive plans and ordinances, zoning, willing-seller land acquisition, easements, and restoration programs.

Portland developed its original compliance package with Metro and multiple other stakeholders including city bureaus, state agencies and the public. The compliance package included the city's Natural Resource Inventory, existing environmental overlay zone maps and codes and an Intergovernmental Agreement directing Portland Bureau of Planning and Sustainability complete comprehensive planning for specific areas of the city including the Willamette River<sup>3</sup>. The compliance package was accepted by Metro in December 2012 as demonstrating substantial compliance with Title 13. This plan is amending compliance with Title 13.

## C.1. Metro Title 13 Compliance Steps

Metro code section 3.07 includes the rules that local jurisdictions must follow when amending compliance with Title 13. To demonstrate compliance with Title 13, the Ezone Map Correction Project uses the methodology set out by 3.07.1330(b)(2): "Demonstrate that its existing or amended comprehensive plan and existing, amended, or new implementing ordinances substantially comply with the performance standards and best management practices described in Metro Code Section 3.07.1340, and that maps that it has adopted and uses substantially comply with the Metro Habitat Conservation Areas map."

The local authority to maintain an updated the Habitat Conservation Areas map is provided by 3.07.1340(d)(1): "Administering the Habitat Conservation Areas Map and Site-Level Verification of Habitat Location. Each city and county shall be responsible for administering the Habitat Conservation Areas Map, or the city's or county's map that has been deemed by Metro to be in substantial compliance with the Habitat Conservation Areas Map, within its jurisdiction, as provided in this subsection (d) of this section."

---

<sup>3</sup> The River Plan/Central Reach was completed with Central City 2035, adopted July 2020, and the River/Plan South Reach was adopted in December 2020. Next will be River Plan/North Reach, which will complete the comprehensive planning for the Willamette River in Portland.

The specific Title 13 steps for updating the Habitat Conservation Areas map are described in Title 13 rules 3.07.1340(d)-(f) and include:

1. Verifying habitat areas
2. Determining urban development value
3. Confirming Habitat Conservation Areas
4. Demonstrating program's substantial compliance

Each step is explained below.

## C.2. Verifying Habitat Areas

Local jurisdictions are required to verify the location and extent of the following habitat areas:

- Water features – rivers, streams, wetlands, other open water and flood area.
- Vegetation cover – forests, woodland, shrubland and herbaceous vegetation.
- Steep slopes – land with greater than 25% slope upward from river, streams and open water.
- Habitats of Concern – habitats that meet specific criteria adopted by the Metro Title 13 Inventory; referred to as “Special Habitat Areas” in Portland.
- Habitat class – ranks associated with natural resource features; see Table 3.07-13d.

The cityside Natural Resource Inventory (NRI), Volume 3, documents the verification of habitat features and methodology used to determine habitat classifications. The NRI, like the Metro's Title 13 inventory, focuses on riparian corridors and wildlife habitat. The NRI incorporates the most current, accurate, high resolution natural resource feature data available as input to the NRI GIS models. Through the Ezone Map Correction Project, the NRI data for streams, wetlands, topography, flood areas and vegetation has been updated using recent aerial photographs, LiDAR data, local and state permit information, as available and applicable, and on site field verifications, when property access is granted.

The City spent several years developing the NRI methodology, basing it on the science and methodology Metro used to develop the Title 13 Inventory of Regionally Significant Fish and Wildlife Habitat. Generally, the outcomes of the NRI are as follows.

Natural resources riparian area classifications:

- **Class I** – Rivers, streams and wetlands; forest or woodland vegetation within a flood area or in close proximity (0 to 100 feet) to a water feature.
- **Class II** – Shrubland and herbaceous vegetation within a flood area or in close proximity (0 to 100 feet) to a water feature; and forest or woodland vegetation on steep slopes out to 200 feet from a water feature.
- **Class III** – Vegetated areas outside the flood area and further from a water feature; developed, non-vegetated flood areas; forest or woodland vegetation on steep slopes



further than 200 feet from a water feature; and hardened, non-vegetated banks of the Willamette River North Reach and Central Reach and Columbia River surrounding Hayden Island.<sup>4</sup>

Natural resources wildlife habitat classifications:

- **Class A** – Large (>30 acres) forest and wetland areas such as Forest Park, Smith and Bybee Wetlands, and Tryon Creek State Natural Area.
- **Class B** – Moderate-sized (2-30 acres) forest and wetland areas such as those at Rocky Butte Natural Area.
- **Class C** – Numerous smaller (<2 acres) forest and wetland areas throughout the city.

The City also updated the information relating to Title 13 Habitats of Concern, refining and clarifying the eligibility criteria, providing additional documentation and adjusting area boundaries. Metro Title 13 specifically assigns a Riparian Area Class I classification to all Habitats of Concerns. The updated Habitats of Concern are called Special Habitat Areas in the city’s NRI.

<b>Table 6: Special Habitat Area (Portland)/Habitats of Concern Criteria (Metro)</b>	
<b>Code</b>	<b>Criteria</b>
P	Area contains sensitive or unique plant populations
W	Wetlands and associated seeps, springs and streams that are part of the wetland complex
O	Native oak
B	Bottomland hardwood forest
I	Riverine island
D	River delta
M	Migratory stopover habitat
C	Corridor between patches or habitats
S	An at-risk wildlife species uses the habitat area or feature on more than an incidental basis to complete one or more life history stages
E	Elk migratory corridor
G	Upland grassland habitat or landscape feature important to individual grassland-associated species or assemblages of grassland-associated species on more than an incidental basis
U	Resource or structure that provides critical or unique habitat function in natural or built environments (such as bridges or street trees)

<sup>4</sup> Hardened, non-vegetated riverbanks include seawalls, pilings and non-vegetated riprap.

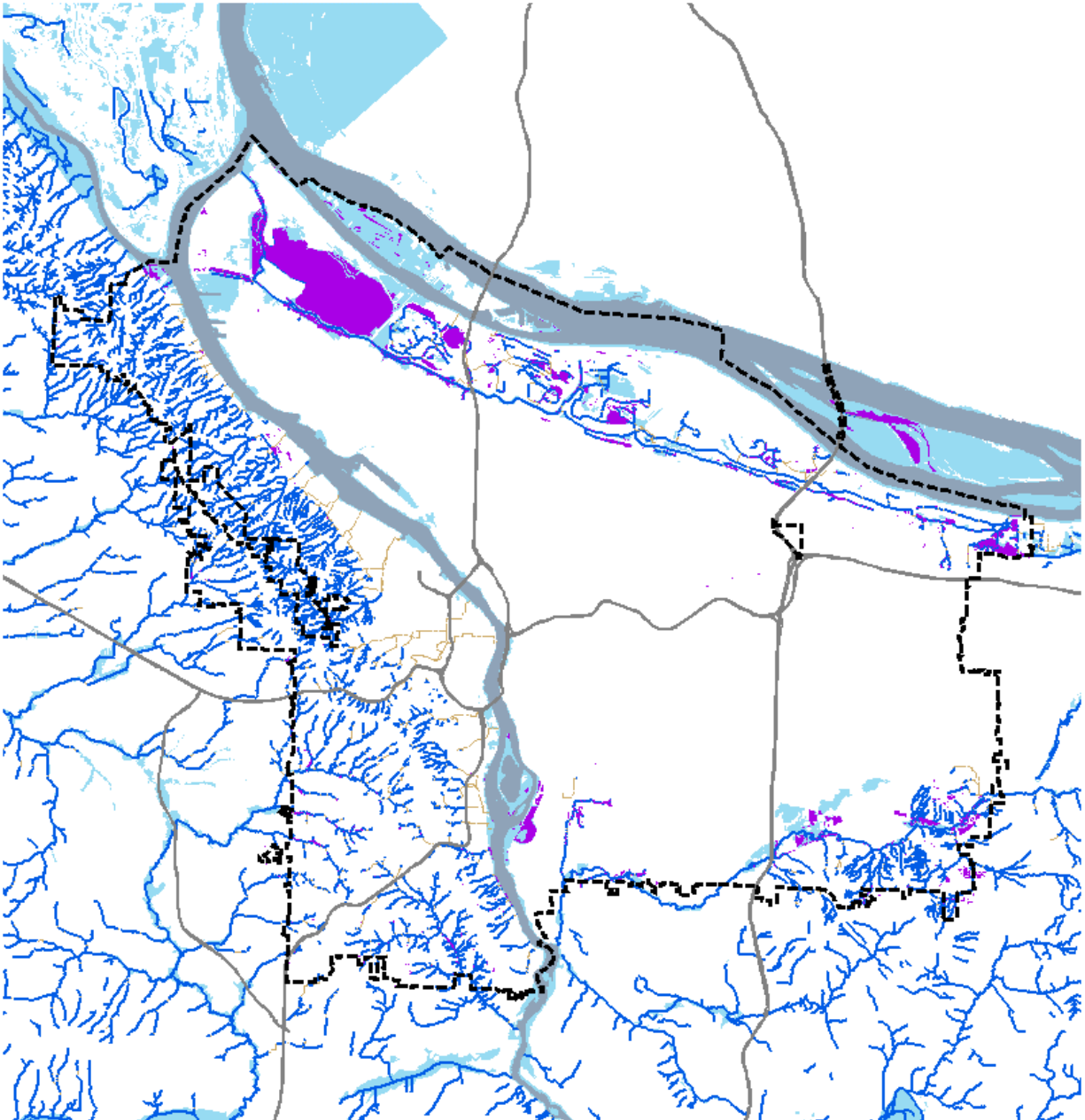
The City worked closely with Metro and a group of technical experts to ensure that the refinements were scientifically sound and remained consistent with Metro’s general approach and intent for the Title 13 regional inventory. The NRI was reviewed through a series of hearings before the Planning and Sustainability Commission and the Portland City Council. In October 2012 the City Council adopted the NRI, along with other information sources, to inform the Comprehensive Plan update, (i.e., part of the Comprehensive Plan factual basis). In 2012, the NRI methodology was also approved by Metro as complying with Title 13.

The NRI identifies 26,365 acres of natural resources throughout Portland. Similar to Metro, the resources are assigned scores for individual riparian functions and wildlife habitat attributes. The scores are aggregated into riparian, wildlife habitat and combined classification (aka rank).

The NRI contains about 2,582 acres more mapped natural resources than Metro’s 2005 inventory, or about 11 percent. The increased acreage reflects the City’s addition of streams through incorporation of LiDAR data and field verifications, wetland determinations completed by the Bureau of Environmental Services, updated vegetation mapping using current aerial photography and field verifications, and refinements to the Special Habitat Areas to reflect new data (such as Metro’s regional oak habitat mapping). A summary of the City’s Natural Resource Inventory is presented in Table 7 and Maps 8 – 13 and details are presented in Volume 2A – 2G.

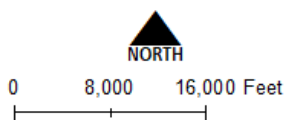
**Table 7: Portland’s Natural Resource Inventory (2020)**







<b>Feature</b>		
<b>Rivers (acres)</b>		6,483
<b>Streams (miles)</b>		308
<b>Wetlands (acres)</b>		9,930
<b>Flood Area (acres)</b>	Vegetated	2,950
	Unvegetated	8,70
<b>Vegetation Patches (acres)</b>	Forest Vegetation	15,188
	Woodland Vegetation	3,658
	Shrubland Vegetation	1,156
	Herbaceous Vegetation	6,339
<b>Steep Slopes (acres)</b>		21,830
<b>Special Habitat Areas (acres)</b>		20,059
<b>Riparian Corridors (acres)</b>	Class I/High	15,692
	Class II/Medium	5,483
	Class III/Low	8,373
<b>Wildlife Habitat (acres)</b>	Class A/High	9,433
	Class B/Medium	6,649
	Class C/Low	1,344



**Map 8: Water Features**

Updated: July 2021

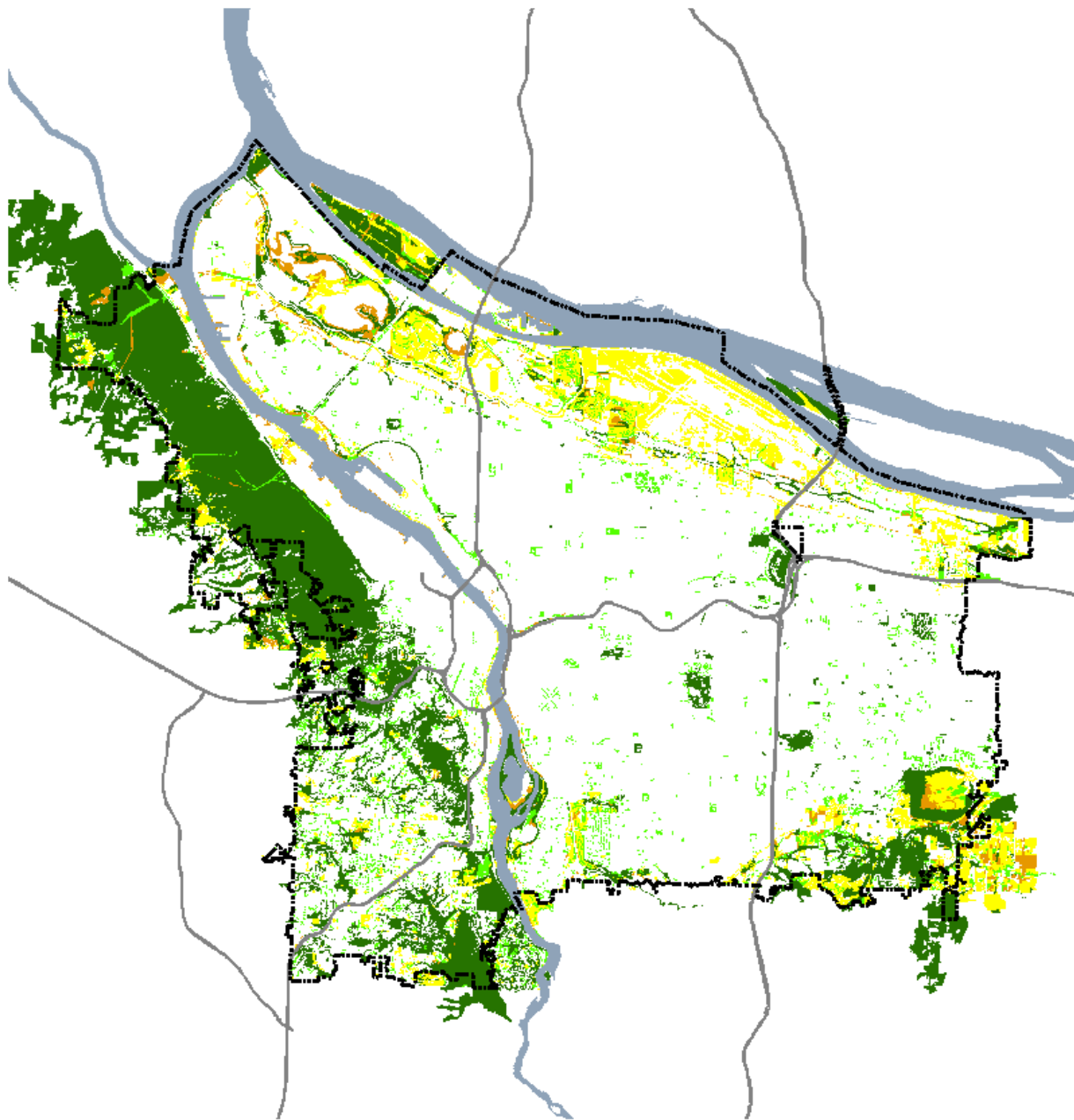


-  City of Portland (USB)
-  Rivers
-  Wetlands
-  Open Stream Channel
-  Piped Stream Segment
-  Flood Area



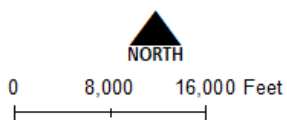
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**Map 9: Vegetation**

Updated: July 2021

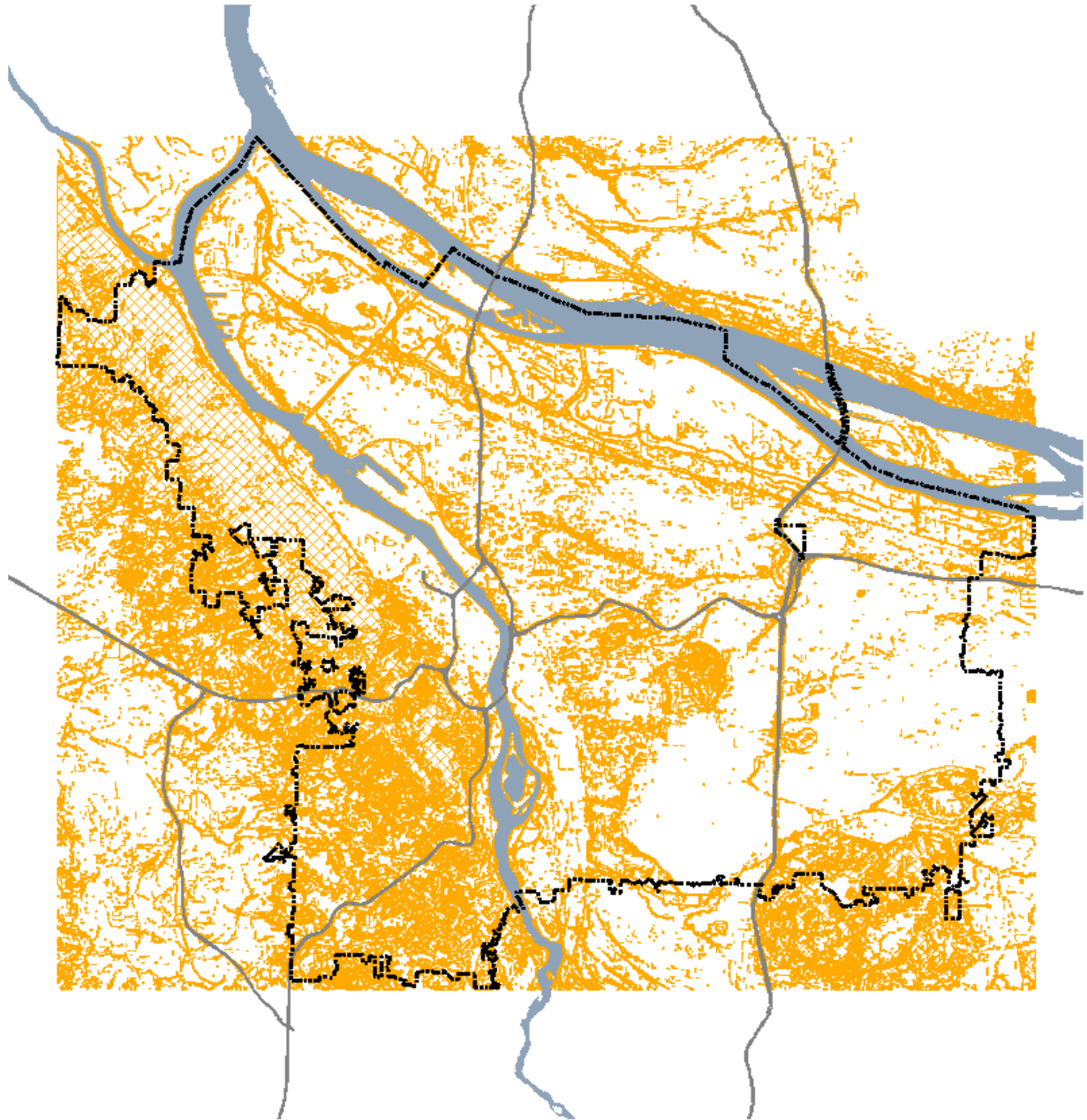


-  City of Portland
-  Forest
-  Woodland
-  Shrubland
-  Herbaceous
-  Rivers






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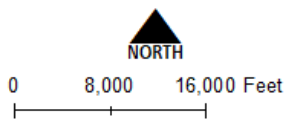
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**Map10: Steep Slopes**

Updated: July 2021

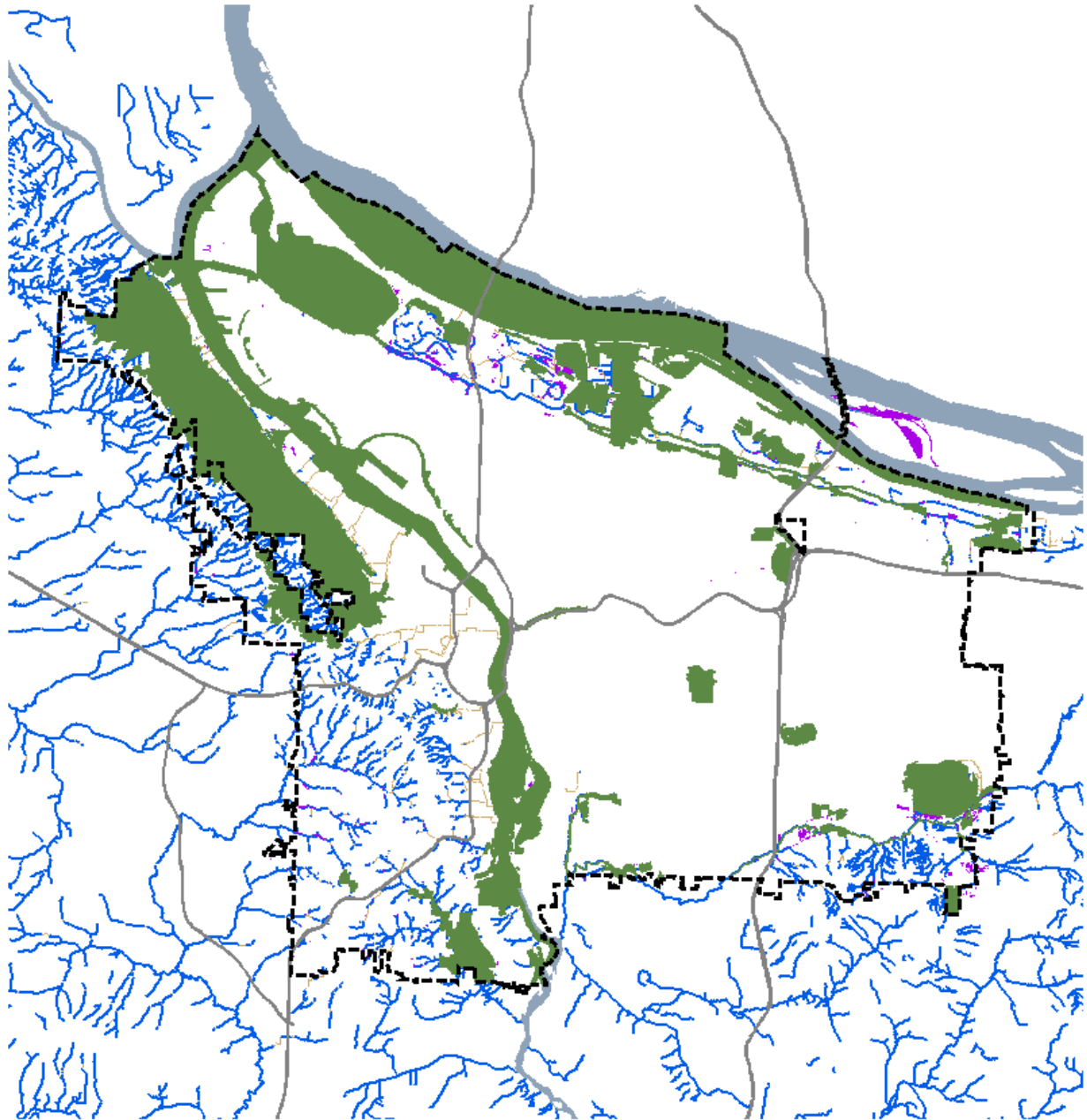
-  City of Portland
-  Rivers
-  Steep Slopes (25% or more)



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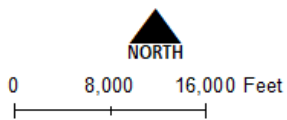
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






**Map 11: Special Habitat Areas**

Updated: July 2021

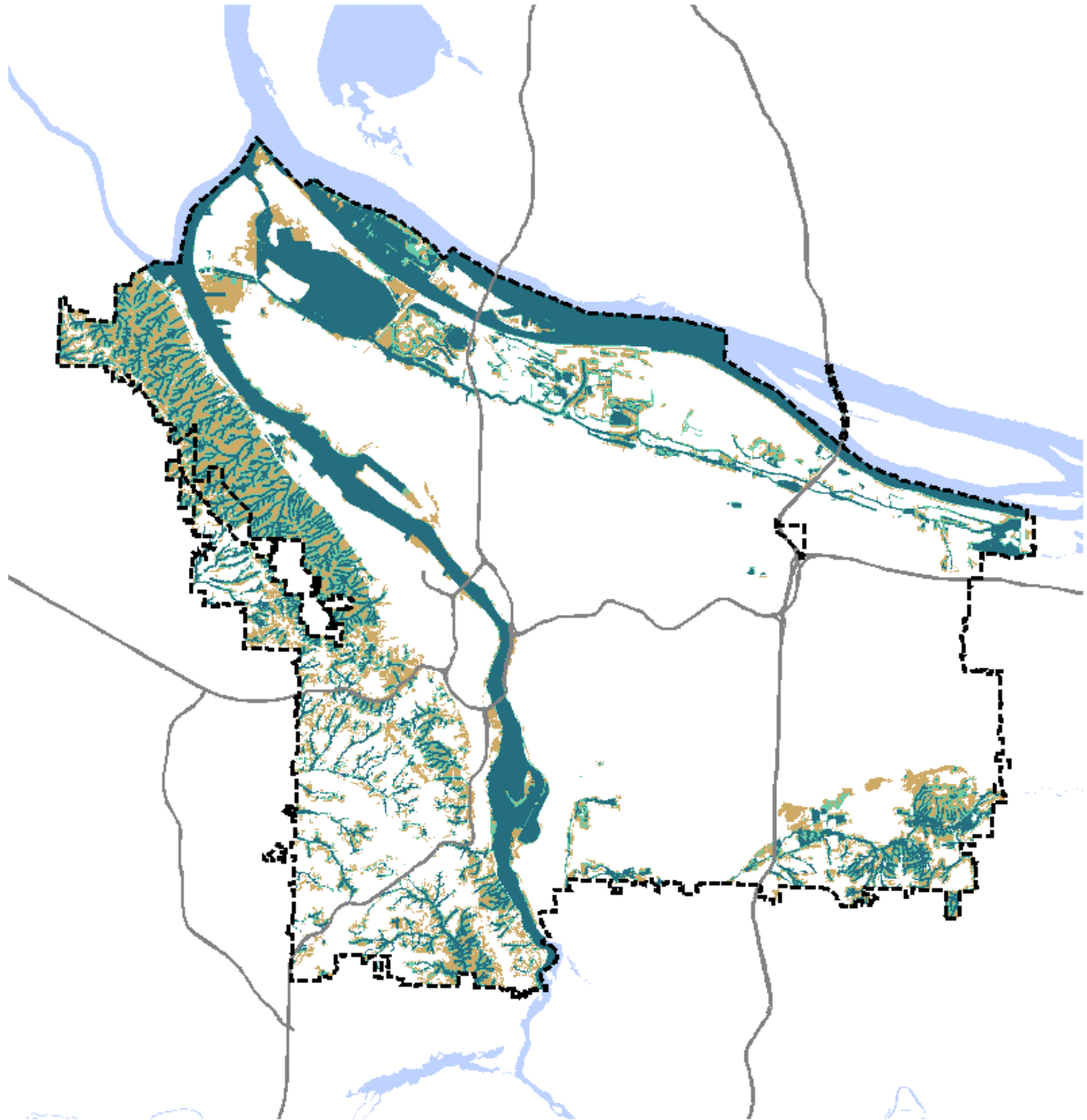


-  City of Portland (USB)
-  Special Habitat Areas (SHAs)
-  Rivers
-  Wetlands
-  Open Stream Channel
-  Piped Stream Segment



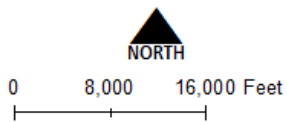
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**Map 12: Riparian Corridors  
Habitat Classification**

Updated: July 2021

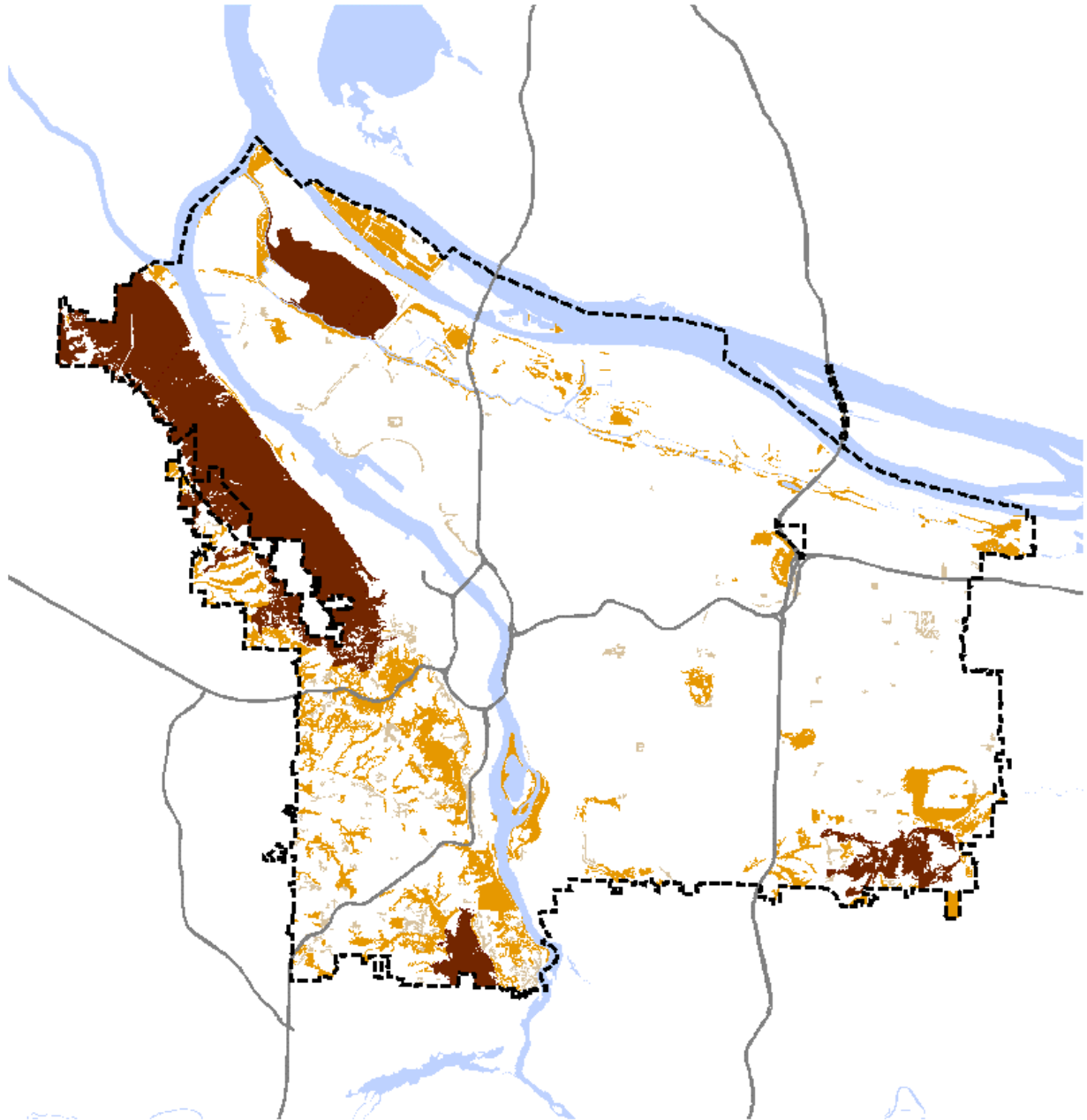


- City of Portland (USB)
- Major Waterbodies
- City of Portland (USB)
- Riparian Corridors**
- Class I (high rank)
- Class II (medium rank)
- Class III (low rank)



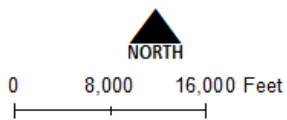
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**Map 13: Wildlife  
Habitat Classification**

Updated: July 2021



--- City of Portland (USB)

Blue Rivers

**Wildlife Habitat**

Dark Brown Class A (high rank)

Orange Class B (medium rank)

Light Tan Class C (low rank)



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### **C.3. Determining Urban Development Value**

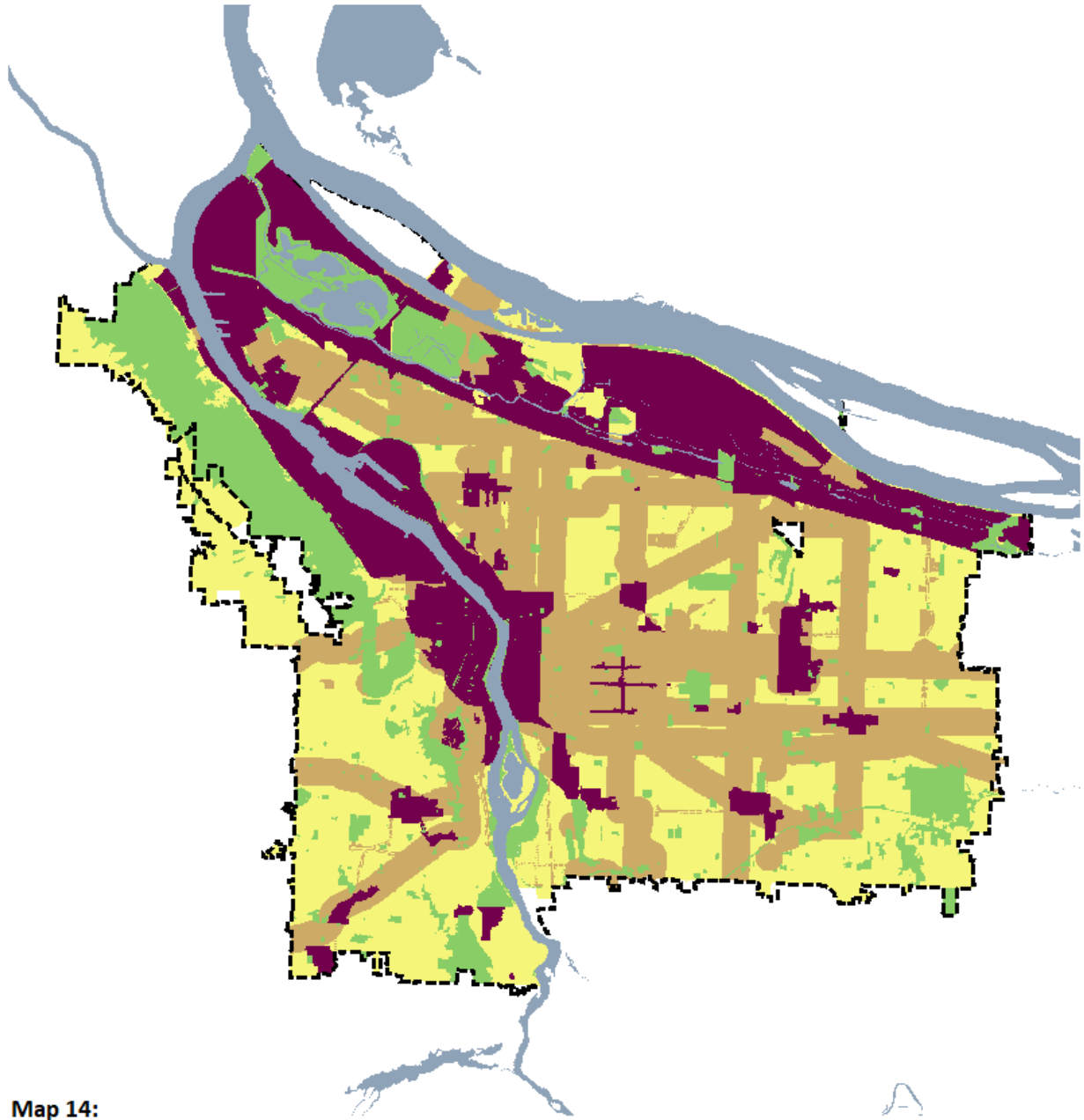
Metro Title 13 included an ESEE analysis with the outcome being an urban development value assigned to specific land uses. With adoption of this plan, the Title 13 ESEE replaces the previously adopted City ESEE analyses within the project area.

To confirm the Urban Development Value as it applies in Portland, the requirements of Title 13 rule 3.07.1340(e) were followed:

- Properties designated as the Central City, Regional Centers, Town Centers and Regionally Significant Industrial Areas, as well as regionally significant educational or medical facilities (e.g., Oregon Health and Sciences University), are of high development value;
- Properties designated as Main Streets, Station Communities, Other Industrial Areas and Employment Centers are of medium development value; and
- Properties designated as Neighborhoods and Corridors are low development value.

Parks and open space are not defined in Title 13 as having urban development value; however, parks and open space are included in the methodology for determining Habitat Conservation Areas (see Table 8). Therefore, it is assumed that parks and open space are low urban development value.

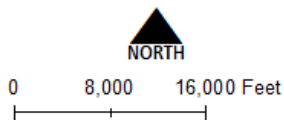
Map 14 presents the urban development value updated based on the 2035 Comprehensive Plan, which was acknowledged in May 2018.



**Map 14:**  
**Urban Development Value**

**Metro Title 13 and 2035  
Comprehensive Plan**

Updated: July 2021



- Urban Service Boundary
- Urban Development Values**
- High Development Value
- Medium Development Value
- Low Development Value
- Parks



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## C.4. Confirming Habitat Conservation Areas

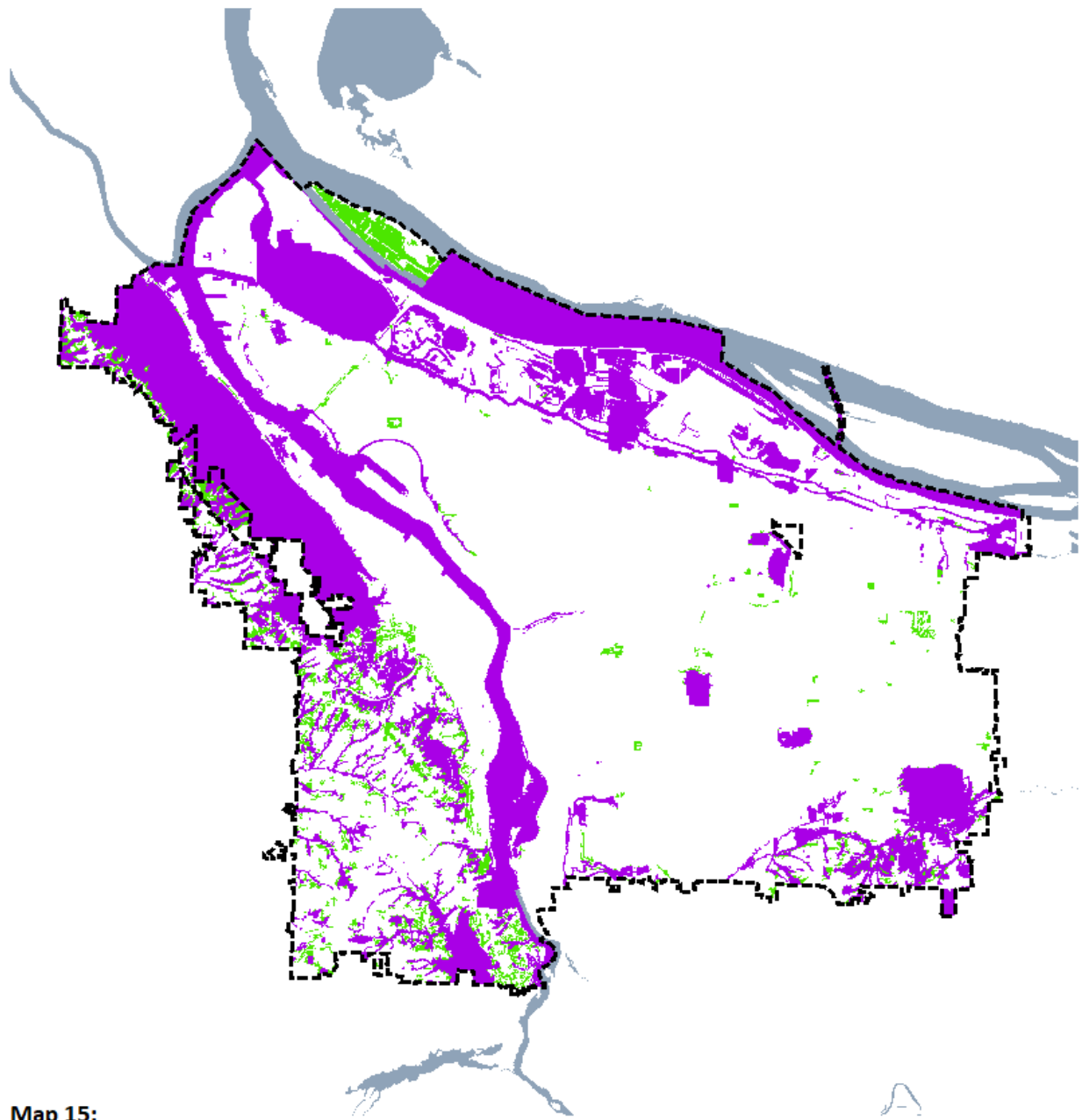
Habitat Conservation Areas (HCA) are the areas for which local jurisdictions must provide a program to protect and conserve the natural resources. Table 8 summarizes Title 13 Table 3.07-13a, which is the methodology used for confirming HCAs.

HCAs are all Class I and Class II Riparian Areas, regardless of urban development value, and Class A and Class B Wildlife Habitat only within parks and open spaces. Title 13 specifically classifies Metro Habitats of Concern (aka Special Habitat Areas in Portland) as Class I riparian areas and are therefore HCAs. If a local jurisdiction intends to consider protections for natural resources that are not a HCA, the jurisdiction must follow the Oregon Planning Goal 5 rules. Portland’s existing environmental program includes some Riparian Class III, Wildlife Class A, B and C natural resources; those resources are addressed in Section D, Oregon Statewide Planning Goal 5 Compliance.

Table 8: Methodology for Determining Habitat Conservation Areas (Title 13, Table 3.07-13a)

<b>Rank</b>	<b>High Development Value</b>	<b>Medium Development Value</b>	<b>Low Development Value</b>	<b>Parks and Open Space</b>
Riparian Class I	Moderate HCA	High HCA	High HCA	High HCA
Riparian Class II	Low HCA	Low HCA	Moderate HCA	Moderate HCA
Wildlife Class A	None	None	None	High HCA
Wildlife Class B	None	None	None	High HCA
Riparian Class III Wildlife Class C	None			

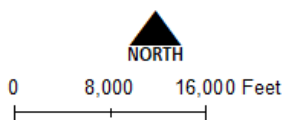
Map 15 presents the updated HCAs following the methodology laid out in Table 8.



**Map 15:**  
**Habitat Conservation**  
**Areas (Title 13) and Goal 5**  
**Significant Natural**  
**Resources**

- Urban Service Boundary (outer line)
- Habitat Conservation Areas
- Goal 5 Significant Natural Resources

Updated: July 2021



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## **C.5. Applying the Environmental Program to Metro Title 13 Habitat Conservation Areas**

Within the project area, the location of environmental overlay zones is updated to apply to the confirmed Habitat Conservation Areas. The application of the overlay zones generally follow this policy guidance:

1. The highest level of protection is applied to Class I Riparian Areas, which are streams and wetlands and land within 0-50 feet of stream top-of-bank or edge of wetlands.
2. A moderate level of protection is applied to Class II Riparian Areas, which are forests and woodlands located between 50 and 100 feet of stream top-of-bank.

There are nuances to the application of the environmental overlay zones within the previously adopted resource sites. Those resource site-level policy decisions were approved in 2012 by Metro as substantially complying with Title 13, and this Ezone Map Correction Project is retaining those policies. The policies are explicitly detailed in Volume 2, Parts A – G, and summarized in Volume 1, Part A.

In 2012, the environmental overlay zones applied to 78% of the HCAs in Portland, as a whole. With adoption of this project, the environmental overlay zones will apply to 80% of the confirmed HCAs in Portland, as a whole. There is a 2% net increase in the extent of protections applied to HCAs throughout the city.

For natural resources that are not a HCA, Metro Title 13 rule 3.07.1330(a)(1) states “a city or county shall apply the requirements of division 23 of OAR chapter 660 in order to adopt comprehensive plan amendments or land use regulations that (i) would otherwise require compliance with division 23 of OAR chapter 660 but for the adoption of this title (i.e., amendments or regulations adopted to protect other Goal 5 resources<sup>2</sup>), and (ii) will limit development in areas not identified as riparian habitat on the Inventory Map, ...”

Natural resources that are not a HCA include Class A and B Wildlife Habitat, except within parks and open space, and Class III Riparian Areas and Class C Wildlife Habitat. For these natural resources, direct compliance with Goal 5 OAR 660-23 is required. Please refer to Volume 3, Part B, Section D, for Goal 5 compliance. Map 15 also presents the significant natural resources that are not a Title 13 Habitat Conservation Area.

## D. OREGON STATEWIDE PLANNING GOAL 5 COMPLIANCE

Portland is amending compliance with Oregon Statewide Land Use Planning Goal 5, Open Spaces, Scenic and Historic Areas, and Natural Resources. Between 1989 and 2002, Portland adopted 13 plans that demonstrated Goal 5 compliance for riparian corridors and wildlife habitat. The Environmental Overlay Zone Map Correction Project is repealing and replacing five of those plans and amending three of those plans.

With the adoption of Metro Title 13 in December 2005, Oregon Planning Goal 5 only applies directly to natural resources not identified by Title 13 as Habitat Conservation Areas (HCA). Natural resources that are not a HCA include Class A and B Wildlife Habitat, except within parks and open space, and Class III Riparian Areas and Class C Wildlife Habitat. These natural resources will be addressed through direct application of Goal 5 OAR 660-023. Please see Volume 3, Part C, Metro Title 13 compliance for the process to protect rivers, streams, wetlands, floodplains, riparian areas and Special Habitat Areas.

Oregon Planning Goal 5 establishes rules for the protection of natural resources under OAR 660-023-0030 through 660-023-0070 and 660-023-0090 and 660-023-0110. The local government must inventory natural resources and evaluate the resource for significance. If the resource is found to be significant, the local government must assess the economic, social, environmental and energy (ESEE) consequences of three policy choices: protecting the resource, allowing proposed uses that conflict with the resource, or limiting proposed uses that conflict with the resource by establishing a balance between protecting and allowing uses. The local government must then adopt a program based on the results of this ESEE analysis.

### D.1. Statewide Goal 5 Compliance Steps

The Goal 5 rule (OAR 660-023) requires local governments to follow the steps described below. Except for the inventory, which is used for both Title 13 and Goal 5 compliance, steps 3 through 6 are only completed for natural resources that are not a Title 13 HCA.

1. **Identify Resource Sites.** Local governments must determine resource sites, which are areas where resources are located. A site may consist of a parcel or lot or portion thereof or may include an area consisting of two or more contiguous lots or parcels. Resource sites were adopted in Portland with the previous 13 conservation and protection plans and are retained, with minor boundary edits to reflect existing conditions. The methodology used to refine resource sites is documented in Volume 2, Part A – G.

2. **Inventory Process.** The local government must collect information about the location of natural resource features and assess the quantity and quality of the features. The information on quality is relative to comparable resources in the city and region. Information on quantity should include abundance or scarcity of the resource. The Natural Resource Inventory methodology is documented in Volume 3 and the results are presented in Volume 2, Part A – G, for each resource site.
3. **Determination of significance.** Local governments must assess inventoried natural resources to determine if the resources are “significant” based on location and relative quantity and quality. Resources that have been deemed significant must then be evaluated to determine if and how those resources should be protected.
4. **Determine the impact area.** Local governments shall determine an impact area for each resource site. The impact area shall be drawn to include only the area in which allowed uses could adversely affect the identified significant scenic resources. The impact area defines the geographic limits within which to perform ESEE analysis.
5. **Identify conflicting uses.** Local governments shall identify conflicting uses that exist, or could occur, within resource sites. To identify these uses, local governments shall examine land uses allowed outright or conditionally within the zones applied to the resource site and in its impact area. A "conflicting use" is a land use or other activity reasonably and customarily subject to land use regulations, that could adversely affect a significant resource (except as provided in OAR 660-023-0180(1)(b)). Conflicting uses described in two categories: 1) common impacts of conflicting uses that occur in any zone; and 2) conflicting uses that are specific to each base zone.
6. **Analyze the ESEE consequences.** Local governments shall analyze the ESEE consequences that could result from decisions to allow, limit, or prohibit a conflicting use. The analysis may address each of the identified conflicting uses, or it may address a group of similar conflicting uses.

This volume includes a general ESEE analysis that looks at types of conflicting uses and the impacts on similar natural resource features. For example, clearing trees and vegetation on steep slopes similar consequences for any slope by reducing water retention, increasing erosion potential, increasing landslide risk, decreasing shade, reducing habitat, etc. General ESEE recommendations are made by resource feature type and land use types allowed with base zones. In Volume 2, Part A – G, the general ESEE consequences and recommendations are confirmed, clarified or modified based on resource site-specific information.

**7. Develop a program.** Based on and supported by the analysis of ESEE consequences, local governments shall determine whether to allow, limit, or prohibit identified conflicting uses that could negatively affect significant natural resources:

(a) *Prohibit* – A local government may decide that a significant natural resource is of such importance compared to the conflicting uses and the ESEE consequences of allowing the conflicting uses are so detrimental to the resource that the conflicting uses should be prohibited.

(b) *Limit* – A local government may decide that both the significant natural resource and the conflicting uses are important compared with each other and, based on the ESEE analysis, the conflicting uses should be allowed in a limited way that protects the resource to a desired extent or requires mitigation of loss of scenic resources.

(c) *Allow* – A local government may decide that the conflicting uses should be allowed fully, notwithstanding the possible impacts on the significant natural resources. The ESEE analysis must demonstrate that the conflicting use is of sufficient importance relative to the resource and must indicate why measures to protect the resource to some extent should not be provided, as per subsection (b) of this section.

The City of Portland has an established program that applies environmental overlay zones to significant natural resources based on the adopted ESEE decisions. The established program does not result in a *prohibit* decision for any significant natural resources. Instead the program clarifies that for some natural resources the conflicting uses should be *strictly limited*, while for other natural resources the conflicting uses should simply be *limited*. The *strictly limit* and *limit* decisions are both consistent with the Goal 5 *limit* definition because neither *prohibits* conflicting uses.

Volume 2, Part A – G, documents the ESEE decisions for each resource site that contains natural resources that are not a Title 13 HCA. The implementation of those decisions is presented in Volume 1, Part B1 (zoning code amendments) and B2 (zone map amendments).

## D.2. Determination of Significance

Metro, under Title 13, determined that all inventoried natural resources are ecologically significant and that riparian areas and all wildlife habitat, except Class C (low) wildlife habitat, are regionally significant. Metro went on to state that jurisdictions may find that Class C wildlife habitat is locally significant, in addition to being ecologically significant. The following is consistent with Title 13 and meets Goal 5 requirements for determination of significance.



OAR 660-023-0110(4) states that a determination of significance is made using the standard inventory process as described in OAR 660-023-0030(4). The standard inventory process for determining significance is based on the quality, quantity and location information as well as any additional criteria adopted by the local government. Pursuant to OAR 660-023-0030(4), all resource sites containing areas mapped as riparian corridors or wildlife habitat are determined to be significant (Map 16).

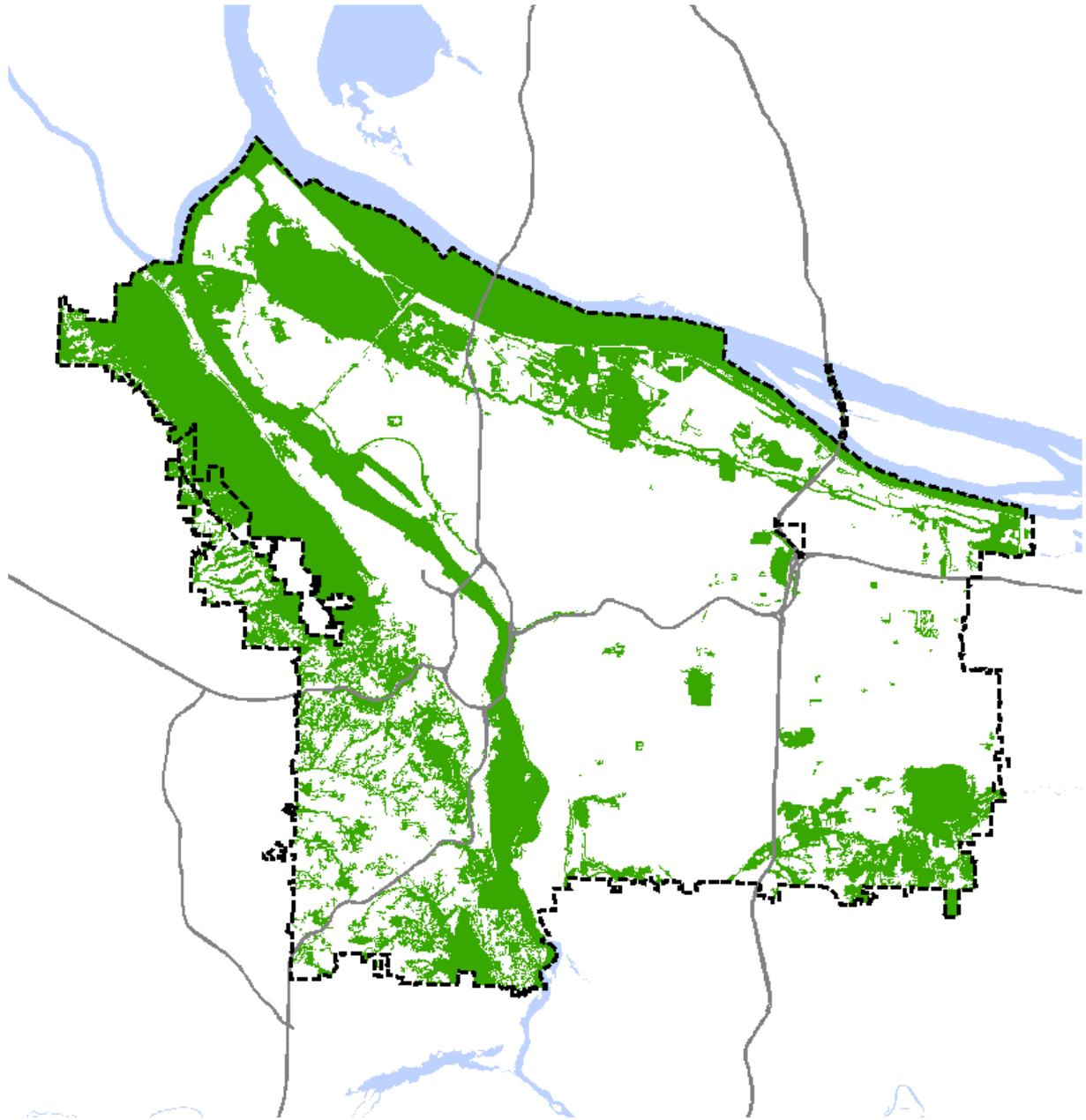
**Significant riparian corridor features:** open stream; wetland; flood area; land within 50 feet of waterbodies; forest, woodland, shrubland and herbaceous vegetation within 300 feet of waterbodies; and forest vegetation on steep slopes (>25% slope) contiguous to and within 780 feet of waterbodies.

**Significant riparian corridor functions:** microclimate and shade; stream flow moderation and water storage; bank function and sediment, pollution and nutrient control; large wood and channel dynamics; organic inputs, food web and nutrient cycling; and riparian wildlife movement corridor.

**Significant wildlife habitat features:** forest patches and associated and contiguous woodland patches two acres in size or larger; wetlands; and Special Habitat Areas.




**Significant wildlife habitat functions:** food and water; resting, denning, nesting and rearing; movement and migration; reduction of noise, light and vibration; and functions specific to Special Habitat Areas including habitat patches that support special status plant, fish and wildlife species.

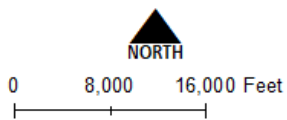
Wildlife habitat loss has been pervasive in Portland and the region and has resulted in widespread fragmentation and degradation of the remaining habitats. Several habitat types and many wildlife and fish species are considered *at-risk* by federal, state or local natural resource agencies. Therefore, all remaining wildlife habitat is significant for supporting native plants and wildlife. Remaining large patches of habitat typically contain more diversity of vegetation, more downed wood and leaf litter, and less edge impacts (noise, light, vibration) than smaller patches. However, in the urban context even small patches of habitat or lines of street trees provide critical stepping blocks between riparian areas and larger habitat areas. Urban habitat is also impacted by non-native plants that can push out native vegetation. Non-native plants do provide functions, such as food and resting/nesting opportunities. Areas with a high density of non-native vegetation represent an opportunity for restoration.



**Map 16 Determination of Significance**

Updated: July 2021

-  City of Portland (USB)
-  Significant Natural Resources
-  Rivers



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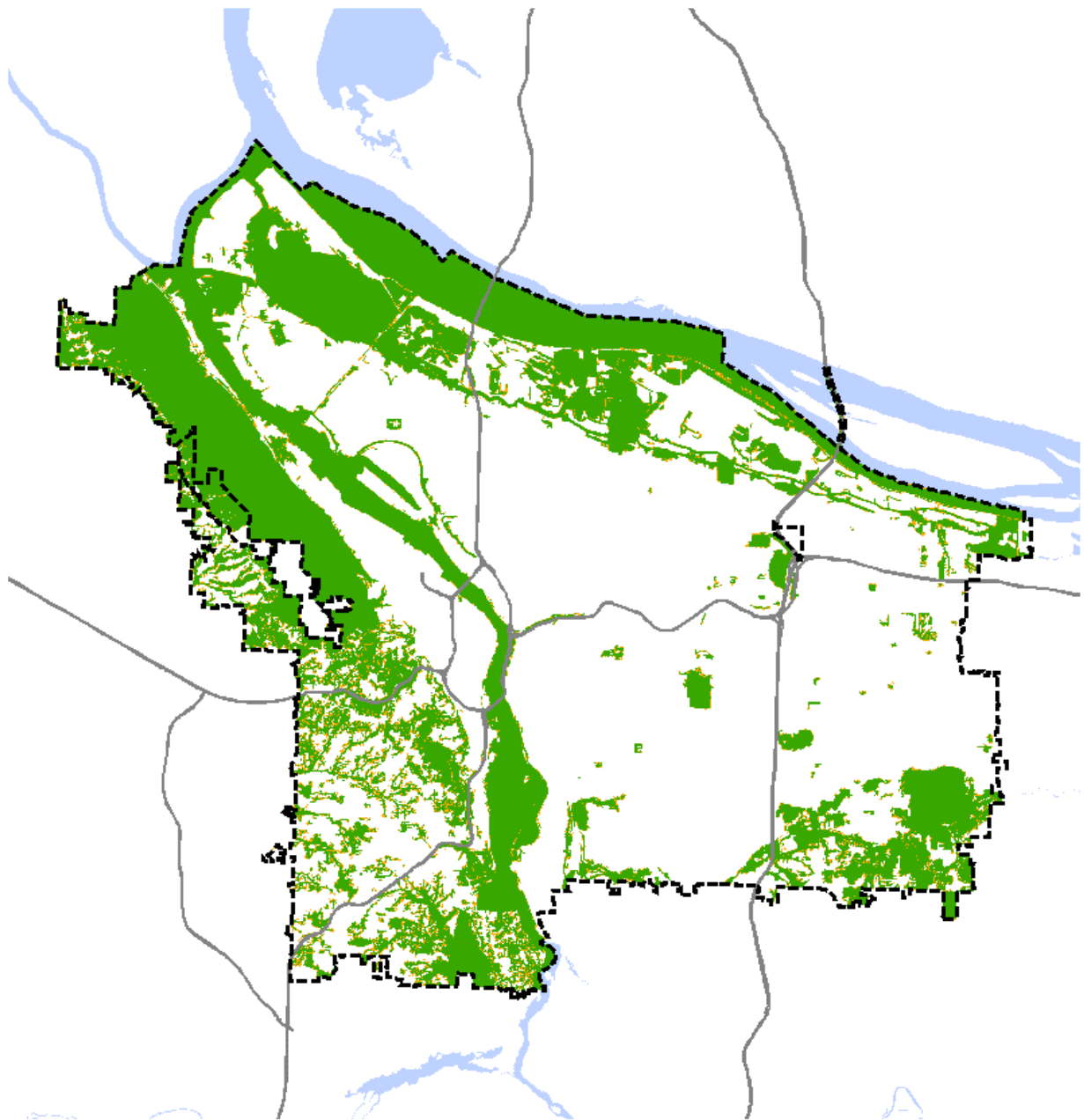
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### **D.3. Impact Area**

A required step in the ESEE analysis is to identify “impact areas.” An impact area is the area surrounding natural resources that may impact the quality, quantity, functionality or extent of those resources. Per the Goal 5 rule:





*Local governments shall determine an impact area for each significant resource site. The impact area shall be drawn to include only the area in which allowed uses could adversely affect the identified resource. The impact area defines the geographic limits within which to conduct an ESEE analysis for the identified significant resource. (OAR 660-023-040 (3)).*

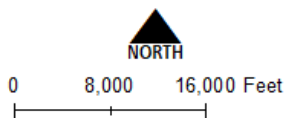
The effects of urbanization on the natural resource feature and functions are pervasive. The cumulative effects of vegetation removal, development of impervious surfaces, and filling in flood areas and wetlands impact natural resources throughout Portland. More direct impacts are seen in closer proximity to the significant natural resource features. Metro, in Title 13, established the impact area as land, natural features and development, within 100 feet of significant riparian corridor habitat and land, natural features and development within 25 feet of significant wildlife habitat. Portland is following the Title 13 approach and applying a 25-foot impact area around natural resources that are not a Title 13 HCA (Map 17).



**Map 17: Impact Area**

Updated: July 2021

-  City of Portland (USB)
-  Significant Natural Resources
-  ImpactArea
-  Rivers



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## D.4. Conflicting Use Analysis

In Portland there are uses, such as vegetation removal and development of structures, that if allowed would negatively impact significant natural resources. These are called *conflicting uses*. Conflicting uses are identified by evaluating what is allowed, outright or conditionally, by the base zones applied throughout Portland.

The conflicting uses are consolidated into two categories: 1) common impacts of conflicting uses that occur in any base zone; and 2) conflicting uses that are specific to each base zone. Below are descriptions of the conflicting uses and how those uses may negatively impact significant natural resources.

### D.4.a. Common Impacts of Conflicting Uses

Development and disturbance activities can adversely affect natural resources found within each of the City's base zones; however, the degree or intensity of the impacts may vary depending on the intensity of the land use, the form, layout or design of the development, construction protocols or ongoing operation and maintenance activities. Below is a description of activities associated with the conflicting uses, and their related impacts on natural resources.

The following impacts are site specific and cumulative with respect to other impacts and conditions in the watershed.

#### Clearing vegetation

Rainwater is intercepted and taken up by vegetation. This function is impaired when vegetation is cleared, resulting in increased overland runoff. In turn, this increases runoff volume and rate flows into receiving water bodies following storm events. Increased streamflow volume and rate flows can cause bank erosion, undercutting, slumping, and flooding. Vegetation also filters surface stormwater removing pollutants and sediment. Vegetation clearing can affect hydrology and water quality functions in streams that are far from the development site because stormwater is often piped great distances within the city.

Vegetation within 100 feet of streams also contributes to in-stream food web functions and can contribute beneficial structure to the stream. Trees can contribute large wood to streams and create habitat for aquatic species. This is especially important when trees are located near shallow water areas used by Endangered Species Act-list aquatic species.

Clearing vegetation removes roots systems that hold soils in place and canopy that intercepts rain water. This can result in soil erosion and landslides, particularly on steep slopes. Soil erosion can impact water bodies by adding additional sediment to streams and

wetlands, impairing the functions including hydrology, channel dynamics, water storage, water quality, flooding and in-water habitat. Landslides can impact land even far away from the resources, causing significant damage to public infrastructure and private property.

Clearing vegetation removes important structural features of the forest such as multiple canopy layers, snags and downed logs, large trees, and root systems. This can result in impaired habitat for native wildlife. Vegetation removal reduces food, nesting opportunities, cover, and perching and roosting opportunities for wildlife. Removing streamside or shoreline vegetation also eliminates sources of leaf litter, which provide food and nutrients for aquatic organisms, and woody debris, which provides river habitat structure and food resources for fish. Wildlife affected by vegetation removal includes mammals, birds, reptiles, amphibians, fish and insects. Removal of vegetation can fragment riparian and upland wildlife movement corridors, isolate remaining vegetation patches, and limit wildlife access to water. These impacts impede wildlife migration and can limit recruitment from other areas, making wildlife populations more vulnerable to disease, predation and extirpation.

Tree canopy and associated understory vegetation create shade and local microclimate effects that cool the air and water and maintain humidity and soil moisture. Trees and vegetation also help capture carbon dioxide; carbon dioxide is a contributing factor to climate change. All of these functions are affected when the vegetation is removed.

Some vegetation types have been declining in the Portland area due to clearing and grading for development and the use of ornamental vegetation in landscaping (not replacing cleared vegetation with similar native species). Certain assemblages, such as native bottomland hardwood forests and native oak stands, require specific soil, water and sun exposure to survive and are slow growing, taking many years to become established. These vegetation assemblages still exist including bottomland forest along the Columbia Slough and Columbia River and oak escarpments along buttes, bluffs and terraces. Removal not only reduces habitat functions as discussed previously, but also contributes to the decline in these unique vegetation types, and potentially, extirpation within the city.

#### Grading, excavation, filling and soil compaction

Grading activities and soil compaction can reduce the capacity of soil to support vegetation by disturbing the soil structure, accelerating erosion, and decreasing soil fertility, microorganisms, seeds and rootstocks. Soil porosity and stormwater infiltration can be reduced by grading, excavating, filling and soil compaction. This in turn can reduce groundwater recharge and in-stream summer and fall low flows, which adversely affects aquatic species. Grading, excavation, filling and compaction also affect wildlife habitat for some species. For example, long-toed salamanders require forest leaf litter and downed logs for thermal protection and foraging areas.

#### Adding impervious surface (e.g. buildings, parking areas, roads, sidewalks, driveways)

Impervious surfaces alter the hydrologic cycle by preventing natural stormwater infiltration into the ground and concentrating overland flow. This results in increased stormwater runoff and decreased groundwater recharge. Increased stormwater runoff can result in increased volume and flows into receiving water bodies (see vegetation clearing). Decreased groundwater recharge can reduce in-stream summer low flows (see grading, excavation, filling and soil compaction). Concentration of overland flows can also increase soil erosion and landslides, particular on steep slopes. Impervious surfaces also contribute to urban heat island effect, which affects local air quality. Increased impervious surfaces can also cause wildlife habitat fragmentation and create hazards or barriers to wildlife movement (see vegetation clearing).

#### Modifying rivers and flood areas (e.g. filling, bank armoring, channelizing)

Altering the natural configuration, geomorphology, and structure of river banks and the flood area results in:

- increased in-stream flow velocity, which can cause bank erosion, undercutting and slumping on-site or at upstream or downstream locations
- a decrease in aquatic habitat area and simplified remaining habitat when side channels, wetlands and oxbows are disconnected from the main river channel
- removal of shallow water habitat that supports Endangered Species Act-list aquatic species
- a decrease in areas of wood deposition where side channels and wetlands are filled in
- reduced flood storage capacity and other benefits associated with active flood areas (e.g., nutrient transport, off-channel habitat)
- reduced flood storage capacity and increased flow volume and rate also increases flood risks to downstream properties
- reduction in vegetation that attenuates flows and provides important fish habitat during flood events

#### Generating pollution

Oil, gas, tar, antifreeze, dissolved metals, pesticides, herbicides, fertilizers, and other contaminants degrade habitat and water quality. These pollutants are transported to water bodies in stormwater via runoff from streets, driveways, parking lots, farms, parks, golf courses, and buildings. Dirt and sediments from eroded areas or deposited from vehicles can also be transported via stormwater to water bodies and degrade aquatic habitat. Pesticides, herbicides and fertilizers used in landscaping can pollute ground and surface waters, degrade habitat, and harm fish and wildlife.

#### Landscaping with non-native and/or invasive vegetation (e.g., ornamental trees)

The removal of native vegetation and establishment of cultivated landscapes can change or reduce food, cover, and nesting opportunities for native wildlife. Manicured landscaped

areas generally lack complex vertical structure – little if any multi-layered canopy, large trees, snags, thick understory vegetation, and downed logs are retained in landscaped areas. The reduction in vertical structure impairs wildlife habitat and alters microclimate effects and hydrology. Some non-native plants used in landscaping are invasive (e.g. ivy, morning glory, holly and laurel) and can out-compete native plants reducing biodiversity. Non-native landscapes may also require irrigation and may be treated with chemical fertilizers and pesticides, which can run-off into local waterways and wetlands, or may be ingested by wildlife.

#### Building fences and other wildlife barriers

Barriers to wildlife movement can include buildings, roads, rail lines, fences, and other manmade features. These barriers fragment connectivity between wildlife habitats and reduce the ability of native wildlife species to thrive (see clearing vegetation). Some barriers, such as roads and rail lines, may create hazards that increase the risk of wildlife mortality.

#### Other impacts: pets, light, noise, vibration, litter, etc.

Human activities that create outdoor noise, vibration and light can disrupt the competition, communication, reproduction, and predation habits of wildlife (Brown, 1987). For example, night-time lighting can interrupt the navigation of migrating birds and bats. Domestic pets can kill or injure native wildlife or compete for limited space. For example, allowing dogs to run freely in a grassland area can disrupt grassland-associated wildlife that build nests on the ground. Domestic pet waste, litter, and garbage can degrade natural resources including soil and water quality.

## **D.4.b Impacts of Specific Conflicting Uses by Base Zone**

The previous section outlines the impacts generally associated with conflicting uses like clearing and grading. This section evaluates the impacts associated with specific land uses such as residential or industrial. Conflicting uses are identified by looking what is allowed, outright or conditionally, by the base zones applied throughout Portland. Map 18 shows the existing base zones.

### Industrial and Employment Uses

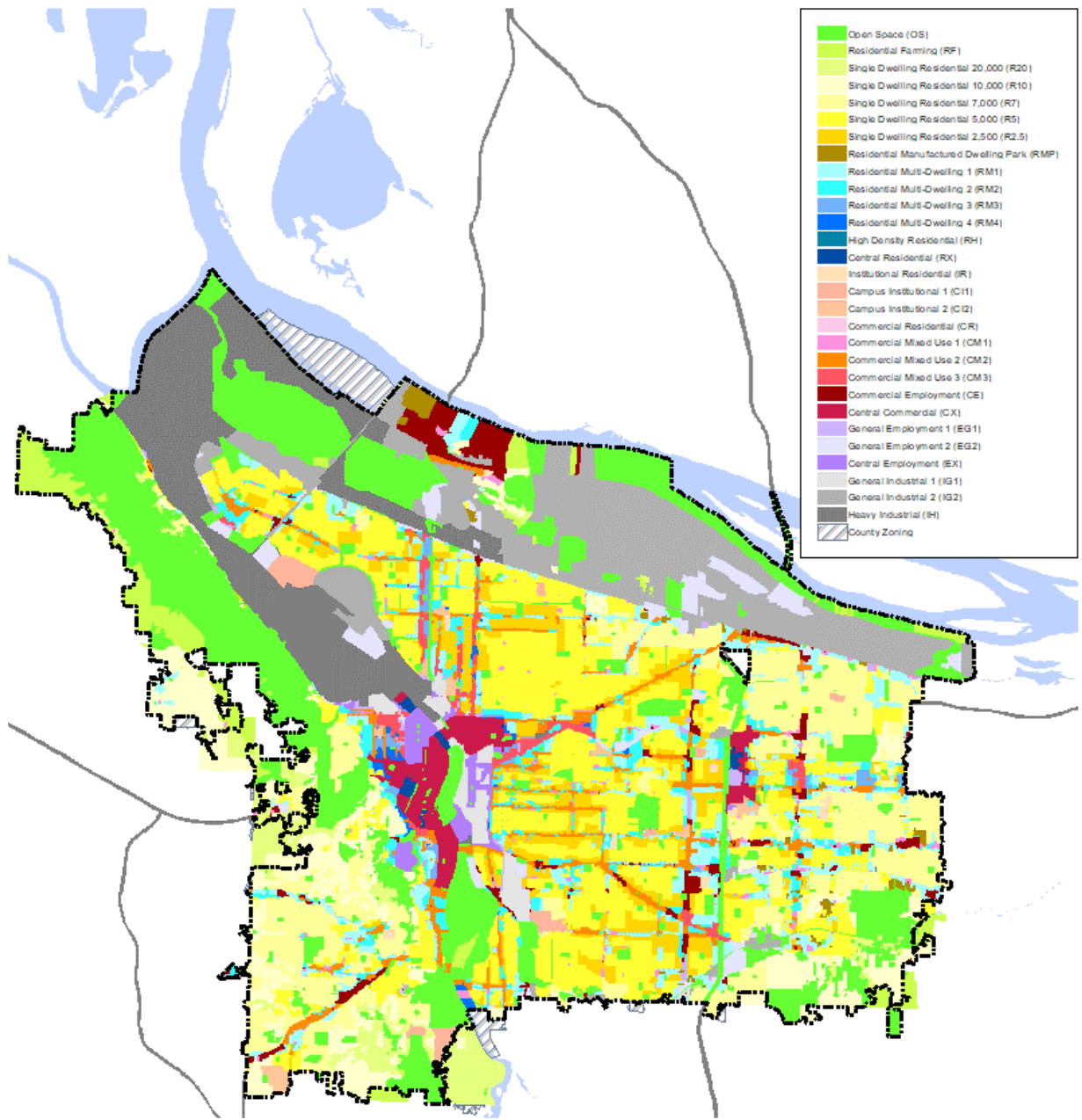
Industrial and employment uses are allowed outright or conditionally in the IH, IG1, IG2, EG1, EG2 and EX base zones. Examples of uses are warehouse, manufacturing and production, freight movement, aviation, vehicle service and repair, self-service storage, agriculture, and commercial recreation. Development patterns are typically large buildings or warehouse type structures with surrounding parking and loading areas. Sites generally have medium to low building coverage and the buildings are typically set back from the street and are arranged in irregular lot patterns.



Industrial and employment uses have similar negative impacts as other uses, including vegetation clearing, grading, filling and soil compaction, impervious surfaces, landscaping with non-native plants, generating pollutants and creating edge impacts (e.g., noise, light).

Some industrial activities require the use of water in the manufacturing processes (e.g. cooling equipment) and draw substantial amounts of water from wells and public water sources. The resulting effluent, which is typically warm, may be discharged to receiving waters, such as a river, and influence in-water temperature. Cool water temperature is a fundamental requirement for many native aquatic species in this region, particularly federal Endangered Species Act-listed aquatic species. Industries that discharge effluent into water bodies are generally required to obtain a discharge permit through the Oregon Department of Environmental Quality.

Industrial areas can contribute high quantities of heavy metals and other toxic material to the soil, water, and air, but are typically regulated to manage the impacts. In addition, the use, storage, and transport of hazardous materials, waste storage and recycling, and similar activities often occurs in industrial areas and can require special permitting. Shipping via trucks can have a negative impact on water quality and air quality.

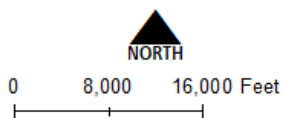


- Open Space (OS)
- Residential Farming (RF)
- Single Dwelling Residential 20,000 (R20)
- Single Dwelling Residential 10,000 (R10)
- Single Dwelling Residential 7,000 (R7)
- Single Dwelling Residential 5,000 (R5)
- Single Dwelling Residential 2,500 (R2.5)
- Residential Manufacture Dwelling Park (RMP)
- Residential Multi-Dwelling 1 (RM1)
- Residential Multi-Dwelling 2 (RM2)
- Residential Multi-Dwelling 3 (RM3)
- Residential Multi-Dwelling 4 (RM4)
- High Density Residential (RH)
- Central Residential (RX)
- Institutional Residential (IR)
- Campus Institutional 1 (CI1)
- Campus Institutional 2 (CI2)
- Commercial Residential (CR)
- Commercial Mixed Use 1 (CM1)
- Commercial Mixed Use 2 (CM2)
- Commercial Mixed Use 3 (CM3)
- Commercial Employment (CE)
- Central Commercial (CX)
- General Employment 1 (EG1)
- General Employment 2 (EG2)
- Central Employment (EX)
- General Industrial 1 (IG1)
- General Industrial 2 (IG2)
- Heavy Industrial (IH)
- County Zoning

**Map 18: Existing Base Zones**

- Major Waterbodies
- City of Portland

Updated: April 2020



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### Commercial Uses

Commercial uses are allowed outright or conditionally in the CR, CM1, CM2, CM3, CE and CX base zones. Commercial uses include office, retail, vehicle servicing and repair, self-service storage, event facilities, hotels, apartments and condos and associated parking, churches, daycare and single-dwelling houses. Institutional uses include schools, churches and campuses. Development of new uses would involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces, landscaping with non-native plants and new edge impacts (e.g., noise, light, vibration), all of which impact the natural resources. In commercial base zones, development is allowed to cover most of the site with impervious surfaces. Replacement of existing uses could preclude opportunities to restore natural resources.

### Residential Uses

Residential uses are allowed outright or conditional in the RF, R20, R10, R7, R5, R2.5, R4, R3, R2, R1, RX and RMP base zones. Residential uses include single dwelling houses, townhomes, duplexes, triplexes and quadplexes, accessory dwelling units, apartments, condos and manufactured housing development. Residential uses have similar negative impacts as other uses, including vegetation clearing, grading, filling and soil compaction, impervious surfaces, landscaping with non-native plants, generating pollutants and creating edge impacts (e.g., noise, light, pets). More intense development including condos and apartments often cover most of the site with impervious surfaces. Less intense development including single dwellings and plexes may have less impervious surface but include more landscaping with non-native vegetation including lawn and use of fertilizers and pesticides.

### Campus Institutional Uses

Campus institutional uses are allowed outright or conditionally in the CI1, CI2 and IR base zones. Institutional uses include schools, churches and campuses. Development of new uses would involve vegetation clearing, grading, filing, and soil compaction, as well as the addition of impervious surfaces, landscaping with non-native plants and new edge impacts (e.g., noise, light, vibration), all of which impact the natural resources.

### Open Space

Undeveloped open space has the least amount of disturbance of all urban uses; however, all open spaces can be formally developed with trails, landscaping and other uses. Trails can create different levels of impact on natural resources depending on trail design and location. Examples of trail-related impacts are fragmenting habitats and creating opportunities for invasive plant intrusion into a habitat area. Landscaping with non-native plants and the use of irrigation, herbicides, pesticides, and fertilizers can have detrimental effects on natural resources.

Impacts associated with more active open space uses can be similar to residential or commercial development. For example, sports fields or golf courses generally require significant grading and vegetation management. Some open space uses require development of parking lots, which can generate stormwater runoff. Areas used for large-scale events often experience significant soil compaction, resulting in nearly impervious surfaces.

### Basic Utilities

Basic utilities are infrastructure services such as water and sewer pump stations, electrical substations, and power line corridors that need to be located in or near areas where the utility service is provided. Construction and maintenance of utilities can have negative impacts on natural resources. Corridors cleared of vegetation can increase wind and light penetration into adjacent habitat areas and can provide opportunities for intrusion of invasive, non-native plant species. Construction of basic utility facilities often fragments wildlife habitat. Operation of existing facilities has few adverse impacts on natural resources, except in the case of overhead electrical lines, which must be cleared of high structure vegetation.

### Mining

Mining is allowed as a conditional use in the Open Space (OS) base zone and is prohibited in all other zones. Mining has the most severe environmental impacts of all uses allowed in the OS zone, as it generally eliminates all natural resources from the area being mined and often results in long-term water quality degradation. Once the mining operation is closed, enhancement of soil and vegetation is possible, but natural resources often cannot be fully restored.

### Radio and Television Broadcast Facilities

Low powered transmitters, such as cordless telephones and citizen band radios, are allowed in all zones. More powerful and larger radio, television, and cell phone broadcast facilities are allowed in all zones subject to limitations or as conditional uses. The impacts of these facilities are minimal as compared to other uses, except in areas that are zoned open space. Certain of these facilities can pose hazards to migratory birds. During bad weather, birds fly lower and may be disoriented by the lights of the towers and may run into towers or guy wires.

### Rail Lines and Utility Corridors

Construction of rail lines often requires substantial quantities of excavation and fill to meet the 0-3 percent slope standards. Generally, additional grading results in natural resource disturbance and degradation of soil, vegetation and wildlife habitat. Most rail corridors are maintained by extensive chemical vegetation treatment with a potential for ground and surface water impacts. Rail corridors can also create wildlife hazards or barriers to wildlife movement.

Rail and utility corridors can pose additional risk of wildfire. Rail lines can cause sparks that can ignite dry vegetation. Utility corridors typically must be kept clear of tall vegetation that could

harm overhead facilities. Topping or removal of trees is a common practice in utility corridors. Topped trees are more susceptible to disease and are less inhabitable by wildlife.

#### Other Land Use and Enabling Procedures

There are certain allowed uses and enabling procedures that are not assigned to a single category by the City zoning code. These include infrastructure, nonconforming situations, land divisions, partitions and property line adjustments.

*Infrastructure* – Infrastructure uses are accessory to urban development and include roads, water, sewer, electric, television lines and other public and private utilities not described by the zoning code category “basic utilities.” Infrastructure is allowed in all city zones. Some of these uses are regulated by city public works and building codes. The uses generally have similar impacts to other development activities like vegetation clearing, soil grading, piping streams, etc. Transportation infrastructure creates impervious surfaces that increase stormwater runoff and decrease infiltration, contributes to urban heat island and can create wildlife movement barriers. Vehicle use of transportation infrastructure, particularly single occupancy gasoline vehicles, can decrease air quality, increase public health risks and contribute towards climate change.

*Land Divisions, Partitions and Property Line Adjustments* – These are procedures that establish lots or relocate property lines within a zone. While the act of adjusting or creating lot lines does not directly impact resources, the new or modified lots may allow more conflicting uses or a greater intensity of development than the original lots. Often the outcome of adjusting lot lines or creating lots is to increase development opportunities, thus increasing impacts on natural resources.

<b>Table 9: Employment and Industrial Zone Primary Uses</b>						
<b>Use Categories</b>	<b>EG1</b>	<b>EG2</b>	<b>EX</b>	<b>IG1</b>	<b>IG2</b>	<b>IH</b>
<b>Residential Categories</b>						
Household Living	N	N	Y	CU [1]	CU [1]	CU [1]
Group Living	N	N	L/CU [2]	N	N	N
<b>Commercial Categories</b>						
Retail Sales And Service	L/CU [3]	L/CU [3]	Y	L/CU [4]	L/CU [5]	L/CU [6]
Office	Y	Y	Y	L/CU [4]	L/CU [5]	L/CU [6]
Quick Vehicle Servicing	Y	Y	N	Y	Y	Y
Vehicle Repair	Y	Y	Y	Y	Y	Y
Commercial Parking	CU [15]	CU [15]	CU [15]	CU [15]	CU [15]	CU [15]
Self-Service Storage	Y	Y	L [7]	Y	Y	Y
Commercial Outdoor Recreation	Y	Y	Y	CU	CU	CU
Major Event Entertainment	CU	CU	CU	CU	CU	CU
<b>Industrial Categories</b>						
Manufacturing And Production	Y	Y	Y	Y	Y	Y
Warehouse And Freight Movement	Y	Y	Y	Y	Y	Y
Wholesale Sales	Y	Y	Y	Y	Y	Y
Industrial Service	Y	Y	Y	Y	Y	Y
Bulk Fossil Fuel Terminal	L [17]	L [17]	N	L [17]	L [17]	L [17]
Railroad Yards	N	N	N	Y	Y	Y
Waste-Related	N	N	N	L/CU [8]	L/CU [8]	L/CU [8]
<b>Institutional Categories</b>						
Basic Utilities	Y/CU [12]	Y/CU [12]	Y/CU [12]	Y/CU [13]	Y/CU [13]	Y/CU [13]
Community Service	L [9]	L [9]	L [10]	L/CU [11]	L/CU [11]	L/CU [11]
Parks And Open Areas	Y	Y	Y	Y	Y	Y
Schools	Y	Y	Y	N	N	N
Colleges	Y	Y	Y	N	N	N
Medical Centers	Y	Y	Y	N	N	N
Religious Institutions	Y	Y	Y	N	N	N
Daycare	Y	Y	Y	L/CU [11]	L/CU [11]	L/CU [11]
<b>Other Categories</b>						
Agriculture	L [16]	L [16]	L [16]	L [16]	L [16]	L [16]
Aviation And Surface Passenger Terminals	CU	CU	CU	CU	CU	CU
Detention Facilities	CU	CU	CU	CU	CU	CU
Mining	N	N	N	CU	CU	CU
Radio Frequency Transmission Facilities	L/CU [14]	L/CU [14]	L/CU [14]	L/CU [14]	L/CU [14]	L/CU [14]
Rail Lines And Utility Corridors	Y	Y	Y	Y	Y	Y

Y = Yes, Allowed

CU = Conditional Use Review Required

L = Allowed, But Special Limitations

N = No, Prohibited

<b>Table 10: Commercial Zone Primary Uses</b>						
<b>Use Categories</b>	<b>CR</b>	<b>CM1</b>	<b>CM2</b>	<b>CM3</b>	<b>CE</b>	<b>CX</b>
<b>Residential Categories</b>						
Household Living	Y	Y	Y	Y	Y	Y
Group Living	L/CU [1]	L/CU [1]	L/CU [1]	L/CU [1]	L/CU [1]	L/CU [1]
<b>Commercial Categories</b>						
Retail Sales And Service	L [2]	L [2]	Y	Y	Y	Y
Office	L [2]	L [2]	Y	Y	Y	Y
Quick Vehicle Servicing	N	L [2]	L [2]	L [2]	Y	N
Vehicle Repair	N	N	Y	Y	Y	L [5]
Commercial Parking	N	N	L [9]	L [9]	Y	CU [9]
Self-Service Storage	N	N	N	L [4]	L [4]	L [4]
Commercial Outdoor Recreation	N	N	Y	Y	Y	Y
Major Event Entertainment	N	N	CU	CU	CU	Y
<b>Industrial Categories</b>						
Manufacturing And Production	N	L/CU [3,5]	L/CU [3,5]	L/CU [3,5]	L/CU [3,5]	L/CU [3,5]
Warehouse And Freight Movement	N	N	N	L [3,5]	L [3,5]	N
Wholesale Sales	N	N	L [3,5]	L [3,5]	L [3,5]	L [3,5]
Industrial Service	N	N	CU [3,5]	CU [3,5]	CU [3,5]	CU [3,5]
Bulk Fossil Fuel Terminal	N	N	N	N	N	N
Railroad Yards	N	N	N	N	N	N
Waste-Related	N	N	N	N	N	N
<b>Institutional Categories</b>						
Basic Utilities	Y/CU [8]	Y/CU [8]	Y/CU [8]	Y/CU [8]	Y/CU [8]	Y/CU [8]
Community Service	L/CU [6]	L/CU [6]	L/CU [6]	L/CU [6]	L/CU [6]	L/CU [8]
Parks And Open Areas	Y	Y	Y	Y	Y	Y
Schools	Y	Y	Y	Y	Y	Y
Colleges	Y	Y	Y	Y	Y	Y
Medical Centers	Y	Y	Y	Y	Y	Y
Religious Institutions	Y	Y	Y	Y	Y	Y
Daycare	Y	Y	Y	Y	Y	Y
<b>Other Categories</b>						
Agriculture	L [10]	L [10]	L/CU [11]	L/CU [12]	L/CU [12]	L/CU [11]
Aviation And Surface Passenger Terminals	N	N	N	N	CU	CU
Detention Facilities	N	N	N	CU	CU	CU
Mining	N	N	N	N	N	N
Radio Frequency Transmission Facilities	N	L/CU [7]	L/CU [7]	L/CU [7]	L/CU [7]	L/CU [7]
Rail Lines And Utility Corridors	N	CU	CU	CU	CU	CU

Y = Yes, Allowed

CU = Conditional Use Review Required

L = Allowed, But Special Limitations

N = No, Prohibited

<b>Table 11: Mult-Dwelling Zone Primary Uses</b>						
<b>Use Categories</b>	<b>RM1</b>	<b>RM2</b>	<b>RM3</b>	<b>RM4</b>	<b>RX</b>	<b>RMP</b>
<b>Residential Categories</b>						
Household Living	Y	Y	Y	Y	Y	Y
Group Living	L/CU [1]	L/CU [1]	L/CU [1]	L/CU [1]	L/CU [1]	N
<b>Commercial Categories</b>						
Retail Sales And Service	L [2]	L [2]	L [2]	L [2]	L [2]	L [11]
Office	L [2]	L [2]	L [2]	L [2]	L [2]	N
Quick Vehicle Servicing	N	N	N	N	N	N
Vehicle Repair	N	N	N	N	N	N
Commercial Parking	N	N	N	N	CU [3]	N
Self-Service Storage	N	N	N	N	N	N
Commercial Outdoor Recreation	N	N	N	N	N	N
Major Event Entertainment	N	N	N	N	N	N
<b>Industrial Categories</b>						
Manufacturing And Production	N	N	N	N	N	N
Warehouse And Freight Movement	N	N	N	N	N	N
Wholesale Sales	N	N	N	N	N	N
Industrial Service	N	N	N	N	N	N
Bulk Fossil Fuel Terminal	N	N	N	N	N	N
Railroad Yards	N	N	N	N	N	N
Waste-Related	N	N	N	N	N	N
<b>Institutional Categories</b>						
Basic Utilities	L/CU [9]	L/CU [9]	L/CU [9]	L/CU [9]	L/CU [9]	L/CU [9]
Community Service	L/CU [5]	L/CU [5]	L/CU [5]	L/CU [5]	L/CU [4]	L/CU [5]
Parks And Open Areas	L/CU [6]	L/CU [6]	Y	Y	Y	L/CU [6]
Schools	CU	CU	CU	CU	L/CU [4]	CU
Colleges	CU	CU	CU	CU	CU	CU
Medical Centers	CU	CU	CU	CU	CU	CU
Religious Institutions	CU	CU	CU	CU	CU	CU
Daycare	L/CU [7]	L/CU [7]	L/CU [7]	L/CU [7]	Y	L/CU [7]
<b>Other Categories</b>						
Agriculture	L [10]	L [10]	L [10]	L [10]	L [10]	L [10]
Aviation And Surface Passenger Terminals	N	N	N	N	N	N
Detention Facilities	N	N	N	N	N	N
Mining	N	N	N	N	N	N
Radio Frequency Transmission Facilities	L/CU [8]	L/CU [8]	L/CU [8]	L/CU [8]	L/CU [8]	L/CU [8]
Railroad Lines And Utility Corridors	CU	CU	CU	CU	CU	CU

Y = Yes, Allowed

CU = Conditional Use Review Required

L = Allowed, But Special Limitations

N = No, Prohibited



<b>Table 12: Single-Dwelling Zone Primary Uses</b>						
<b>Use Categories</b>	<b>RF</b>	<b>R20</b>	<b>R10</b>	<b>R7</b>	<b>R5</b>	<b>R2.5</b>
<b>Residential Categories</b>						
Household Living	Y	Y	Y	Y	Y	Y
Group Living	CU	CU	CU	CU	CU	CU
<b>Commercial Categories</b>						
Retail Sales And Service	CU [10]	CU [10]	CU [10]	CU [10]	CU [10]	CU [10]
Office	N	N	N	N	N	N
Quick Vehicle Servicing	N	N	N	N	N	N
Vehicle Repair	N	N	N	N	N	N
Commercial Parking	N	N	N	N	N	N
Self-Service Storage	N	N	N	N	N	N
Commercial Outdoor Recreation	N	N	N	N	N	N
Major Event Entertainment	N	N	N	N	N	N
<b>Industrial Categories</b>						
Manufacturing And Production	CU [6]	N	N	N	N	N
Warehouse And Freight Movement	N	N	N	N	N	N
Wholesale Sales	N	N	N	N	N	N
Industrial Service	N	N	N	N	N	N
Bulk Fossil Fuel Terminal	N	N	N	N	N	N
Railroad Yards	N	N	N	N	N	N
Waste-Related	N	N	N	N	N	N
<b>Institutional Categories</b>						
Basic Utilities	L/CU [5]	L/CU [5]	L/CU [5]	L/CU [5]	L/CU [5]	L/CU [5]
Community Service	CU [1]	CU [1]	CU [1]	CU [1]	CU [1]	CU [1]
Parks And Open Areas	L/CU [2]	L/CU [2]	L/CU [2]	L/CU [2]	L/CU [2]	L/CU [2]
Schools	CU	CU	CU	CU	CU	CU
Colleges	CU	CU	CU	CU	CU	CU
Medical Centers	CU	CU	CU	CU	CU	CU
Religious Institutions	CU	CU	CU	CU	CU	CU
Daycare	L/CU [3]	L/CU [3]	L/CU [3]	L/CU [3]	L/CU [3]	L/CU [3]
<b>Other Categories</b>						
Agriculture	L [7]	L [7]	L/CU [8]	L/CU [8]	L [9]	L [9]
Aviation And Surface Passenger Terminals	CU	N	N	N	N	N
Detention Facilities	N	N	N	N	N	N
Mining	CU	N	N	N	N	N
Radio Frequency Transmission Facilities	L/CU [4]	L/CU [4]	L/CU [4]	L/CU [4]	L/CU [4]	L/CU [4]
Railroad Lines And Utility Corridors	CU	CU	CU	CU	CU	CU

Y = Yes, Allowed

CU = Conditional Use Review Required

<b>Table 13: Open Space and Campus Institutional Uses</b>				
	<b>OS</b>	<b>CI1</b>	<b>CI2</b>	<b>IR</b>
<b>Use Categories</b>				
<b>Residential Categories</b>				
Household Living	N	N	Y	Y
Group Living	N	N	Y	Y [9]
<b>Commercial Categories</b>				
Retail Sales And Service	CU [1]	CU [1]	Y	L/CU [10]
Office	N	N	Y	L/CU [10]
Quick Vehicle Servicing	N	N	N	N
Vehicle Repair	N	N	N	N
Commercial Parking	N	N	Y	N
Self-Service Storage	N	N	N	N
Commercial Outdoor Recreation	CU	N	N	N
Major Event Entertainment	N	CU	CU	CU
<b>Industrial Categories</b>				
Manufacturing And Production	CU [6]	L [2]	L/CU [2]	N
Warehouse And Freight Movement	N	N	N	CU
Wholesale Sales	N	N	N	N
Industrial Service	N	L [2]	L/CU [2]	N
Bulk Fossil Fuel Terminal	N	N	N	N
Railroad Yards	N	N	N	CU
Waste-Related	N	N	N	N
<b>Institutional Categories</b>				
Basic Utilities	L/CU [5]	L/CU [3]	L/CU [3]	L/CU [3]
Community Service	CU [4]	CU [4]	Y	CU [4]
Parks And Open Areas	L/CU [2]	L/CU [5]	L/CU [5]	L/CU [5]
Schools	CU	N	N	L/CU [5]
Colleges	N	Y/CU [6]	Y/CU [6]	L/CU [11]
Medical Centers	N	Y	Y	L/CU [11]
Religious Institutions	N	CU	CU	CU
Daycare	CU	Y	Y	L/CU [12]
<b>Other Categories</b>				
Agriculture	L [7]	L [7]	L [7]	L [7]
Aviation And Surface Passenger Terminals	N	N	N	N
Detention Facilities	N	N	N	N
Mining	CU	N	N	N
Radio Frequency Transmission Facilities	L/CU [3]	L/CU [8]	L/CU [8]	L/CU [8]
Rail Lines and Utility Corridors	CU	CU	CU	CU

Y = Yes, Allowed

CU = Conditional Use Review Required

## **D.5. General ESEE Analysis**

This section presents the general ESEE analysis and recommendation. This portion of the ESEE analysis is intended to describe the potential consequences of allowing, limiting, and prohibiting conflicting uses for categories of significant natural resources.

The general ESEE analysis includes a subsection for each of the four ESEE factors evaluated – economic, social, environmental and energy. Each subsection includes a narrative that describes the factors being assessed. For example, the social analysis addresses cultural and historic values, education, physical health, mental health, etc. Following the narrative there is a summary of the consequences of allowing, limiting or prohibiting conflicting uses and a recommendation based on each factor. The recommendation is intended to balance the consequences to produce a recommended level of protection taking only that factor into account.

The recommendations of each ESEE factor are evaluated together to produce an overall ESEE general recommendation. Consistent with the 2035 Comprehensive Plan, the intent of the general ESEE is to recommend program decisions that meet multiple objectives and optimize the economic, social, environmental, and energy consequences for natural resources and conflicting uses in Portland.

The general ESEE analysis and general recommendation establishes a consistent baseline for categories of natural resource features the resource sites. In Volume 2, Part A – G, the ESEE general recommendations are affirmed, clarified or modified for each resource site to address specific conditions, goals, and policies. In Volume 2, Part A – G, ESEE decisions are made for resource sites that contain natural resources that are not a Title 13 Habitat Conservation Area; resources sites with only Title 13 Habitat Conservation Areas require no additional ESEE analysis or decision.

## D.5.a. Economic Consequences

**This portion of the analysis summarizes the economic consequences of protecting significant natural resources that are not a Title 13 Habitat Conservation Area.** The economic consequences are expressed as the qualitative and relative costs, benefits, and impacts of allowing, limiting, or prohibiting conflicting uses. The economic analysis relies on current information related to:

- The economic goods and services provided by the conflicting uses (e.g., development); and
- The ecosystem services provided by the significant natural resources (e.g., slope stability).

### D.5.a.1. Goods and Services Provided by Conflicting Uses

The information related to the economic goods and services provided by conflicting uses comes from the *Economic Opportunities Analysis* (2016), which was adopted as factual basis for the 2035 Comprehensive Plan.

#### Employment and Wages

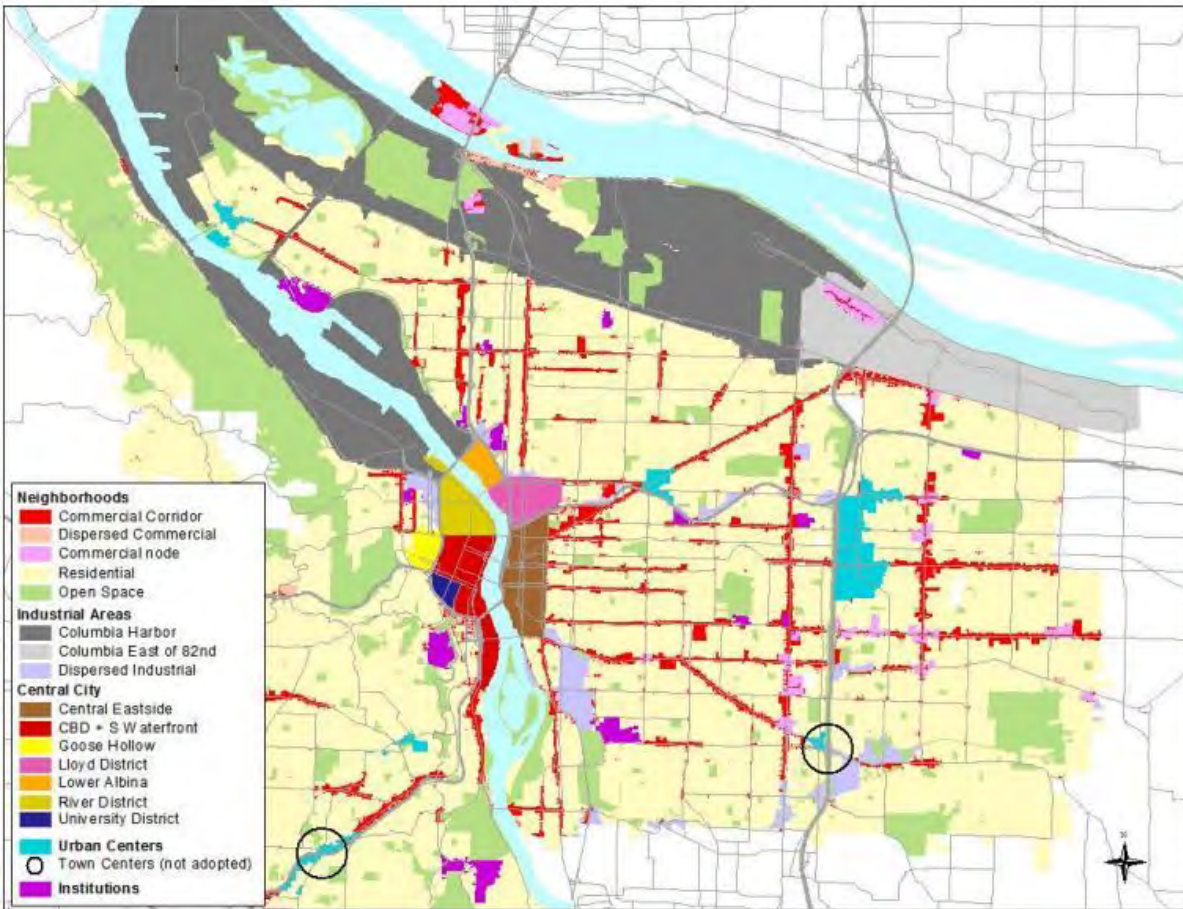
Portland is the regional job center, providing 38% of the 1.02 million employment base of the Portland-Metro Service Area. The largest employment sectors are institutional, office and manufacturing. Manufacturing is a particularly important sector with above-average wages and a significant multiplier effect – one manufacturing job supports 3.69 total jobs in the region.

Since 1980, the wage distribution of the economy has been changing, and job growth has become increasingly polarized in low- and high-wage occupations with shrinking middle-wage job opportunities. This national trend is mirrored in the state and the region. For the majority of the workforce that does not have a 4-year college degree, middle-wage job opportunities are primarily in industrial occupations, as seen in the Columbia Harbor (aka Columbia Corridor), and administrative-support occupations that are prevalent in all of the Central City districts (see Map 19).

Wage inequality has become a prominent feature of the Portland area economy's growth since 2000. The region's share of jobs in middle-wage occupations shrunk from 58% in 2000 to 48% in 2018, nearly twice the pace of the national change. A third of Multnomah County households (34%) were poor in 2017, up from 23% in 2008, measured by income self-sufficiency metrics. This trend reduces upward-mobility alternatives for most workers who do not have a bachelor's degree. Large concentrations of high-wage job growth and high-income housing growth have put upward pressure on local prices, while wages in low and middle-wage occupations have remained relatively flat.

Most of the region's middle-wage jobs are in industrial and office-support occupations (72% in 2018), which are particularly concentrated in industrial, employment and central commercial

districts. While many metropolitan economies have been able to generate substantial middle-wage job growth and shared-prosperity outcomes, Portland is among the leading regions nationally in wage-polarized growth. Much of the region's growing wage inequality is explained by global and national factors, such as automation and economic globalization changes that have replaced many middle-wage jobs.



Map 19: Economic Opportunity Analysis Subareas (Hovee, 2012)

That said, wide regional differences in the wage distribution of new jobs are also influenced by policy choices that guide how regions grow, including the Portland region’s tight growth capacity of industrial land, freight infrastructure, and vocational education.

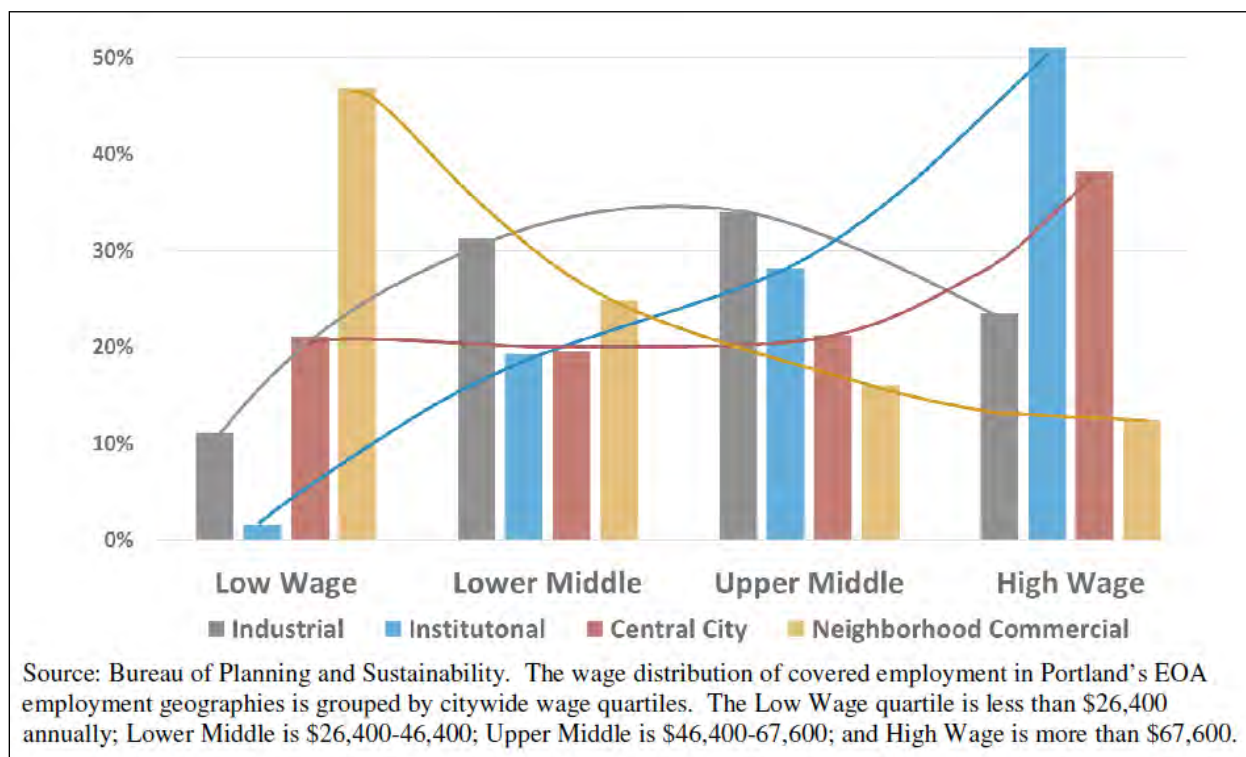


Figure 8: Portland Wage Distribution

The Metro forecast allocates 147,000 additional jobs to the City of Portland by 2035 – an annual average growth rate of 1.3%. This represents a 27% capture rate of the regional employment growth, which is consistent with the historic long-term capture rate for the City of Portland. A goal of the City of Portland is to attract a higher percentage of jobs that provide a living-wage.

The 2035 Comprehensive Plan demonstrated sufficient land supply for job growth projections through 2035. Figure 8 shows the supply and demand of land per job sector. All sectors, with the exception of industrial districts, have more land supply than demand for employment. There is a risk within the industrial districts and any reduction of land supply could result in a shift of employment from middle wage industrial jobs to other job sectors and could exacerbate the wage-polarization in Portland. The two main industrial districts – the Columbia Harbor and the Columbia East of 82nd (see Map 7) – are not included in this project and therefore not part of this ESEE analysis.

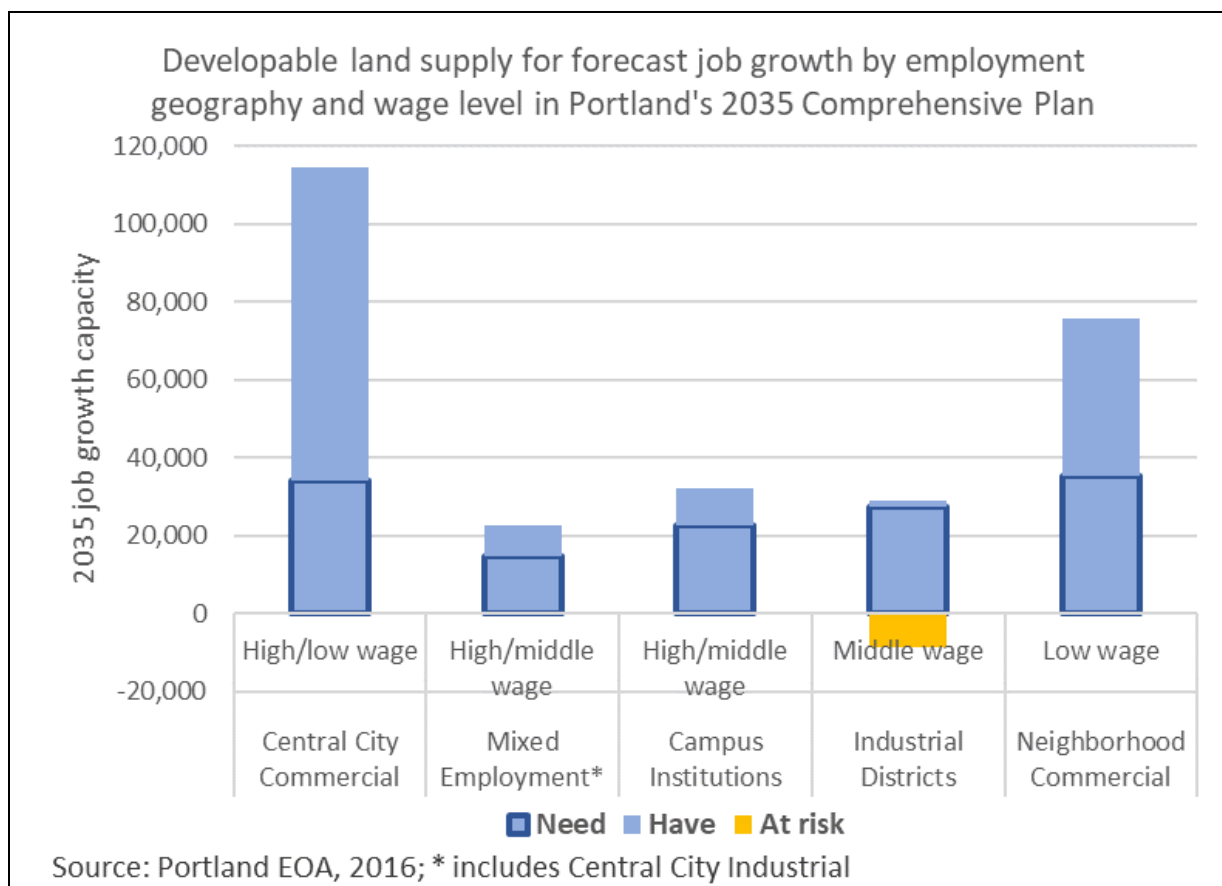


Figure 9: Land Supply and Employment Demand in Portland

Generally speaking, *prohibiting* or *limiting* conflicting uses within areas of significant natural resources would have a negative impact on goods and services provided by employment by limiting the size or extent of commercial, employment or industrial development. However, neither the industrial districts nor the Central City are part of this project. Other job sectors have surplus land supply to meet job growth. Therefore, *limiting* conflicting uses has no impact on land supply needed to meet projected job growth through 2035.

In addition, many of the significant natural resources addressed by this ESEE are also regulated by state or federal rules. For example, the federal government generally *prohibits* development, other than transportation infrastructure and utilities, within river and stream floodways and *limits* development within river and stream flood areas. State and federal rules *strictly limit* development within waters of the state, including wetlands. Areas that are designated critical habitat for Endangered Species Act-listed species have limitations on development as well. The majority of these state and federal regulations are related to riparian corridors. Therefore, the local limits on development within significant riparian corridors have a negligible negative impact on overall employment throughout the city. There may be larger negative impact of local limits on development within significant wildlife habitat areas outside of riparian corridors.

### Traded Sector

Traded sector businesses are companies that sell many of their products and services to people and businesses outside the Portland region, nationally and globally. Examples include most manufacturing and many professional and business service companies as well as smaller craft businesses with local and global customers. Traded sector businesses may be locally owned and can be small, medium or large in size. Portland is considered a small to medium-sized hub in the national and international business and trade community.

Traded sector businesses are important to the local economy. By selling to people and businesses outside Portland, locally based traded sector businesses bring new money into the local economy. The additional income brought in from exporting goods is further circulated within the local economy as these local firms purchase additional services. Traded sector productivity and market size tends to lead these businesses to offer higher wage levels. Jobs at traded sector companies help anchor the city's middle class employment base by providing stable, living wage jobs for residents. For these reasons, Portland's traded sector businesses have the power to drive and expand Portland's economy.

Portland has a strong traded sector job base. The EcoNorthwest *Evaluation of Economic Specialization* (2009) found that the City of Portland's 2<sup>nd</sup> and 5<sup>th</sup> largest economic specializations are wholesale trade and transportation, which are the city's freight distribution industries. In 2008, the Portland region's traded sector businesses brought \$22 billion of export income into the regional economy, which was 21 percent of total regional economic output. Portland ranked second among U.S. metropolitan areas in export growth over five years. The 118,700 jobs in Portland's industrial districts accounted for 30 percent of the city's employment, including 30,400 manufacturing jobs and 44,000 wholesale and transportation jobs, (Bureau of Planning and Sustainability, 2012). Part of the reason for the strong traded sector is Portland's proximity to shipping channels in the Columbia and Willamette rivers, rail lines and an international airport. However, because the Columbia Harbor and Columbia East of 82<sup>nd</sup> (see Map 7) are not part of this project, there are no ESEE consequences to these industrial districts.

Portland's Climate Action Plan calls for protection of existing intermodal freight facilities, and support for centrally located and regionally significant industrial areas that may provide for future intermodal facilities. Given geographic and competitive challenges, Portland's role as a leading exporter is fragile because of the limits of the current transportation system. The system is burdened with many obsolete, end-of-life assets (e.g. the functional condition of many roadways and bridges.) Maintaining a cutting-edge built environment is an important aspect of sustaining the region's freight and trade dependent economy.

Generally speaking, *prohibiting or limiting* conflicting uses within areas of significant natural resources would have a negative impact on the traded sector economy by limiting the size or



extent of industrial development; however, the impact is negligible because nearly all of the traded sector economy is located in the Columbia Harbor or Columbia East of 82<sup>nd</sup>, two areas that are not subject to this ESEE.

### Housing

Housing can be a conflicting use with respect to natural resources because development of new houses, condos and apartments can remove or displace significant natural resources.

Maintaining sufficient land to accommodate population growth in a range of housing options is a goal for Portland. The 2035 Comprehensive Plan demonstrated capacity for 201,000 additional housing units, which is more than the Metro growth projection for Portland of 123,000 housing units. The Residential Infill Project is anticipated to increase Portland's capacity by roughly 35,000 units.

The following information about housing is from the report the *State of Housing in Portland*, 2018.

Portland is the 26th most populous city in the United States and the 5th largest city on the west coast. Within the last five years, Portland has moved up two spots—from 28th to 26th. Between 2000 and 2010 Portland grew by 54,655 people. That puts the average annual growth rate at just under 1 percent. In comparison, Portland grew by 44,046 people between 2011 and 2016—that puts the average annual growth rate about 1.5 percent—a much faster rate of growth. Unlike the population growth, formation of households is occurring at a slower pace. Between 2000 and 2010, households grew 11 percent while between 2011 and 2016, households grew by 4 percent. The noticeable shift is the increasing share of households.

At the neighborhood level, the Central City, MLK-Alberta, Lents-Foster, and East Portland are gaining the greatest number of population growth but in terms of most household growth. Northwest, Central City, South Portland-Marquam Hill, and Interstate Corridor are gaining the greatest number.

In 2017, annual production and permitting levels were higher than at any point in the last fifteen years. Portland added 7,300 units to the housing stock in 2017—a 2 percent increase overall. Multifamily unit production continues to constitute the bulk of new residential development with 91 percent of all new housing units falling within the multifamily category.

The City of Portland recently approved the Residential Infill Project (RIP) to increase the range of housing types. In the R2.5, R5 and R7 base zones RIP allows triplexes and fourplexes on lots. In addition, more opportunities exist for creating additional accessory dwelling units (ADUs) on lots by allowing two ADUs on a lot with a house and one ADU on a lot with a duplex. To qualify, lots are required to meet specific minimum lot sizes: R2.5=3,200 sq ft; R5= 4,500 sq ft; R7=5,000 sq ft. These housing type proposals are counterbalanced with new caps on building floor area that reduce the maximum size of the dwellings by  $\frac{1}{3}$  to  $\frac{1}{2}$  from what can typically be built in the R2.5, R5 and R7 base zones. Minimum parking requirements are removed for residential uses in

these zones, lowering the base cost for providing housing and reducing impacts to stormwater and potential tree canopy from previously required driveway impervious area. The result of RIP is reduced impacts on natural resources by reducing building floor area and removing parking requirements.

Overall, *limiting or prohibit* new housing in areas of significant natural resources may reduce the capacity of housing supply but will not impact Portland's ability to meet Metro growth projections through 2035. Generally speaking, *limiting or prohibiting* new housing development may affect the scale, location or type of housing that can be provided, but may not necessarily affect the number of potential dwelling units. If a portion of a site has limitations due to natural resources, housing can often be clustered to avoid the resources resulting in smaller lot sizes and/or dwelling units. *Limiting or prohibiting* new housing development may result in a slight increase in price to account for site planning or mitigation. This may have a long-term effect on the mix of housing types and size available on the market.

*Limiting or prohibiting* the conflicting uses could decrease development entitlement on some lots and could negatively impact the value of land for property owners. However, there are many factors that impact property value including access to improved streets and public transit, access to sewer and water, views, proximity to amenities (including tree canopy and natural areas), etc.

Further, due to state and federal rules that *prohibit or limit* development within rivers, streams, wetlands and flood areas, the impacts of local limitations on housing development within areas of significant riparian corridors is expected to have a small negative impact on the overall housing stock or value of land.

#### Property Values and Rent

Generally, as an area becomes more densely developed, property values and rents will rise as the concentration of businesses, residents, and customers make the area more attractive.

Homeownership rates in Portland generally have decreased in the last few years. This decrease varies by race and ethnicity. All but two communities—the Hispanic-Latino community and Native American community—experienced decreased homeownership rates from 2011-2016. In 2017, the median home sales price in Portland exceeded \$400,000 in over two-thirds (68 percent) of the neighborhoods in the city.

Rentership continues to increase steadily in Portland as seen from the increase to 47 percent in 2016 from 46 percent in 2011. Portland appears to be heading toward an even split between renter and homeowner households. In 2015 the overall rent growth in Portland was an average of 8 to 9 percent—one of the highest in the nation. Rent growth slowed in 2016 to an average rate of 7 percent over the previous year. In 2017, after years of citywide rent increases, Portland saw a slight softening in rents with a smaller overall rent growth of 2 percent.

Although property values and rents are determined by a number of complex factors, *limiting* or *prohibiting* new housing development significant natural resource areas may affect the scale, location or type of housing allowed and that may impact property value or rents. However, allowing new housing development within significant natural resource areas can have negative impacts on adjacent properties including increased risk of landslide or flooding, removal of trees that provide shade and reduce heat island affects and reducing the visual amenities provided by trees and water. This could reduce property value.

The existence of trees, greenspaces and other natural resources have been positively correlated with residential property values in Portland (EcoNorthwest, 2009). A Portland-based study done by Donovan and Butry in 2010 found that trees within 100 feet of houses added approximately \$8,870 to the price of a house, which represents 3.0% of sale price. Those trees also provide benefits such as cooling the air in the summer and attenuating rain in the winter. Natural resources contribute to the quality of neighborhood, local and regional recreation and trail systems, and also to the quality of views. Screening and buffering residential from industrial and commercial land uses can be provided by established trees and vegetation and can improve the economic value of both uses (e.g. noise reduction). Therefore, limiting new housing development in significant natural resource areas may maintain or increase property values.

### Tourism

Portland is viewed around the world has a city that protects its natural resources and invests in sustainability. Portland is a popular tourist destination with a variety of attractions that draw people to the area. These destinations include natural resources like the Willamette and Columbia Rivers and parks like Forest Park and Smith/Bybee Wetlands. Generally, limited conflicting uses within significant natural resource areas supports tourism. However, limitations can have negative impacts on tourism by reducing opportunity for new hotels, attractions, restaurants or shops within the resource areas.

## **D.5.a.2. Ecosystem Services Provided by Significant Natural Resources**

Natural resources provide ecosystem goods and services, which in turn provide economic and social value. Ecosystem services include water conveyance and purification, flood mitigation, air cooling and purification, carbon sequestration, soil stabilization, rain attenuation, soil fertilization, and pollination. Ecosystem goods include commodities like food, fuel, fisheries, timber, minerals, etc. Ecosystem goods also include supporting recreation and tourism.

Information related to ecosystem services comes from the following reports:

- ECONorthwest, *West Hayden Island Benefits/Costs Analysis*, 2012.
- ENTRIX, *West Hayden Island Environmental Foundation Study*, July 2010.
- ECONorthwest, *Economic Arguments for Protecting the Natural Resources of the East Buttes Area in Southeast Portland*, 2009.
- Bergstom, Loomis and Brown, *Defining, Valuing and Providing Ecosystem Goods and Services*, Natural Resources Journal, 2007.

- Banzhaf and Boyd, *What Are Ecosystem Services? The Need for Standardized Environmental Accounting Units*, 2006.
- Anielski and Wilson, *Counting Canada’s Natural Capital: Assessing the Real Value of Canada’s Boreal Ecosystems*, Pembina Institute, 2005.
- Olewiler, N., *The Value of Natural Capital in Settled Areas of Canada*, Published by Ducks Unlimited Canada and the Nature Conservancy of Canada, 2004.

Table 14 provides the economic value of the ecosystem services provided by natural resources (both riparian corridors and wildlife habitat) in Portland. Following the table is additional information about the ecosystem services provided by natural resources in Portland.

**Table 14: Ecosystem Services Valuation (2011\$/Acre/Year)**

Habitat Type	Air Purification	Carbon Sequestration	Water Purification	Wildlife Habitat Value	Total Value
Forest/Woodland	\$73–\$267	\$26–\$92	Not Quantified	\$309–\$516	\$408–\$875
Wetland	\$74–\$266	Not Quantified	\$153–\$664	\$3,095–\$11,347	\$3,322–\$12,277
Shrubland	\$30–\$110	\$24–\$88	Not Quantified	\$309–\$516	\$363–\$714
Grassland	\$24–\$89	\$24–\$88	Not Quantified	\$309–\$516	\$357–\$693
Shallow Water	Not Quantified	Not Quantified	Not Quantified	\$1,037–\$15,473	\$1,032–\$15,473

Source: ECONorthwest (2012)

### Forests and Woodlands

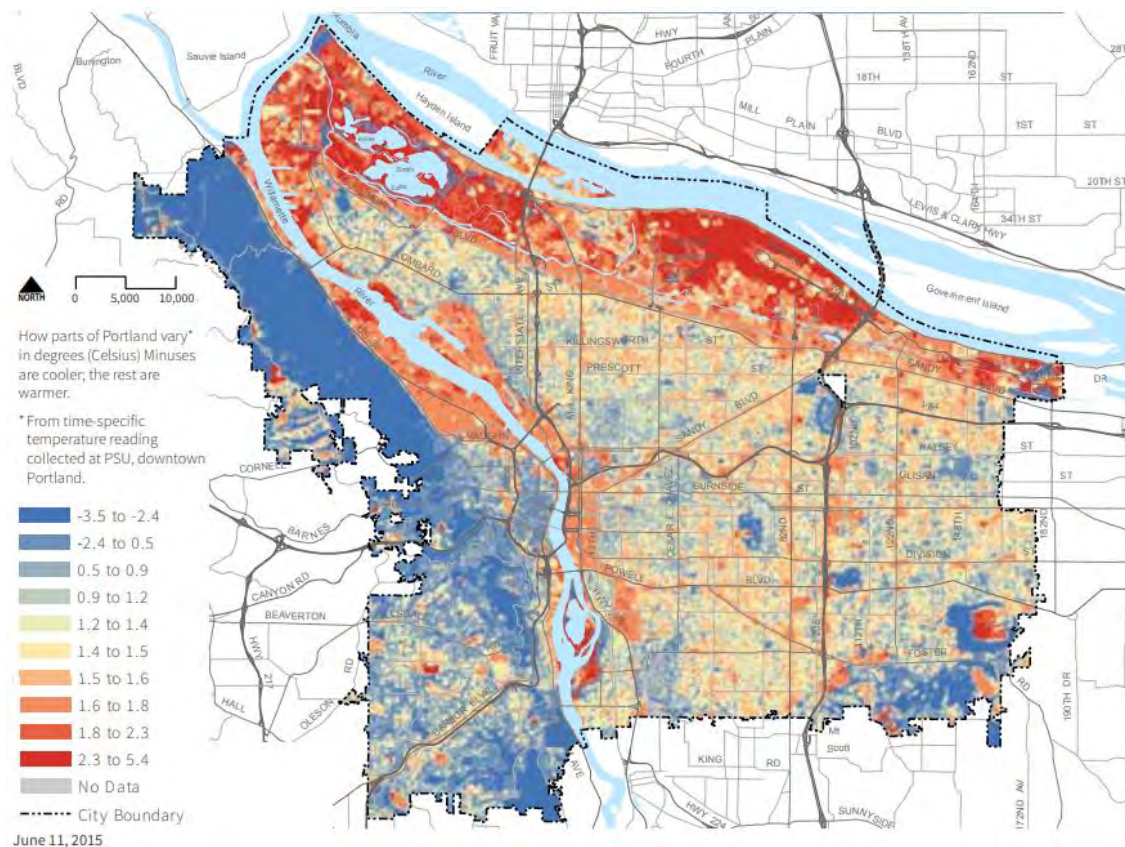
Forests and woodlands also provide air quality benefits from purification and pollutant removal. Table 15 below shows the kilograms of pollutant removal by forestland per acre per year and the economic value of those pollutants in avoided health care costs.

**Table 15: Annual Quantity and Value of Pollutant Removal by Forests and Woodlands (2011\$)**

Pollutant	Annual Kilograms Removed per Acre	Annual Value per Ton	Annual Value per Acre
CO	2.03	\$1,403	\$3
NO <sup>2</sup>	3.65	\$4,039—\$9,875	\$15—\$36
O <sup>3</sup>	14.57	\$2,019—\$9,875	\$29—\$144
PM <sup>10</sup>	10.53	\$6,593	\$69
SO <sup>2</sup>	2.83	\$2,418—\$9,546	\$7—\$27

Source: ECONorthwest, 2012

Extreme heat events are becoming more common in Portland. In the United States, extreme heat causes more deaths annually than all other weather events and natural hazards (Luber, 2008). Areas with more tree canopy experience less heat than areas with less tree canopy, as shown in Figure 10. Extreme heat events affect public health costs to the individual, hospital visits or equipment to address health issues, as well as to the community as a whole, such as opening cooling centers.



Source: Sustaining Urban Places Research Lab (SURP), Portland State University, 2015

Figure 10: Urban Heat Islands in Portland

Trees also provide soil stabilization functions, particularly on steep slopes. Tree canopy attenuates rain fall, roots uptake ground water and roots hold soil in place. This reduces landslide risks and risks of damage to private property and public infrastructure.



Image: Landslide in Southwest Portland (2008)

### Shrublands and Grasslands

One estimate of shrubland value, based on the net primary productivity of various landscapes in the U.S. National Wildlife Refuge System, suggests that the ecosystem service value may be about \$600–\$800 per acre per year. The same study estimated the value of grasslands, and suggests that the ecosystem service values of grassland, generally, may be about \$30–\$140 per acre per year. Table 16 shows the annual per acre pollutant removal by shrubland and grassland, and a range of economic values of those pollutants in avoided health care costs.

**Table 16: Annual Quantity and Value of Pollutant Removal by Shrubland and Grassland (2011\$)**

Pollutant	Annual Kilograms Removed per Acre	Annual Value per Ton	Annual Value per Acre
CO	0.79	\$0—\$1,403	\$1
NO <sup>2</sup>	1.45	\$4,039—\$9,875	\$6—\$14
O <sup>3</sup>	6.05	\$2,019—\$9,875	\$12—\$60
PM <sup>10</sup>	4.34	\$0—\$6,593	\$29
SO <sup>2</sup>	1.18	\$2,418—\$9,546	\$3—\$11

Source: ECONorthwest

### Value of Wildlife

Economic research has shown that people place a considerable value on the continued survival of sensitive species, such as those listed as threatened or endangered. Such studies also suggest that the value associated with protecting threatened, endangered, and rare species similar to those found in Portland ranges from an annual payment of \$11 per household to a one-time payment of nearly \$400 per household (see Table 17).

**Table 17: Willingness to Pay to Protect Threatened, Endangered, and Rare Species**

Studies Reporting Annual Values		
	Average Value	Range of Values
Bald eagle	\$43.51	\$23.43-\$50.21
Owl	\$72.52	\$43.51-\$145.05
Salmon/Steelhead	\$90.38	\$11.16-\$155.09
Whooping Crane	\$62.48	\$49.09-\$76.99
Woodpecker	\$17.85	\$14.50-\$22.32
Studies Reporting Lump Sum Values		
	Average Value	Range of Values
Arctic grayling	\$25.66	\$22.32-\$29.01
Bald eagle	\$331.38	\$273.36-\$390.52
Falcon	\$35.70	-

Source: Richardson and Loomis, 2009

It is important to note that willingness to pay is a different measure than estimating the economic value associated with maintaining individual species and biodiversity. For example,

the courts have interpreted Congress to say that the value of threatened and endangered species is incalculable (TVA v. Hill).

Development-related threats to sensitive species in Portland, including ESA-listed salmonids, also may lead to higher future costs for governments, firms, and households engaging in activities that affect the species. Such costs might be associated with reduced, modified or prohibited activities including types of development, required or voluntary species monitoring, as well as measures to ensure their protection. If the population of these species continue to decline, they may be categorized as “endangered,” which would increase the restrictions on development activities, increasing associated costs. Avoiding such costs could be supported by pre-emptive efforts to improve recovery of threatened species, protect sensitive species and prevent future threatened and endangered species listings.

In addition to the ecosystem services described above, existing natural resources in Portland provide other general services that are important considerations in this analysis.

#### Flood Areas

Flooding can cause significant damage to homes and businesses as well as public infrastructure like roads. Lands around Johnson Creek have experienced frequent and repeated flooding for many years. Following a 1996 flood that had widespread impacts around Portland, the Bureau of Environmental Services (BES) developed the Johnson Creek Willing Seller Land Acquisition Program, which has facilitated the acquisition and preservation of over 250 acres of land that has a high potential for flood mitigation or a high risk of flooding. The land is then restored to increase flood storage capacity, improve fish and wildlife habitat, restore wetlands and create passive recreational activities for city residents. By increasing flood storage capacity in natural areas, the risk of flood damage to nearby properties is minimized. BES has spent approximately \$20M on acquisition to support this program through June 2020.

In four of the last five years (2016, 2017, 2019, 2020), Oregon has had national disaster declarations for communities hit by extreme storms, floods and landslides. In February 2020, communities in Eastern Oregon experienced extensive floods and landslides from heavy rain and snowmelt that caused three major rivers to overflow. The flooding damaged nearly 500 buildings, cost one person their life and stranded 54 people who the National Guard had to rescue. A 200-mile stretch of I-84 was shut down between Hermiston and Ontario, cutting off the main connection for travel and commerce between Eastern Oregon, Western Oregon and Idaho. Mobile homes in trailer parks were hardest hit by these floods. (Oregon Health Authority, 2020)

Other examples of the economic impacts of flooding are below:

- On July 31, 1976 a flash flood in Big Thompson Canyon, Colorado, resulted in damages exceeding \$30 million. In 2013, a second Big Thompson flood destroyed Vistenz-Smith Park and Sylvan Dale Ranch, two locations that commemorated the 1976 flood.

- Following the 1993 Mississippi River Floods the town of Valmyer, Illinois took roughly \$28 million in recovery funds and moved the entire town.
- In 1997 in Grand Forks, North Dakota (population of roughly 50,000 at the time), sustained more than \$1 billion in damages from flooding.

### Property Values

The existence of trees, greenspaces and other natural resources have been positively correlated with residential property values in Portland (EcoNorthwest, 2009). Natural resources contribute to the quality of neighborhoods, to local and regional recreation and trail systems, and also to the quality of views. Screening and buffering between residential and industrial land uses can be provided by established trees and vegetation, and can improve the economic value of both uses (e.g. noise reduction). Other indirect "quality of life" values associated with natural resources include labor force retention, attraction of new employees, and reputation. Portland is generally known nationally and internationally as a *green* city and a desirable place to live, visit, work, and play, which has a positive impact on aspects of the local and regional economy.

A Portland-based study done by Donovan and Butry in 2010 found that trees within 100 feet of houses added approximately \$8,870 to the price of a house, which represents 3.0% of sale price. Those trees also provide benefits such as cooling the air in the summer and attenuating rain in the winter.

### Off-Site Benefits of Ecosystem Services

Natural resource benefits can occur beyond the immediate area. For example, maintaining soil stability can reduce the cost of landslide repair for properties and infrastructure down slope. Moderation of heat island impacts also affect properties surrounding forests and woodlands. When benefits occur off-site, the property cannot capture the value of these benefits directly. As a result, the market price for natural resources, whether it's floodplain habitat or a stand of trees, does not fully reflect a true exchange value relative to other goods. In fact, most natural resources are not priced because they are not bought and sold like other products. This makes establishment of value difficult and often underestimated or oversimplified given the complexity of ecosystems (Norgaard, Richard B. 2010. Ecosystem Services: From eye-opening metaphor to complexity blinder. Ecological Economics).

### Temporal Considerations

Some of the benefits provided by natural resources take many years to be realized. For example, the full value of an immature stand of trees may not be realized for 25-50 years, when the trees have grown and matured and are providing maximum shade, carbon sequestration, rainwater interception, and evapotranspiration functions. Wetlands can recharge groundwater supplies for many years following high rain events. Another factor that complicates the determination of the economic value of natural resources is that many natural resources have "irreversibility" properties. If the resource is eliminated there may be little or no chance of



regeneration in any meaningful timeframe. Therefore, the cost of losing natural resources must also include the opportunity costs, or the cost of future choices foregone

### Scarcity

Another topic of consideration is *scarcity*. As an area develops and natural resources are removed or degraded, the functions those resources provide become scarce. This can increase the value of the remaining natural resources. One example is bottomland hardwood forests. Bottomland hardwood forest is identified by the Oregon Conservation Strategy (ODFW, 2016) as a conservation strategy habitat with a regional priority for preservation. Bottomland hardwood forest is an important habitat type for migrating birds, particularly neotropical birds, and bats. Another example is grassland habitat. In the Willamette Valley, grassland habitat has been reduced to less than 2% of its historic extent. This means that the wildlife species that depend on grassland habitat to complete their life cycle (e.g. ground nesters that need land sparsely vegetated with herbaceous vegetation) have significantly less habitat areas to choose from. The scarcity of bottomland hardwood forests and grasslands increases the value of the remaining habitat from a biodiversity standpoint and with regard to preventing future species endangerment and listings under the federal Endangered Species Act.

### Mitigation

The objective of most mitigation efforts is to make up for disturbances or damages to the ecosystem functions and services in a natural area by improving the functional capacity in another area or portion of a development site. In many instances, state or federal agencies have established guidelines outlining the proper mitigation ratios to consider for a particular type of mitigation. Several studies tracking the success of mitigation projects have found that many mitigation efforts do not result in full replacement of functional or economic value of impacted ecosystem services (ECONW, 2012).

### **D.5.a.3. Summary of Economic Consequences**

*Allowing* conflicting uses would have the following consequences:

- i. Maintain land supply to meet forecasted job growth demand through 2035
- ii. Expand local and regional economic benefits of industrial development and associated middle-wage jobs
- iii. Enhance opportunities for housing diversity and affordability
- iv. Increase risks and private and public costs associated with natural hazards such as landslides
- v. Have both negative and positive impacts on property values
- vi. Reduce the contribution of natural resource towards tourism
- vii. Reduce the economic benefits derived from multiple ecosystem functions and increase costs, both private and public, associated with replacing the functions lost

- viii. Complicate efforts to comply with regional, state and federal requirements (e.g., Clean Water Act, Endangered Species Act) resulting in potential liability and associated costs
- ix. Reduce the City of Portland's ability to minimize risks and costs associated with Climate Change
- x. Reduce ability to leverage development to protect and improve ecosystem services

*Limiting* conflicting uses would have the following consequences:

- i. Neither increase or decrease land supply to meet forecasted job growth demand through 2035
- ii. Maintain local and regional economic benefits of industrial development and associated middle-wage jobs
- iii. Maintain opportunities for housing diversity and affordability
- iv. Maintain risks and private and public costs associated with natural hazards such as landslide
- v. Contribute to the maintenance of property values
- vi. Maintain the contribution of natural resource towards tourism
- vii. By requiring mitigation, maintain economic benefits derived from multiple ecosystem functions; however, there would be increased replacement costs
- viii. Support efforts to comply with regional, state and federal requirements (e.g., Clean Water Act, Endangered Species Act)
- xi. By requiring mitigation, may help maintain the City of Portland's ability to minimize risks and costs associated with Climate Change
- ix. Maintain opportunities to leverage development to protect and improve ecosystem services

*Prohibiting* conflicting uses would have the following consequences:

- i. Decrease the land supply to meet forecasted job growth demand through 2035
- ii. Reduce local and regional economic benefits of industrial development and associated middle-wage jobs
- iii. Reduce opportunities for housing diversity and affordability
- iv. Reduce risks and private and public costs associated with natural hazards such as landslide
- v. Have both negative and positive impacts on property values
- vi. Reduce opportunities for development that supports tourism
- vii. Maintain economic benefits derived from multiple ecosystem functions; however, there would be increased replacement costs
- viii. Support efforts to comply with regional, state and federal requirements (e.g., Clean Water Act, Endangered Species Act)
- ix. Maintain the City of Portland's ability to minimize risks and costs associated with Climate Change
- x. Maintain opportunities to leverage development to protect and improve ecosystem services

#### **D.5.a.4. Economic Recommendation**

Based solely on the economic consequences analysis of *allowing, limiting, or prohibiting* development in significant natural resource areas that are not a Title 13 Habitat Conservation Area, the following general recommendations are intended to optimize the economic values described in the narrative. The recommendations for Title 13 Habitat Conservation Areas are found in Volume 4, Section C.

##### Limit conflicting uses within forests and woodlands that are contiguous to streams or wetlands

Tree removal changes hydrology and water quality entering the water features, as well as reducing habitat quality and diversity. Tree removal can result in increased erosion and risk of landslides. Tree removal also impacts air quality and temperature. Limiting conflicting uses would neither increase or decrease the supply of land needed to meet forecasted job growth through 2035. Limiting conflicting uses would require minimizing development impacts on the features where possible. Mitigation for unavoidable impacts could replace lost ecosystem services. This could have a negative, but small, impact on housing diversity. Limiting conflicting uses would also retain the ability to leverage future development to enhance and restore ecosystem services.

##### Limit conflicting uses within forests vegetation on steep slopes

Trees on steep slopes help to stabilize the soil and reduce the risk of landslides. The trees also provide habitat, maintain air temperature, and contribute to property values. Limiting conflicting uses in upland forests and woodlands would have little to no impact on industrial land demand. Limiting conflicting uses would require minimizing development impacts on the features where possible. Mitigation for unavoidable impacts could replace lost ecosystem services. This could have a negative, but small, impact on housing diversity. Limiting conflicting uses would also retain the ability to leverage future development to enhance and restore ecosystem services.

##### Allow conflicting uses within other areas of significant wildlife habitat

The economic benefit of allowing conflicting uses generally outweigh the economic benefit of non-forested upland wildlife habitat.

## D.5.b. Social Consequences

**This portion of the analysis summarizes the social consequences of protecting significant natural resources that are not a Title 13 Habitat Conservation Area.** The social consequences are expressed as the qualitative and relative costs, benefits, and impacts of allowing, limiting, or prohibiting conflicting uses. The social analysis relies on current information related to:

- Human Health and Welfare
- Historic, Heritage, and Cultural Values
- Regulatory Compliance

### D.5.b.1. Human Health and Welfare

#### Employment Opportunities

One of the most important factors in determining human health and welfare is household income, which is dependent on employment. The reason that income has such a strong influence on health is that it determines whether people are able to make healthy choices such as living in safe, healthy homes and neighborhoods, eating nutritious food, fully participating in family and community life, and obtaining timely and appropriate health care. Many studies have shown that people with health insurance are healthier than those without (Mult. Co. Health Department, 2012). In the United States the risk for mortality, morbidity, unhealthy behaviors, reduced access to health care, and poor quality of health care increases with decreasing socioeconomic circumstances (CDC, 2011). Research has linked unemployment to stress, depression, obesity, and increases in cardiovascular risk factors such as high blood pressure (Mult. Co. Health Department, 2012).

A 2012 informational piece published by the American Psychological Association states that “the current state of the economy continues to be an enormous stressor for Americans...Unemployed workers are twice as likely as their employed counterparts to experience psychological problems such as depression, anxiety, psychosomatic symptoms, low subjective well-being, and poor self-esteem. The piece continues, “Like unemployment, underemployment...is unequally distributed across the U.S. population, with women, younger workers, and African Americans reporting higher rates of involuntary part-time employment and low pay, as well as higher proportions of “discouraged” workers who have given up on searching for a job.

Average median household income for Portland in 2016 is \$76,033. The City of Portland commonly uses an income at or above 80 percent Median Family Income as a proxy for the minimum income needed to pay living expenses. Based on the 2014 data, approximately 40 percent of households are at or below 80 percent MFI.

Generally speaking, *prohibiting or limiting* conflicting uses within areas of significant natural resources would have a negative impact on employment by limiting the size or extent of

commercial, employment or industrial development. This could have a negative impact on the availability of living-wage jobs.

However, many of the significant natural resources addressed by this ESEE are also regulated by state or federal rules. For example, the federal government generally *prohibits* development, other than transportation infrastructure and utilities, within river and stream floodways and *limits* development within river and stream flood areas. State and federal rules *strictly limit* development within waters of the state, including wetlands. Areas that are designated critical habitat for Endangered Species Act-listed species have limitations on development as well. The majority of these state and federal regulations are related to riparian corridors. Therefore, the local limits on development within significant riparian corridors have a negligible negative impact on overall employment throughout the city.

### Access to Nature

Access to natural areas and open spaces has an impact on human behavior and psyche. Access can mean a range of things from viewing vegetation to bird watching to hiking or boating. Dr. Roger Ulrich of Texas A&M's Center for Health Systems and Design found that passive scenic values, such as looking at trees, reduces stress, lowers blood pressure, and enhances medical recovery (Ulrich et al. 1991). The presence of trees and grass can lower the incidence of aggression and violent behavior (Kuo and Sullivan, 2001b). Common green areas in neighborhoods can also increase community ties and support social networks, which are determining factors in overall health.

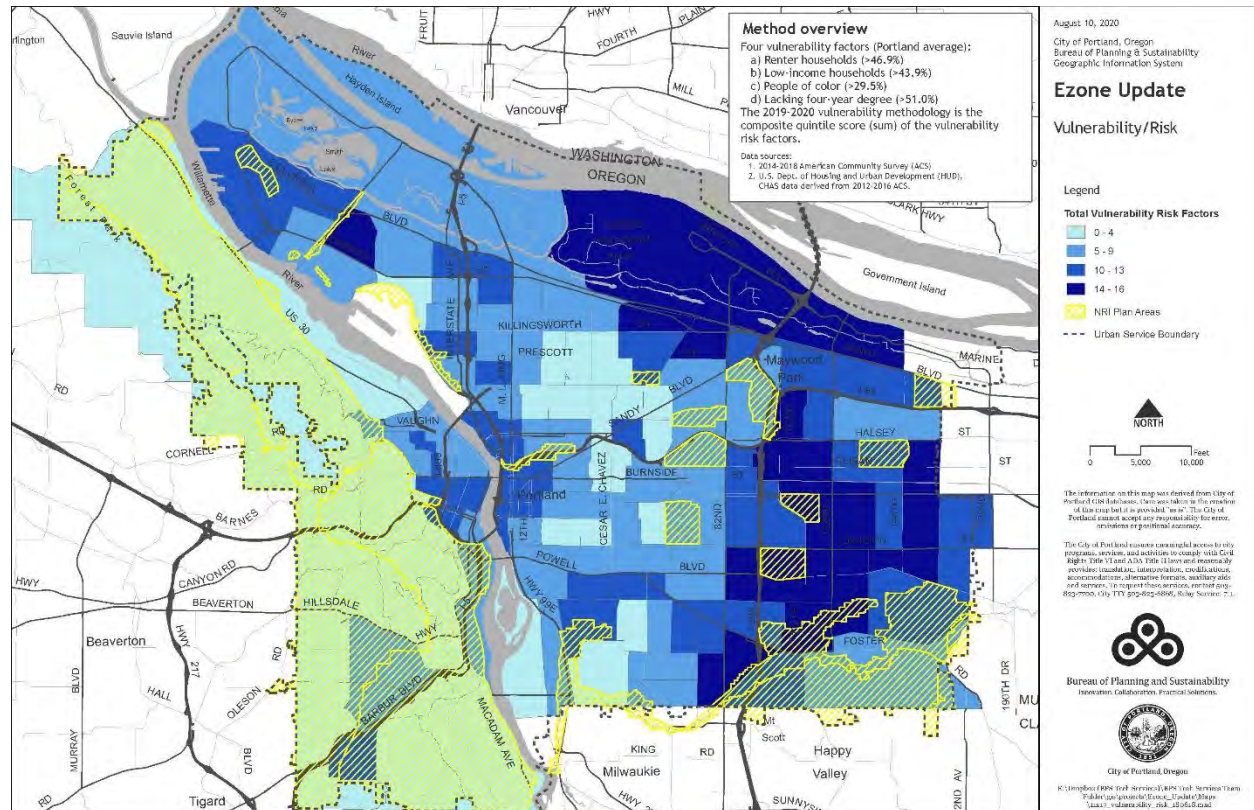
Recreation has multiple health benefits. For people who are inactive, even small increases in physical activity can yield numerous health benefits (Mult. Co. Health Department, 2012). Exercise improves overall health, which reduces public and private health care costs, improves quality of life, and may help people live longer (Nieman, 1998). Activities such as walking in forested areas help boost the immune system (Sachs and Segal, 1994). In addition, the Centers for Disease Control and Prevention strongly recommends improving access to places for physical activities such as biking or hiking trails to reduce the risk of cardiovascular disease, diabetes, obesity, selected cancers, and musculoskeletal conditions.

Melody Goodman, an assistant professor at Washington University in St. Louis, conducted research that found "your zip code determines more of your health than your genetic code." ([www.hsph.harvard.edu/news/features/zip-code-better-predictor-of-health-than-genetic-code/](http://www.hsph.harvard.edu/news/features/zip-code-better-predictor-of-health-than-genetic-code/)) This is because people with a higher vulnerability risk typically live in areas of the city that do not support good health – areas near highways/railroads with decreased air quality and increased air temperature, areas without green infrastructure like trees, streams, wetlands and parks, and areas without access to transit, bicycle lanes, or sidewalks. Map 20 shows areas in Portland with high vulnerability risks.

The British Columbia Center for Disease Control, developed a toolkit that makes links between planning, design, and health (Figure 11). The first planning principle is to preserve and connect open space and environmentally sensitive areas. Correcting the environmental overlay zones to

better protect existing natural resources, coupled with actions that increase human access to the resources, will contribute towards improved public health for vulnerable communities in Portland.

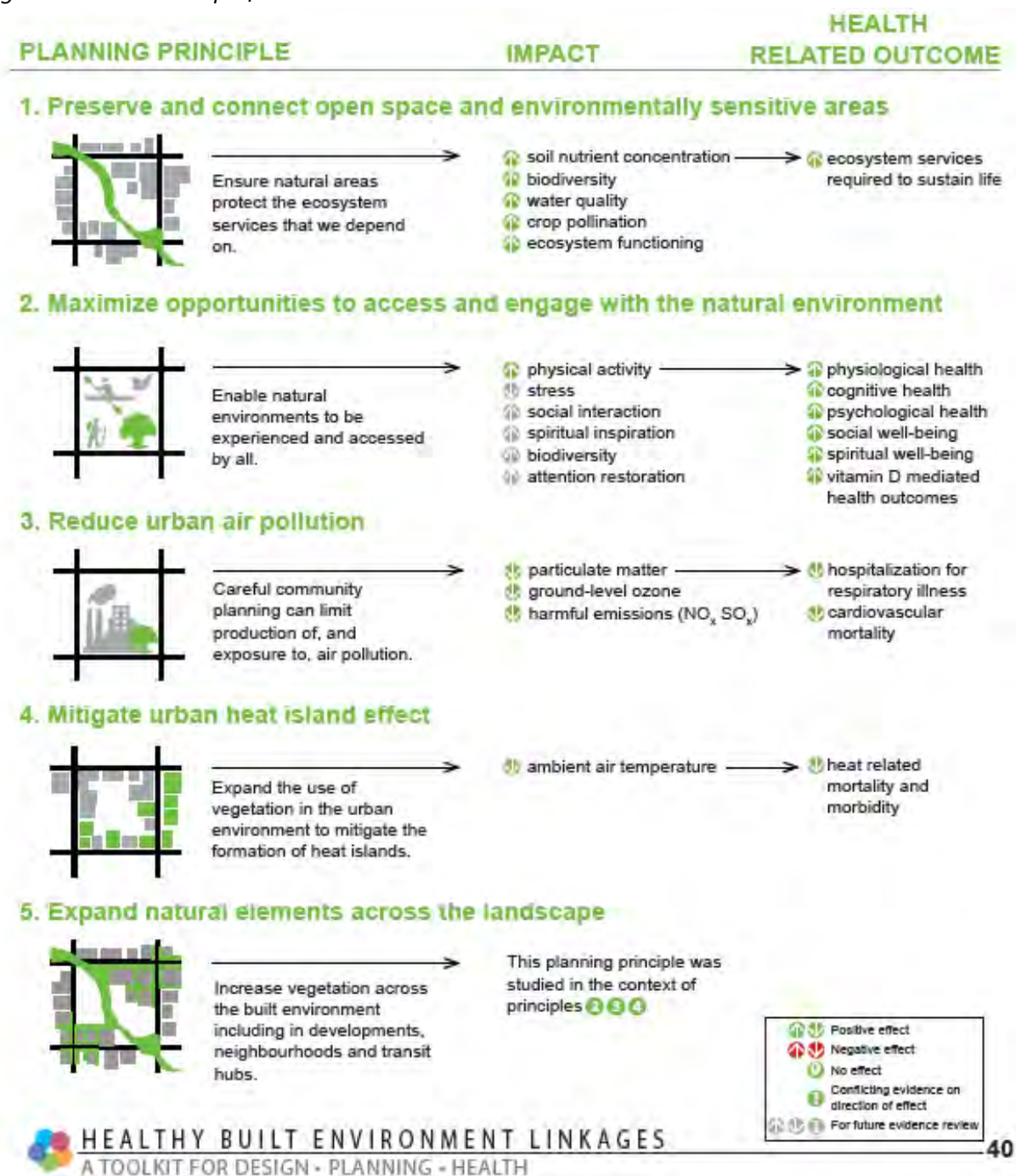
Generally speaking, *limiting or prohibiting* conflicting uses in significant natural resource areas maintains nature and supports access to nature and the associated public health benefits.



Map 20: Vulnerability Risks in Portland



Figure 11: Relationship of Natural Resources to Public Health<sup>5</sup>



<sup>5</sup> BC Centre for Disease Control. (2018). Healthy Built Environment Linkages Toolkit: making the links between design, planning and health, Version 2.0. Vancouver, B.C. Provincial Health Services Authority. Retrieved from [http://www.bccdc.ca/pop-public-health/Documents/HBE\\_linkages\\_toolkit\\_2018.pdf](http://www.bccdc.ca/pop-public-health/Documents/HBE_linkages_toolkit_2018.pdf).

### Climate Change and Public Health

Climate change impacts are already evident, both globally and in Oregon, and more impacts are inevitable, if uncertain. Currently available model projections for the Pacific Northwest have a higher degree of certainty related to expected changes in precipitation patterns and temperature increases but are inconclusive about what should be expected for total annual precipitation or extreme weather events. It is fairly certain that the Portland region will experience the following changes:

- Increased temperatures overall, including average, maximum and minimum temperatures in the summer and winter months (projected 0.5 °F increase per decade).
- Changes in precipitation patterns, with more precipitation falling in mid-winter and less precipitation in the summer. More precipitation falling as rain rather than as snow in lower elevation watersheds.
- Continued influence of ocean-driven weather patterns (e.g. La Niña/El Niño and the Pacific Decadal Oscillation) and swings between hot/dry and cold/wet (Oregon Climate Change Research Institute, 2010).

These changes will have a negative impact on public health through more frequent and longer heat waves, more air quality advisory days, more flooding, and potentially less access to nature if certain habitats cannot adjust to the changes in weather.

Oregon has seen an increase in average annual temperatures of 1.5°F compared to the first half of the 20th century. In 2016, the Portland region saw 13 days over 90°F, increasing to 22 days in 2017 and 29 days in 2018. The Oregon Health Authority monitors heat-related emergency room visits and often sees spikes during heat waves. For example, the graph below shows a spike in heat-related emergency room visits during record-breaking heat in early June 2019.

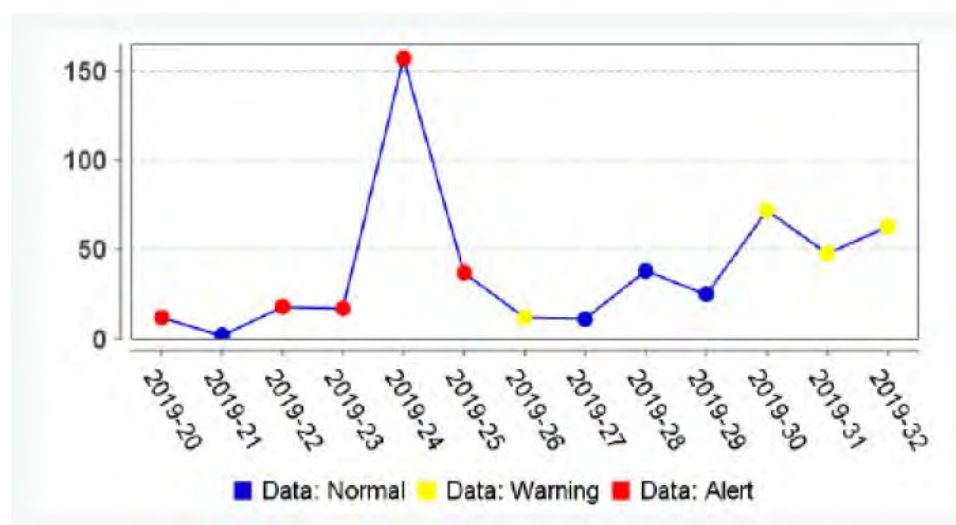


Figure 12: Heat-related illness during June 2019 heat wave (source: Oregon Health Authority)



In urban areas, people who live and work in urban heat islands are more at risk. A recent study on the correlation of “redlining” (the historical practice of refusing home loans or insurance to whole neighborhoods based on race) with present-day “urban heat islands” (summertime intra-urban land surface temperature anomalies) found that redlined Portland neighborhoods are significantly warmer than other neighborhoods in the city. Of 108 urban areas analyzed, Portland came in with the worst temperature discrepancy between rich and poor, a difference of almost 13 degrees. (Oregon Health Authority, 2020).

Extreme heat events are becoming more common in Portland. In the United States, extreme heat causes more deaths annually than all other weather events and natural hazards (Luber, 2008). Areas with more tree canopy experience less heat than areas with less tree canopy, as shown in Figure 10. Extreme heat events affect public health costs to the individual, hospital visits or equipment to address health issues, as well as to the community as a whole, such as opening cooling centers.

*Limiting or prohibiting* conflicting uses in significant natural resource area supports efforts to reduce climate change impacts.

#### Noise and Light Pollution

Natural resource areas and open spaces create natural screens and buffers between incompatible land uses, separating them and reducing a broad array of impacts. For example, the US Department of Agriculture reports that a 100-foot wide and 45-foot tall patch of trees (approximately 1/10 an acre) can reduce noise levels by 50 percent (1998). Trees can also reduce the off-site impacts of lighting or visual impacts from intensive development.

Noise and light pollution are often a concern of neighborhood residents living in close proximity to industrial, employment and commercial development. Exposure to bright outdoor lighting, particularly light that is rich in blue wavelengths, can have negative impacts on human health and wellbeing. These impacts include the disruption of circadian rhythms and sleep cycles and possible increases in the incidence of a variety of diseases, including cancer and cardiovascular disease. Rivers, streams and wetlands, as well as vegetated riparian areas around waterbodies form natural screens between land uses and can mitigate for noise and light pollution.

*Limiting or prohibiting* conflicting uses in significant natural resource area reduces the impacts of noise and light pollution.

### **D.5.b.2. Historic, Heritage and Cultural Values**

Portlanders place a high value on the environment and quality of life. The Oregon state symbols reflect this value. The Oregon state bird is the Western Meadowlark, which is currently a state-listed Species of Concern and has been nearly extirpated from the city due to loss of native grasslands. Portland’s City Bird, the Great Blue Heron, is found along rivers, streams and

wetlands. Fourteen runs of the state fish, the Chinook salmon, use the Columbia River and all fourteen are federally listed as Threatened or Endangered. The beaver is Oregon's state animal and still resides in many of Portland's waterways.

Portland's identification with nature and wildlife is reflected in many ways. The Audubon Society of Portland is over 100 years old and is the largest chapter of the national Audubon Society. Many Portlanders are avid bird-watchers. Local festivals, Wild Arts Festival, Raptor Road Trip, and annual migratory bird festival at Ridgefield Wildlife Refuge in Washington state are attended by thousands of residents.

Metro has recognized the importance of fish and wildlife and their habitats by adopting the regional Title 13, Nature in Neighborhoods, program in 2005. This program establishes regional baseline requirements to protect fish and wildlife habitat and water quality. The requirements focus on protecting, conserving and restoring natural resource functions and values in riparian corridors. Establishing this program reflects the importance of environmental quality to the residents of the Metro region, including Portlanders.

There is a long history of human inhabitation in the study area. A short summary of the history and current cultural values, focusing on natural resources, is provided below. It is intended to illustrate the history humans have had with the Willamette River, Columbia River and the valley; as well as some of the cultural values humans have placed on the natural resources.

#### Native American History and Cultural Values

The area now known as Portland has been populated with people from various tribes for thousands of years. In the Portland area, Native Americans lived primarily on the north and south shores of the Columbia River and near the mouth of the Willamette River, and other native peoples also traveled to and through the area. They camped, fished, hunted and gathered first foods such as salmon, lamprey, deer, camas, wapato, acorns and huckleberries. They also used the rivers to travel and trade among area tribes.

Today there are tribes throughout the northwest and beyond that retain an interest in the Portland area. Portland has a robust Native American community of roughly 40,000 people that represent over 300 tribes. These native peoples have an interest in ensuring the long-term protection and abundance of natural and culturally significant resources in order to continue their long-standing connection to the land and its waters. The rivers, streams, wetlands and natural areas have and continue to be important places for gathering food, conducting ceremonies and celebrations and maintaining lifeways practiced since time immemorial.

#### Post European Contact

European settlement occurred at the confluence of the Willamette and Columbia rivers due to the abundant natural resources and opportunities for trade. As more urban development

occurred, the rivers played a key role in the economy. In the 1800's the Willamette River was used to move goods, particularly logs and agricultural products. In the mid-1900's shipbuilding was located in the Willamette River North Reach. The value Portlanders placed on the environment was reflected in city plans, including the 1903 Olmsted vision for a 40-mile loop trail that encompassed Portland and would provide its residents access to open spaces. The 40-mile loop trail is still being realized today through a system of trails throughout the city.

Today, Portlanders value the environment and quality of life. The Oregon state bird is the Western Meadowlark, which is currently a state-listed Species of Concern and has been nearly extirpated from the city due to loss of native grasslands. Five runs of the state fish, the Chinook salmon, use the Columbia and Willamette rivers and all five are federally listed as Threatened or Endangered. Many of Portland's waterways are still inhabited by beaver, the Oregon state animal.

Portland's identification with nature and wildlife is reflected in many ways. The Audubon Society of Portland is over 100 years old and is the largest chapter of the national Audubon Society. Many Portlanders are avid bird-watchers. Local festivals including the Wild Arts Festival and Salmon Festival are attended by thousands of residents. The City co-sponsors the Big Float annually to highlight Portlanders' connections to the Willamette River and to help promote active, water-based recreation.

Metro has recognized the importance of fish and wildlife and their habitats by adopting the regional "Nature in Neighborhoods" program in 2005. This program establishes regional baseline requirements to protect fish and wildlife habitat and water quality. The requirements focus on protecting, conserving, and restoring natural resource functions and values in riparian corridors. Establishing this program reflects the importance of environmental quality to the residents of the Metro region, including Portlanders.

### **D.5.b.3. Regulatory Compliance**

Regulatory compliance is important for the City of Portland to protect infrastructure, avoid cost, liability, and maintain participation in state and federal programs such as the National Flood Insurance Program. There are multiple regulations described in Appendix A for which Portland must maintain compliance. Below are summaries of some regulations the existing Environmental Program complies with or contributes to the compliance with.

#### Endangered Species Act

After the 1998 listing of steelhead trout in the Lower Columbia River, the City of Portland began developing a comprehensive, coordinated citywide response to threatened and endangered species for City Council adoption (Resolution No. 35715). The City Council established an intent to avoid "take" of a listed species (i.e., harming individuals or populations or their habitat), and to assist with recovery of listed species which now number eighteen species including birds and

amphibians. The City has since taken actions such as identifying and prioritizing City programs that could affect listed species, providing technical support to bureaus, providing oversight for activities involving federal permitting or funding, and developing a watershed management plan to help guide city actions. The protection and enhancement of habitats critical to threatened and endangered species are important actions to aid in the recovery of listed species. The 16 species of listed fish occupy 125 miles of rivers and streams in Portland with efforts to reopen more miles every year.

Areas that provide habitat for ESA-listed species are designated in the NRI as Special Habitat Areas and received the highest rank. *Limiting or prohibiting* conflicting uses in these areas will support recovery of ESA-listed species.

#### Clean Water Act (CWA) and the National Pollutant Discharge Elimination System (NPDES)

In response to the impacts of urbanization on water quality, Congress passed the Clean Water Act of 1972 (amended in 1987), which prohibits the discharge of pollutants into waters of the United States unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Portland has two types of NPDES permits under the Clean Water Act: a stormwater permit and wastewater treatment plant permit that includes the combined sewer collection. The NPDES stormwater permit requirements require large (Phase I) cities such as Portland to obtain an NPDES stormwater permit for their municipal separate storm sewer system (MS4) discharges. Portland's wastewater NPDES permit is updated to current standards and renewed every 5 years. Portland's MS4 system includes conveyance or systems of conveyances such as municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm sewers owned by the City of Portland designed or used for collection or conveyance of stormwater. The Oregon Department of Environmental Quality (DEQ) issued Portland's first MS4 permit in 1995 and it is also updated to current standards and renewed every 5 years. Portland City Council directed the Bureau of Environmental Services (BES) to lead the citywide response for stormwater requirements and implementing key program elements.

Compliance with the NPDES MS4 permit requires cities to establish a comprehensive stormwater management program, including establishing controls on post-development stormwater runoff. Portland adopted its first citywide Stormwater Management Manual (SWMM) in 1999, which includes water quality and flow control design standards for onsite stormwater management facilities. The SWMM focuses on low-impact development practices, stormwater management facilities and conveyance features, and maintenance and operational best management practices (BMPs) designed to improve stormwater quality. The SWMM is part of Portland's NPDES MS4 stormwater management program to improve the quality of Portland's waters. The Environmental Program also contributes to protecting natural drainageways and forested riparian areas.

### National Flood Insurance Program (NFIP) and Community Rating System (CRS)

In 1968, Congress created the National Flood Insurance Program to help provide a means for property owners to financially protect themselves from floods. The NFIP offers federally-backed insurance to homeowners, renters, and business owners if their community (whichever agency issues land development permits) participates in the NFIP. Flood insurance is required for all federally-backed mortgages and loans. Federal flood insurance is available, regardless of risk—often, but not always, at a lower cost than private insurance. It is available when private insurance is not.

Participation in the NFIP is conditioned upon communities implementing FEMA requirements in the Special Flood Hazard Area, also known as the 100-year floodplain. Current requirements include building and site development standards for properties in the floodplain, and compliance with applicable federal laws, including the ESA. In addition, NFIP-participating communities can also help lower insurance rates for residents through participation in FEMA's voluntary Community Rating System program, which incentivizes community flood mitigation and preparation. Today, Portland's mitigation and preparation programs, including the Environmental Program, yield a 20% discount for Portlanders. This is a significant discount, but it can be improved through increased preparation and mitigation programs.

#### **D.5.b.4. Summary of Social Consequences**

*Allowing* conflicting uses would have the following consequences:

- i. Expand local and regional employment benefits associated living-wage jobs
- ii. Reduce human health and welfare benefits associated with natural resources
- iii. Reduce screening and buffering benefits of natural resources between land uses
- iv. Reduce the ability of the City to comply with regional, state, and federal regulatory requirements

*Limiting* conflicting uses would have the following consequences:

- i. Maintain most or all local and regional employment benefits associated living-wage jobs
- ii. Maintain most human health and welfare benefits associated with natural resources
- iii. Maintain most screening and buffering benefits of natural resources between land uses
- iv. Maintain the ability of the City to comply with regional, state, and federal regulatory requirements

*Prohibiting* conflicting uses would have the following consequences:

- i. Reduce some local and regional employment benefits associated living-wage jobs
- ii. Preserve human health and welfare benefits associated with natural resources
- iii. Preserve screening and buffering benefits of natural resources between land uses
- iv. Enhance the ability of the City to comply with regional, state, and federal regulatory requirements

### **D.5.b.5. Social Recommendation**

Based solely on the social consequences analysis of allowing, limiting, or prohibiting development in significant **natural resources that are not a Title 13 Habitat Conservation Area**, the following general recommendations are intended to optimize the social values described in the narrative.

Limit conflicting uses within forests and woodlands that are contiguous to streams or wetlands

Forest and woodlands contiguous to rivers, streams, and wetlands directly impact the social benefits provided by the water features by supporting the functions of the water features for human health and welfare and regulatory compliance. Forests and woodlands are culturally and historically important. Limiting conflicting uses would require minimizing development impacts on the features where possible. Mitigation for unavoidable impacts could replace lost social benefits. This could have a negative, but likely negligible, impact on employment. Limiting conflicting uses would support the city's compliance with regional, state, or federal rules.

Limit conflicting uses within forests on steep slopes

Trees on steep slopes help to stabilize the soil and reduce the risk of landslides. The trees provide multiple social benefits such as air quality, air temperature moderation, recreational opportunity, and health benefits. Limiting conflicting uses would require minimizing development impacts on the features where possible. Mitigation for unavoidable impacts could replace lost social benefits. This could have a negative, but likely negligible, impact on employment.

Allow conflicting uses within other areas of significant wildlife habitat

The social benefits of allowing conflicting uses generally outweigh the economic benefit of non-forested upland wildlife habitat.

## D.5.c. Environmental Consequences

**This portion of the analysis summarizes the environmental consequences of protecting significant natural resources that are not a Title 13 Habitat Conservation Area.** The natural environment in urban areas is altered and disturbed by human activities. However, human welfare depends in part on vital ecosystem services provided by natural resources such as fresh air, clean water, slope stability, food supply, shade, and access to nature. Fish and wildlife also depend on having adequate quantity and quality of habitat, especially in urban areas where habitat is limited.

### D.5.c.1. Environmental Analysis

#### Ecosystem Services

Natural resources provide multiple services to associated development; these are called *ecosystem services*. Examples of the ecosystem services provided by natural resources include air purification, maintenance of water quality and quantity, flood storage, soil stabilization, air cooling, aesthetics, screening, and buffering, and employee benefits such as opportunities for recreation and exercise. Some of these services, when displaced by development, must be replaced using infrastructure. For example, when a site is converted from a forest to a parking lot, the hydrologic and water quality functions provided by the forest must be replaced in the form of stormwater management and/or landscaping and the air-cooling benefits must be replaced by HVAC systems. Another example, when trees on steep slopes are removed, erosion and landslides can damage property and public infrastructure and cause erosion in streams that may be hundreds of feet from the trees.

Development can have many negative impacts on natural resources. Development reduces the overall size and complexity of existing natural resources features and reduces wildlife connectivity for the species that live in and migrate through Portland. Often mitigation for these impacts is required through federal, state, or local regulations; however, mitigation actions rarely can replace all impacted features or functions in full (ECONorthwest, 2012).

Development also has negative impacts to adjacent remaining habitat. Reducing the size of the habitat increases the edge to interior habitat ratio. Noise, light, dust, and vibration from the development penetrate into the edge of the remaining habitat. Impacts from actions like construction can last long-after the action is completed. Physical pollution, such as chronic noise, light, and vibration, have negative environmental impacts, including significant changes in migration, foraging, predator-avoidance behaviors, reproductive success, and community structure of many fish and wildlife species (Barber et.al., 2009). Light pollution can affect salmon migration (Tabor, 2004) and noise pollution can have impacts on bats. Chemical pollution from industrial accidents, effluent discharge, and particulate releases also disrupts similar behavior

and life history strategies of fish and wildlife. Some species can adapt to such changes to their environment; however, many others cannot.

Fragmentation of natural resources by roads and trails creates places where invasive plants can intrude into the habitat. People using these facilities can also have a negative impact on the resources. For example, people hiking on trails cause noise that can disturb wildlife, particularly if people bring dogs on the hike. Leaving behind trash, pet waste, and trampled vegetation, and the act of plant/animal harvesting are common impacts of human use of natural areas.

*Limiting or prohibiting* conflicting uses within significant natural resource areas has a positive impact on the environment.

### Climate Change

Climate change impacts are already evident, both globally and in Oregon, and more impacts are inevitable, if uncertain. To adapt, the region must understand and prepare for change. Portland's Climate Action Plan calls for a comprehensive review to better understand the possible and the likely impacts of climate change. The purpose is to assess climate-related vulnerabilities, and the strengths and resiliency of: local food, water and energy supplies, infrastructure, transportation and freight movement, flood areas, watersheds, public health, public safety, social services, and emergency preparedness.

Decision-making in the face of uncertainties in climate change projections, especially in regional downscaling of global climate change models, remains a challenge. Climate projections work well for some variables and poorly for others. For example, currently available model projections for the Pacific Northwest have a higher degree of certainty related to expected changes in precipitation patterns and temperature increases but are inconclusive about what should be expected for total annual precipitation or extreme weather events.

That being said, it is fairly certain that the Portland region will experience the following changes:

- Increased temperatures overall, including average, maximum and minimum temperatures in the summer and winter months (projected 0.5 °F increase per decade). Prolonged periods of drought during the summer that can increase wildfire risks.
- Changes in precipitation patterns, with more precipitation falling in mid-winter and less precipitation in the summer. More precipitation falling as rain rather than as snow in lower elevation watersheds.
- Continued influence of ocean-driven weather patterns (e.g. La Niña/El Niño and the Pacific Decadal Oscillation) and swings between hot/dry and cold/wet (Oregon Climate Change Research Institute, 2010).
- Changes to frequency, direction, and landfall of atmospheric rivers (e.g., "Pineapple Express").



In addition, the Portland region may also experience:

- Changes in total annual precipitation amounts (increases or decreases).
- A change in the frequency, magnitude or duration of extreme weather events (intense rainfall, wind storms, ice, and snow).

Non-developed areas that provide multiple natural resource functions can play an important role in adapting to climate change in the region. Flood storage provided by active flood areas may become even more important to accommodate potential changes in flows and flood regimes. Maintaining diverse habitats and migration corridors will be critical for resident and migratory wildlife that may be required to adapt their behaviors and life cycles to changes in air and water temperature, weather patterns, habitat ranges, and food sources.

*Limiting or prohibiting* conflicting uses in significant natural resource area supports efforts to reduce climate change impacts.

#### **D.5.c.2. Summary of Environmental Consequences**

*Allowing* conflicting uses would have the following consequences:

- Reduce functions provided to development and people by natural resources including air cooling and purification, maintenance of water quality and quantity, flood storage, aesthetics, and screening, and buffering between uses
- Require replacement of some lost functions with hard infrastructure (e.g., stormwater facilities, erosion control)
- Loss of significant environmental functions and increased negative impacts on environmental functions of remaining, adjacent natural resources (e.g., noise, light, runoff, etc.)
- Complicating efforts to comply with regional, state, and federal requirement (e.g., Clean Water Act, Endangered Species Act)
- Increased chance for future Endangered Species Act listings of at-risk fish and wildlife species
- Reduction, incrementally, in the capacity of the region to adapt to climate change
- Foregoing opportunities to leverage future development and redevelopment to help enhance and restore ecosystem services
- Increase risk of damage from flooding or landslides

*Limiting* conflicting uses would have the following consequences:

- By requiring mitigation, maintaining functions provided to development and people by natural resources including air cooling and purification, maintenance of water quality and quantity, flood storage, aesthetics, and screening and buffering between uses
- Would require replacement of some lost functions with hard infrastructure (e.g., stormwater facilities, erosion control)

- iii. By requiring mitigation, maintaining most significant environmental functions; however, some feature and functions cannot be mitigated for and some functions may be shifted elsewhere through off-site mitigation
- iv. Reduce the loss of significant environmental functions and maintain buffers between adjacent natural resources
- v. Support efforts to comply with regional, state, and federal requirements (e.g., Clean Water Act, Endangered Species Act)
- vi. By requiring mitigation, may help avoid risk of future Endangered Species Act listings of at-risk fish and wildlife species
- vii. By requiring mitigation, may help maintain region's capacity to adapt to climate change
- viii. Maintaining opportunity for natural resource enhancement and restoration; however, may forego some opportunities to leverage development to improve environmental functions
- ix. Maintaining similar level of risk of damage from flooding or landslides

*Prohibiting* conflicting uses would have the following consequences:

- i. Maintaining functions provided to development and people by natural resources including air cooling and purification, maintenance of water quality and quantity, flood storage, aesthetics, and screening and buffering between uses
- ii. Avoid costs associated with replacing lost functions with hard infrastructure
- iii. Maintaining significant environmental functions provided by the natural resources
- iv. Support efforts to comply with regional, state and federal requirements (e.g., Clean Water Act, Endangered Species Act)
- v. Reduce risk of future Endangered Species Act listings of at-risk fish and wildlife species
- vi. Maintaining the region's capacity to adapt to climate change
- vii. Foregoing opportunities to leverage development to enhance and restore environmental functions
- viii. Reduce risk of damage from flooding or landslides

### **D.5.c.3. Environmental Recommendation**

Based solely on the environmental consequences analysis of allowing, limiting, or prohibiting development in **significant natural resources that are not a Title 13 Habitat Conservation Area**, the following general recommendations are intended to optimize the environmental values described in the narrative. The economic, social, environmental, and energy recommendations are balanced and optimized in Section H. General ESEE Recommendation, and further refined in Chapter 3.

*Strictly limit* conflicting uses within forests located on steep slopes

Trees on steep slopes help manage stormwater and reduce the risks of landslides. Strictly limiting conflicting uses in these areas would maintain the most functions provided by the trees. Mitigation for unavoidable impacts could address most unavoidable impacts. Strictly

limiting conflicting uses would retain the ability to leverage future development to enhance and restore the forest and woodland vegetation.

Limit conflicting uses within all other areas providing significant wildlife habitat

Limiting conflicting uses would result in most development needing to avoid, minimize or mitigate for adversity impacts on natural resource features and functions. This approach would help reduce the impacts of development on wildlife habitat. This approach would maintain buffers between development and remaining natural resources and the ability to leverage future development to enhance and restore natural resources.

## D.5.d. Energy Consequences

**This portion of the analysis summarizes the energy consequences of protecting significant natural resources that are not a Title 13 Habitat Conservation Area.** The energy analysis focuses on the following topics: transportation, infrastructure (water, sewer, stormwater), and the heating and cooling of structures. A general discussion of these topics is provided below.

### D.5.d.1 Energy Analysis

#### Transportation

Energy expenditures for transportation relate primarily to travel distances from origin to destination and mode of transportation used. Both variables can be affected by natural resource protection in terms of the location of development and routing of transportation facilities. Major air, road, rail and water transportation infrastructure are located in close proximity to housing and employment in Portland, which helps reduce transportation-related energy consumption.

The availability of jobs near housing reduces commuter miles and energy consumption. Portland is the job and housing center for Oregon. The regional availability of alternative modes of transportation, such as buses, light rail, and walking and cycling routes, can also help reduce transportation-related energy consumption.

Designing transportation routes and facilities to avoid adversely affecting natural resources could increase or decrease the size or length of an infrastructure facility, and could affect the distance or travel time between origin and destination, for both people and goods. However, the majority of the transportation infrastructure in Portland is already built.

Generally speaking, *limiting or prohibiting* new or expanded transportation infrastructure in areas of significant natural resources would have a negligible impact on energy expenditures.

#### Infrastructure

Infrastructure services require energy to construct, operate and maintain. Efficient site design (e.g., clustered housing and other facilities), enables the provision of adequate sewer, stormwater, and water services while reducing overall demand for infrastructure (e.g., shorter lines, more efficient stormwater and wastewater treatment). Efficient site design can also allow development to avoid significant natural resources, although in some instances additional infrastructure may be needed to avoid the resource. Development located away from flood hazards can eliminate the need for additional structural components or hazard control structures.

Natural resources can be considered part of the infrastructure of the City. Trees and other vegetation intercept rain and snow, which reduces stormwater runoff and the need for stormwater management in the form of pipes and detention ponds. Rivers, streams, wetlands and flood areas provide hydrologic functions including providing a location for water to flow and storing floodwaters. When water bodies are filled, channelized or otherwise altered, additional infrastructure is needed to move water through the urban landscape (e.g. pipes). Soil, water bodies and vegetation filter pollutants from the water, improving water quality and reducing the need for treatment.

Generally speaking, *limiting or prohibiting* new built infrastructure in areas of significant natural resources reduces energy consumption required to build infrastructure required to replace the natural functions provided by water bodies, floodplains and vegetation. However, the energy costs associated with some infrastructure could increase if the distance or size of the infrastructure must be increased to avoid impacts to significant natural resources.

#### Heating and Cooling

Energy demand for heating and cooling structures can be affected by site design, building form, and presence of trees, vegetation or water bodies. The orientation of buildings and use of vegetation to maximize solar heating in the winter and shading in the summer reduce both heating and cooling needs.

The retention of trees, vegetation and water bodies, and the planting of new trees and vegetation reduces ambient air temperature and maintains local humidity, which can also help reduce the demand for mechanical air conditioning in homes and buildings.

Vegetation can also create a windbreak that can slow or divert cold winter winds reducing heat loss. Construction techniques that reduce the surface to volume ratio of a building (e.g., common wall), can also help reduce heating and cooling needs.

Generally speaking, *limiting or prohibiting* conflicting in areas of significant natural resources maintains the heating and cooling benefits provided by the natural resources and reduces energy consumption by buildings.

#### **D.5.d.2 Summary of Energy Consequences**

*Allowing* conflicting uses would have the following consequences:

- i. May reduce additional transportation energy demand by maintaining employment opportunities in close proximity to housing
- ii. Would require energy for land preparation and construction of stormwater management, flood control and erosion control

- iii. Would require energy for land preparation and construction of sewer, water and other infrastructure
- iv. May require additional energy for heating and cooling

*Limiting* conflicting uses would have the following consequences:

- i. May reduce additional transportation energy demand by maintaining employment opportunities in close proximity to housing
- ii. Would require energy for land preparation and construction of stormwater management, flood control and erosion control
- iii. Would require energy for land preparation and construction of sewer, water and other infrastructure
- iv. May require additional energy for heating and cooling

*Prohibiting* conflicting uses would have the following consequences:

- i. May increase, although the impacts would be negligible, transportation energy demand by reducing employment opportunities in close proximity to housing
- ii. Would retain functions of the natural resources for stormwater management, erosion
- iii. May require additional energy for heating and cooling

### **D.5.d.3. Energy Recommendation**

Based solely on the energy consequences analysis of allowing, limiting, or prohibiting development in **significant natural resources that are not a Title 13 Habitat Conservation Area**, the following general recommendations are intended to optimize the environmental values described in the narrative. The economic, social, environmental, and energy recommendations are balanced and optimized in Section H. General ESEE Recommendation, and further refined in Chapter 3.

#### Limit conflicting uses within forests

Trees on steep slopes help manage stormwater, reduce the risks of landslides and maintain the heating and cooling benefits of trees. Strictly limiting conflicting uses in these areas would maintain most functions provided by the trees and reduce energy consumption needed to replace the natural functions with built infrastructure. Mitigation for unavoidable impacts could address most impacts. Limiting conflicting uses would retain the ability to continue to development employment and housing and reduce sprawl.

#### Allow conflicting uses within all other significant wildlife habitat

Allowing conflicting uses in all other areas would maintain the capacity to centralize new housing and employment near the existing built infrastructure in Portland, reducing energy consumption associated with sprawl.

## D.6. ESEE General Recommendations

The ESEE general recommendation balances the economic, social, environmental, and energy consequences of protecting significant natural resources that are not a Title 13 Habitat Conservation Area. Portland is a highly developed area and impacts from conflicting uses cannot be fully avoided. Allowing some future development in natural resource areas is inevitable, particularly development associated with utilities and public infrastructure. However, conflicting uses should be limited overall in areas of high and medium ranked wildlife habitat.

The ESEE general recommendations are taken forward into specific resource site ESEE analyses, resulting in an ESEE decision specific to each resource site that contains significant natural resources that are not a Title 13 Habitat Conservation Area. The resource site-ESEE decision will affirm, clarify or modify in the general ESEE recommendation. Please see Volume 4, Section C, Title 13 Compliance, for protection decisions for Habitat Conservation Areas.

### D.6.a. No Rollback

Metro Title 13 rule 3.07.1330(a)(2) states that any city that had an acknowledge Goal 5 program prior to December 28, 2005, that applies to upland wildlife habitat shall not repeal or amend such regulations in a manner that would allow more than a de minimis increase in development that could occur in those upland habitat areas. This is commonly known as the “no rollback” policy.

By 2002, Portland had applied environmental overlay zones to upland habitat throughout the city and Portland had an acknowledged Goal 5 program for riparian corridors and wildlife habitat. Previous Goal 5 ESEE decisions applied protections to wildlife habitat and those ESEE decisions will be upheld.

The “no rollback” approach should not be construed to mean that the application of protections, namely the conservation and protection overlay zones, cannot be updated to correctly apply to the location of existing wildlife habitat, thus resulting in removal of an overlay zone or reducing the level of protections for a particular property or properties or a portion of a property. For example, if the previous ESEE decision was a *limit* decision for forest on steep slopes; moving the boundary of the overlay zones to align with the forest canopy and extent of the steep slope is not a rollback even if some properties may have regulations removed.

The combination of corrected environmental overlay zones based on the confirmed Habitat Conservation Areas and the ESEE recommendations for each resource site found in Volume 2, Part A – G, results in a total of 376 acres of environmental overlay zone added throughout Portland, bringing the total environmental overlay zone coverage from 20,285 acres to 20,634 acres. Overall, the change is a 2% net increase, not a decrease; therefore 3.07.1330(a)(2) is met.

## D.6.b. ESEE General Recommendation

The City of Portland has an acknowledged Goal 5 program that applies environmental overlay zones to significant natural resources. The established program does not result in a *prohibit* decision. Instead, the program clarifies that for some natural resources the conflicting uses should be *strictly limited*, while for other natural resources the conflicting uses should be simply *limited*. Both the *strictly limit* and *limit* recommendation are consistent with a *limit* recommendation as explained in OAR 660-023-0040(4). This approach is maintained.

There are positive and negative consequences to any decision to protect, or not, significant natural resources. For example, protecting forests on steep slopes maintains the soil stabilization functions of the tree canopy, reducing landslide risks, but may limit the location, size or extent of future development. The recommendations intend to balance city-wide goals for natural resources, economic development, housing and public health.

The ESEE general recommendations for significant natural resources that are not a Title 13 Habitat Conservation Area are to:

1. *Strictly limit* conflicting uses within are of significant forest vegetation that are located on slopes >40% steep;
2. *Limit* conflicting uses within areas of significant forest vegetation that are located on slopes >25% steep;
3. *Limit* conflicting uses within areas of significant forest that are 30 acres in size or larger, including contiguous wetland area<sup>6</sup>;
4. *Allow* conflicting uses within all other significant wildlife habitat.

The ESEE general recommendations provide a baseline approach that is further analyzed in the ESEE for each resource site. The ESEE general recommendations may be affirmed, modified or clarified. The resource site-specific ESEE decisions may maintain, increase or decrease the level of protection recommended by the general recommendations based on resource-site conditions.

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<sup>6</sup> The patch may be all forest or a combination of forest and wetland. If the combination of forest and wetland are 30 acres or larger then it qualifies for this ESEE recommendation. Example: 20 acres forest + 10 acres wetland is 30 acres total.



## D.7. Implementation Tools

The final ESEE decisions, documented in Volume 2, Part A - G, should be implemented through the updates to existing zoning code regulations and maps, presented in Volume 1, in the following ways:

1. Where there is a *strictly limit* decision, it is recommended that conflicting uses be restricted to a narrow set of environmentally appropriate development such as natural resource enhancement, utilities, public infrastructure, or maintenance, repair, and replacement of existing structures. Other development should be very narrowly limited to reduce impacts to significant natural resources. The code should require that negative impacts to natural resource features and functions be avoided and minimized to the maximum extent practicable; and unavoidable negative impacts should be fully mitigated. Mitigation for unavoidable impacts should result in no net loss of features or functions and account for:
  - location of the mitigation site in proximity to the impact site;
  - timing of the mitigation action(s) in relation to the timing of impacts;
  - lag-time to achieve desired future conditions and functions of the mitigation actions;
  - relationship between the mitigation site and adjacent habitats and land uses; and
  - monitoring needed to ensure the mitigation is successful.

A *strictly limit* decision can be implemented using the existing or updated protection overlay zone (p-zone), river environmental overlay zone (river e-zone) or similar code requirements. The boundaries of the overlay zones should be corrected periodically over time to better align with the natural resource features and functions the *strictly limit* decision applies to.

2. Where there is a *limit* decision, it is recommended that impacts to the natural resources be minimized but not fully avoided. The code should require negative impacts to natural resource features and functions be minimized to the maximum extent practicable and unavoidable negative impacts should be fully mitigated. Mitigation for unavoidable impacts should result in no net loss of features or functions and account for:
  - location of the mitigation site in proximity to the impact site;
  - timing of the mitigation action(s) in relation to the timing of impacts;
  - lag-time to achieve desired future conditions and functions of the mitigation actions;
  - relationship between the mitigation site and adjacent habitats and land uses; and
  - monitoring needed to ensure the mitigation is successful.

A *limit* decision can be implemented using the existing or updated conservation overlay zone (c-zone), river environmental overlay zone (river e-zone) or similar code requirements. The boundaries of the overlay zones should be corrected periodically over time to better align with the natural resource features and functions the *limit* decision applies to.

3. Where there is an *allow* decision, it is recommended that conflicting uses be fully allowed.

# Part C: Appendices

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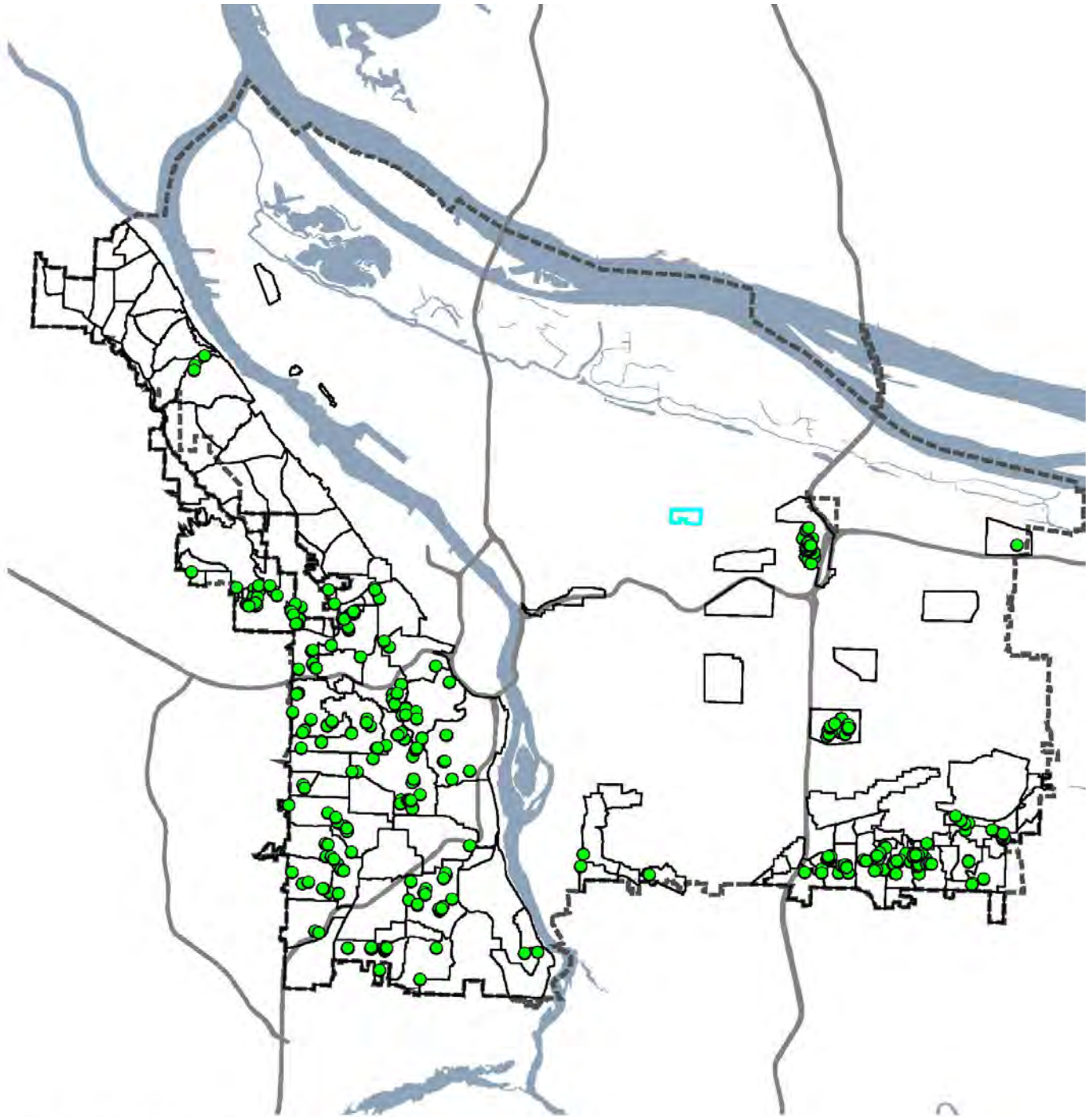
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# Appendix B: Protection to Conservation Zone Conversions








## Manual Conversion Protection Zone to Conservation Zone

Updated: January 2022



0 1.5 3 Miles

-  p to c Conversions
-  resource\_sites\_pdx\_EDIT
-  Urban Service Boundary
-  Freeways
-  Rivers



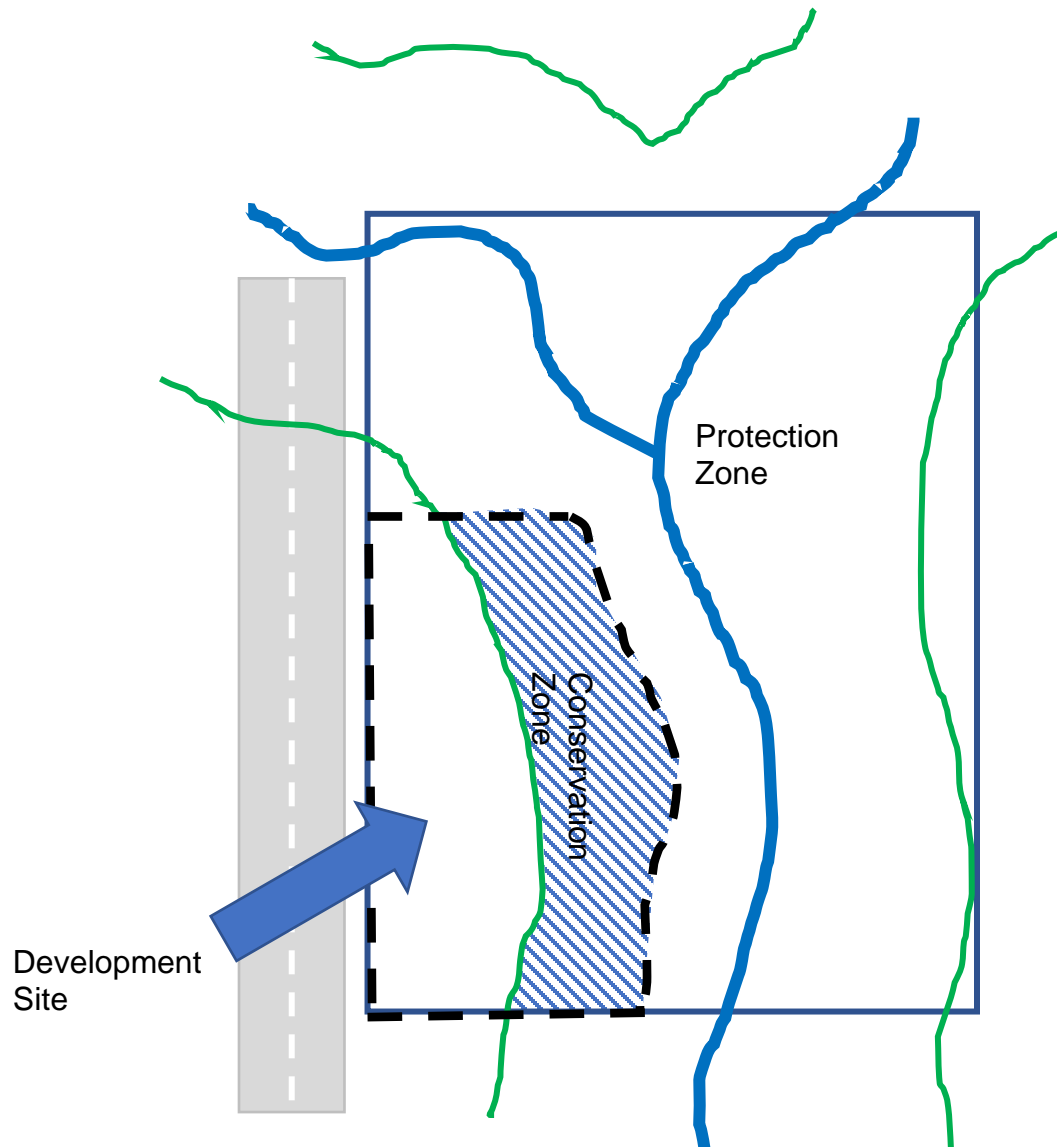
The information on the map was derived from digital databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland ensures meaningful access to city programs, services, and activities to comply with Civil Rights Title VI and ADA Title II laws and reasonably provides: translation, interpretation, modifications, accommodations, alternative formats, auxiliary aids and services. To request these services, contact 503-823-7700, City TTY: 503-823-6888, Relay Service 711.

Properties that are eligible for a protection 'p' zone to conservation 'c' zone conversion have greater than 68% 'p' zone coverage, as produced by GIS modeling, and are vacant or are developed but large enough to be divided in accordance with the base zone. In this appendix a map is included for each property in which a 'p' to 'c' conversion has been applied which shows the location of the conversion, and which includes a brief description. The intent is to make it clear to property owners and future planning staff at the city where the location of the 'p' and 'c' zone boundaries are based on a conversion.

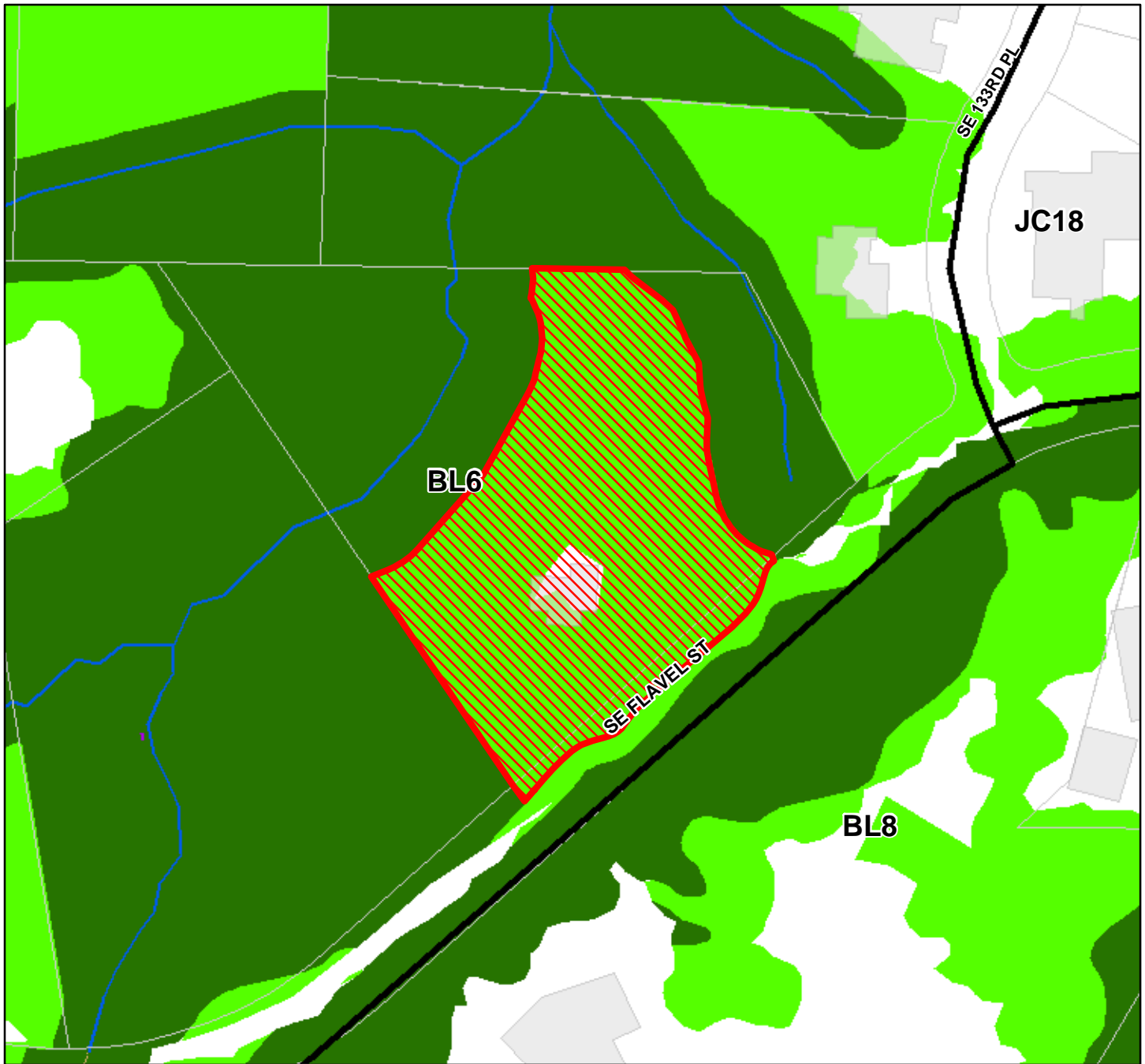
To determine the area suitable for conversion from 'p' zone to 'c' zone, the following criteria (A-D) are used. The list is hierarchical with the highest priority being protection of rivers, streams, wetlands and flood area followed by protection of vegetation on steep slopes. The protection of these features is critical to reducing the risks of flooding, erosion and landslides and mitigating heat islands as well as providing habitat and wildlife movement corridors. Following are the criteria for converting 'p' zone to 'c' zone on eligible properties:

- A. A 50-foot area surrounding rivers, streams, and wetlands should continue to be protected by the 'p' zone. The 50-foot area extends horizontally from the river/stream top of bank or edge of the wetland. Where greater than 68% of the site is within 50-feet of river or stream top-of-bank or edge of wetland, then a minimum 25-foot area of 'p' zone extending horizontally from the top-of-bank or wetland should be retained.
- B. The flood area should continue to be protected by the 'p' zone. The flood area includes the 100-year floodplain and the area inundated during the 1996 flood. Where greater than 68% of the site is within the flood area, then the minimum area of 'p' zone should be the floodplain within 170 feet from the ordinary high-water mark, measured horizontally.
- C. Forest and woodland vegetation located on steep slopes (>25% slope) should be protected by the p zone to the greatest extent possible. Where greater than 68% of the site is steep, areas of the greatest steepness (>40% slope) should be protected by the 'p' zone.
- D. The conversion area should be located contiguous to a public street or an existing access easement. Where this is not possible, the conversion area should be located as close to a public street or an existing easement as possible, avoiding river, stream or wetland crossings to the maximum extent practical.

Below is a generic example of a 'p' to 'c' zone conversion. The stream is shown in blue and the 'p' zone in green, including the land within 50 feet of the streams. In order to provide sufficient space for development, a portion of the 'p' zone is converted to 'c' zone, as shown in cross hatch. This area maintains a minimum of 25 feet of 'p' zone along the streams and places the converted area along the street frontage. By converting to a 'c' zone, develop may occur through standards or environmental review and with mitigation for impacts to the existing natural resources.



Providing sufficient area for development or lot division does not guarantee that any given property can be developed or divided. Besides the base zone and location of environmental overlay zones, other factors considered through the development review process include street access, street frontage improvements, access to utilities and services (e.g., sewer, water), stormwater management, street and side setback requirements, minimum lots size, compatibility with surrounding existing lots, etc. Please refer to 33.310 of the zoning code for additional information. Also, while it is a priority to preserve divisibility of large properties, the 'p' to 'c' zone conversions may not result in enough dividable land to achieve the maximum density allowed by the base zone.

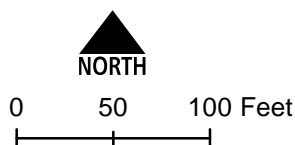


**'P' to 'C'  
Conversions**

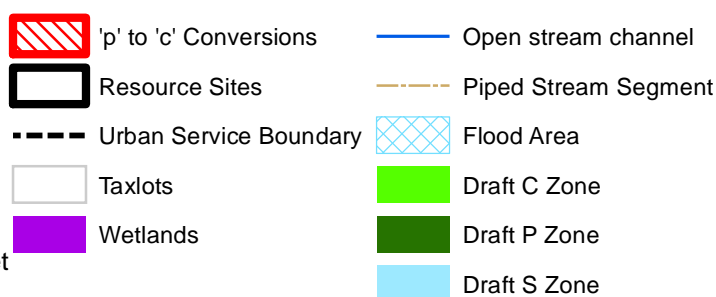
**Conversion Description: Area is adjacent to existing development and could provide access to future development from the adjacent road.**

**State ID  
1S2E23CA 100**

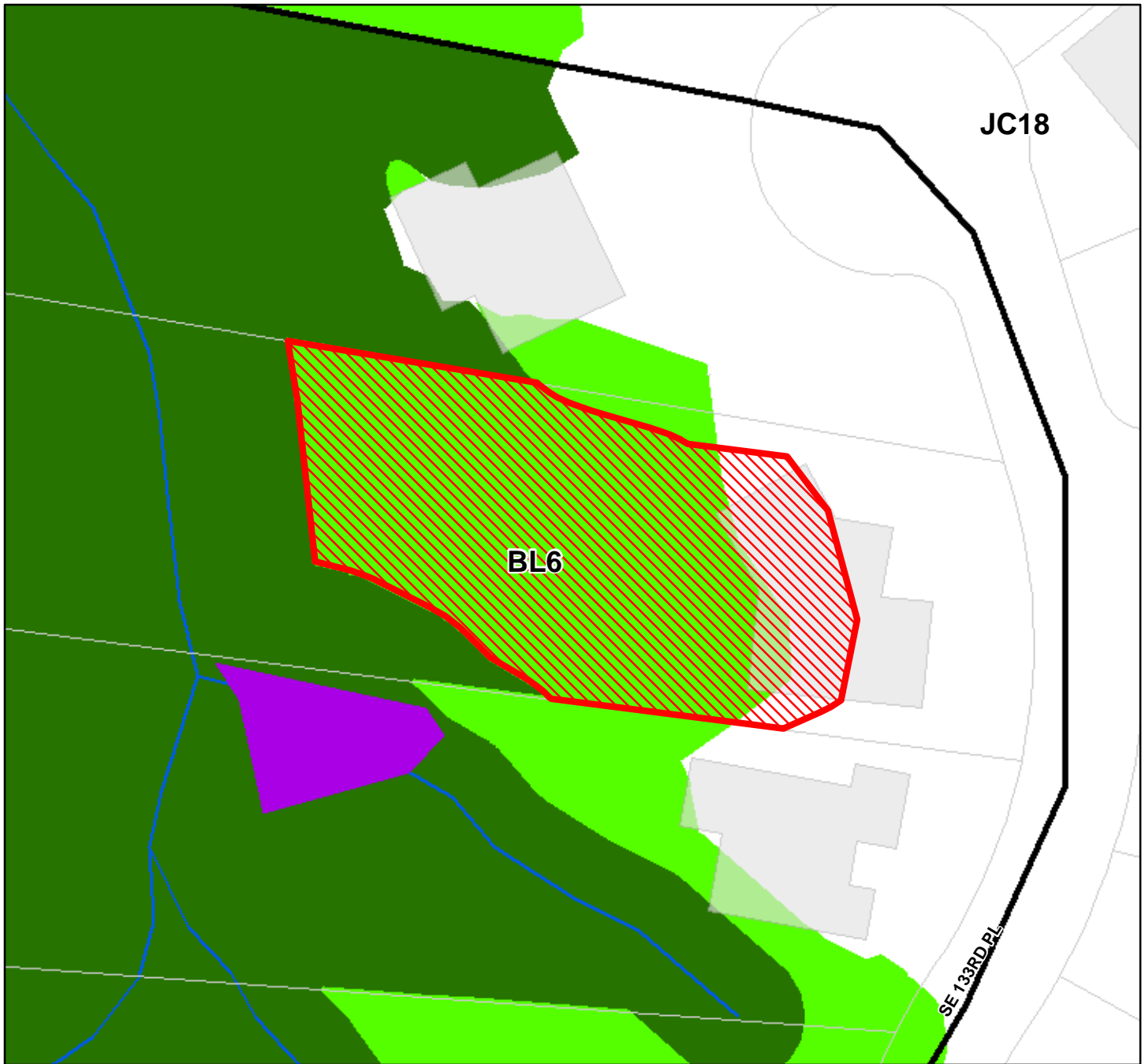
Updated: October 2021



Recommended Draft



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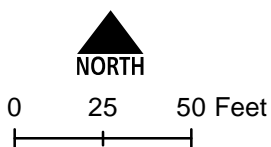


**'P' to 'C'  
Conversions**












**Conversion Description: Area is adjacent to existing development.**

**State ID  
1S2E23BD 700**

Updated: October 2021



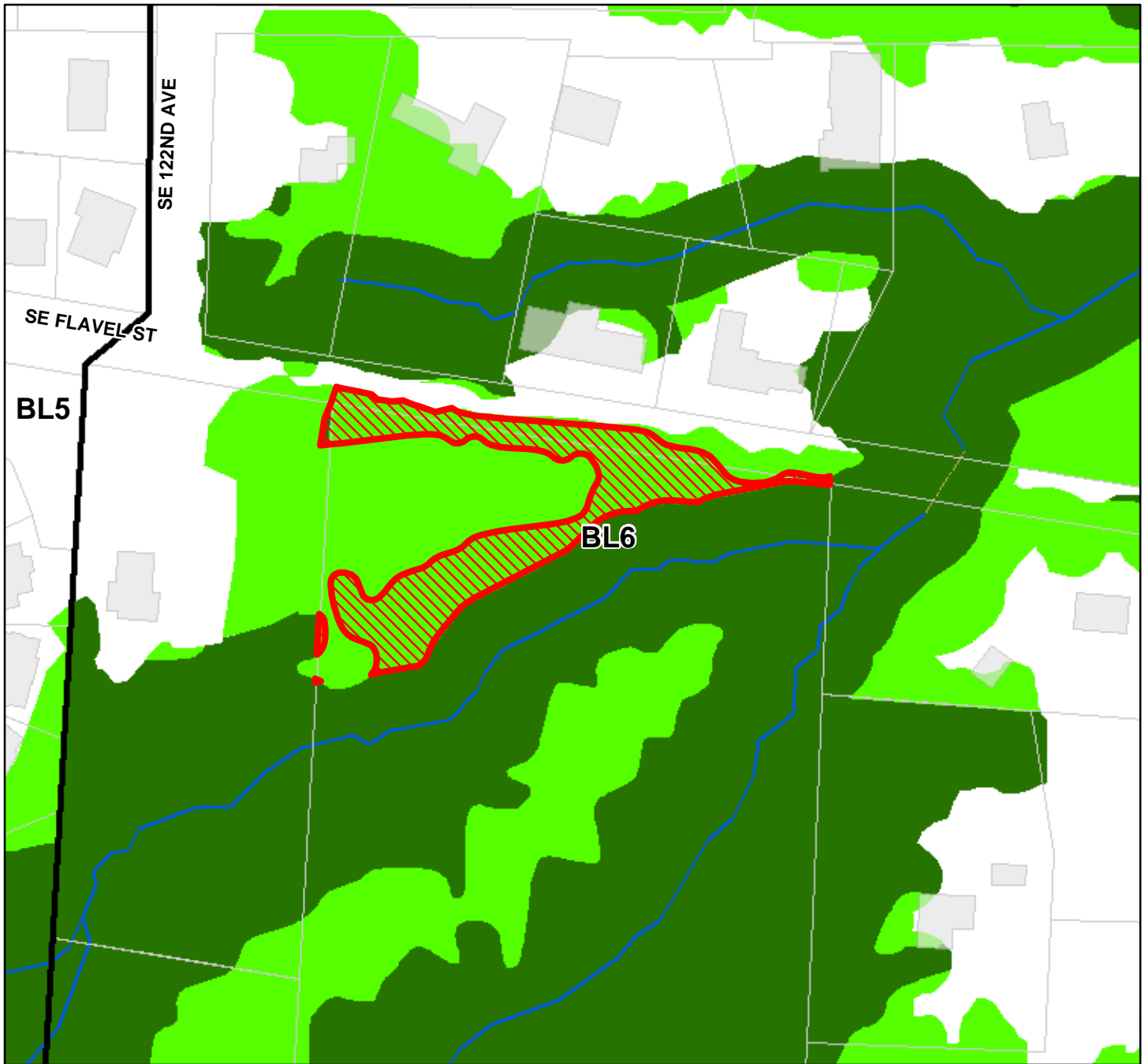
Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



The information on the map was derived from digital databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland ensures meaningful access to city programs, services, and activities to comply with Civil Rights Title VI and ADA Title II laws and reasonably provides: translation, interpretation, modifications, accommodations, alternative formats, auxiliary aids and services. To request these services, contact 503-823-7700, City TTY 503-823-6868, Relay Service: 711.
















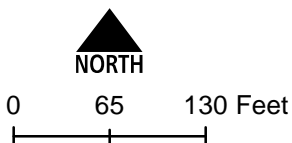
**'P' to 'C'  
Conversions**

**Conversion Description: Area is adjacent to road. If combined with adjacent c zone area, would produce large site for potential development.**

**State ID  
1S2E23CB 600**

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

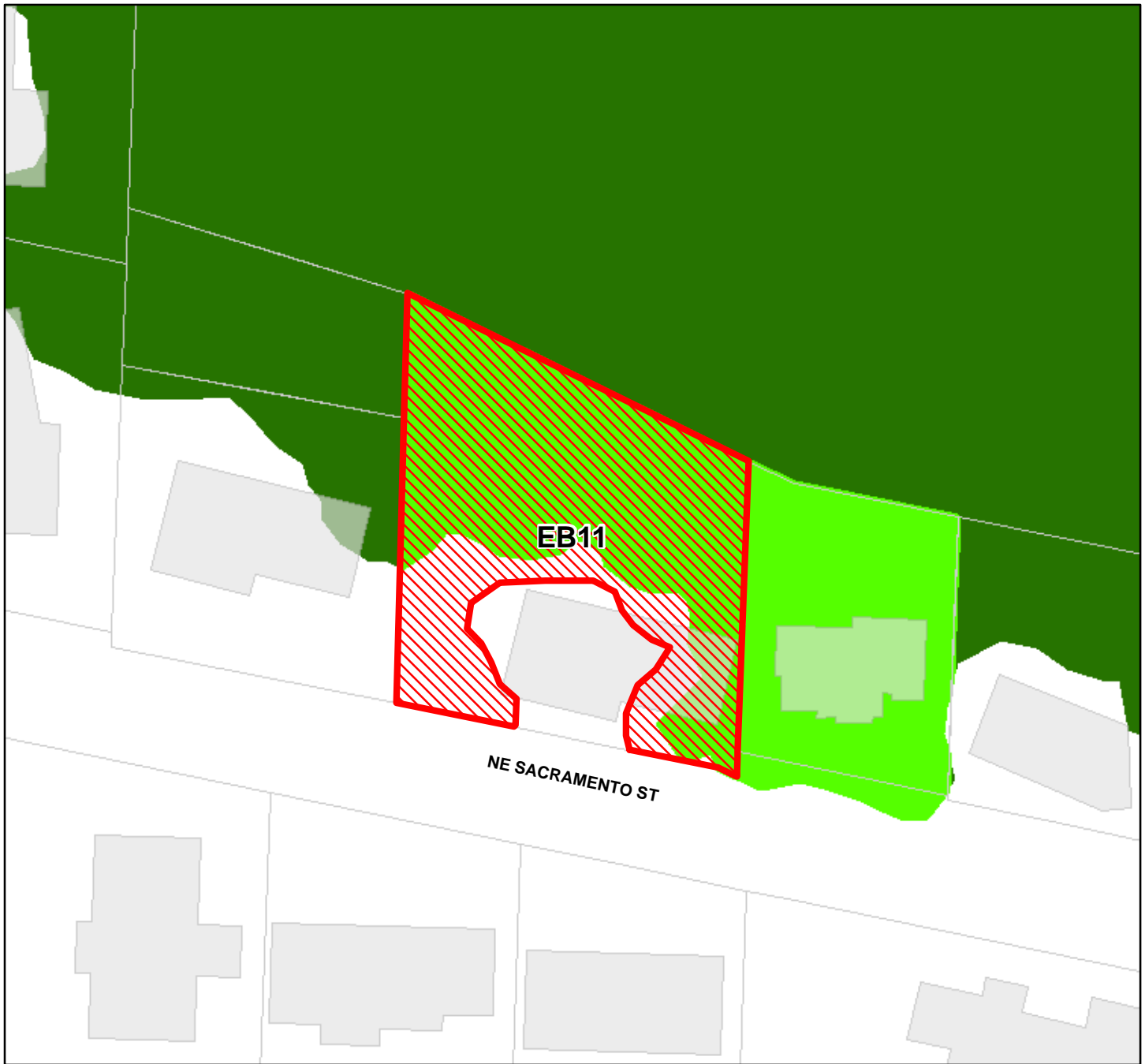
Updated: October 2021



Recommended Draft














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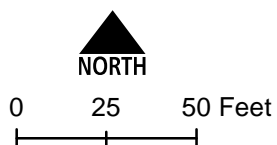
**'P' to 'C' Conversions**

**Conversion Description: Area is accessible from the street, and is adjacent to other development on the site.**

**State ID  
1N2E28DB 800**

- |  |  |
|--|--|
|  'p' to 'c' Conversions |  Open stream channel  |
|  Resource Sites         |  Piped Stream Segment |
|  Urban Service Boundary |  Flood Area           |
|  Taxlots                |  Draft C Zone         |
|  Wetlands               |  Draft P Zone         |
|  |  Draft S Zone         |

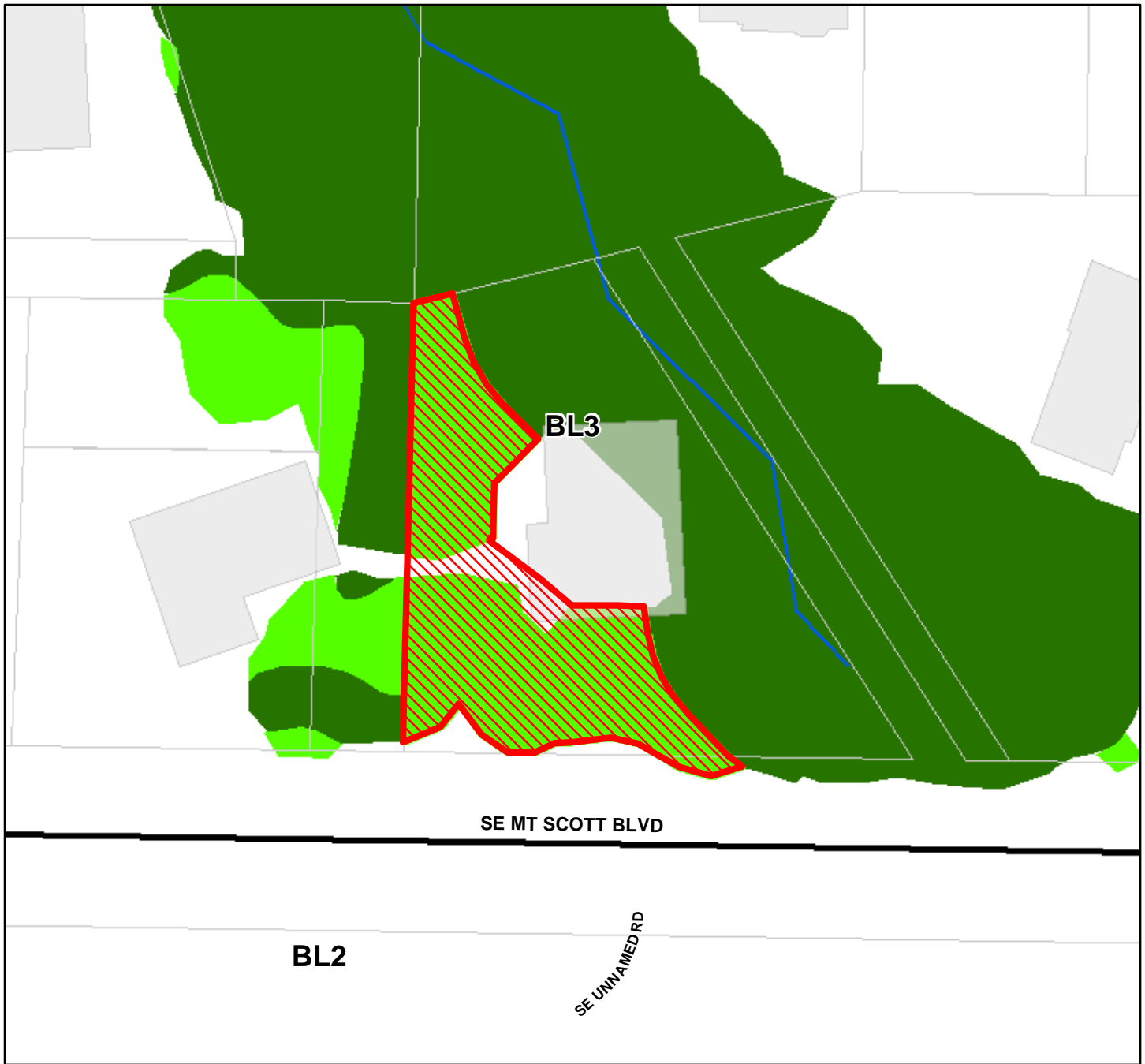
Updated: October 2021



Recommended Draft



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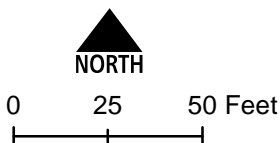
**'P' to 'C'  
Conversions**

**Conversion Description: Area is adjacent to existing development and could provide access to future development from the adjacent road.**

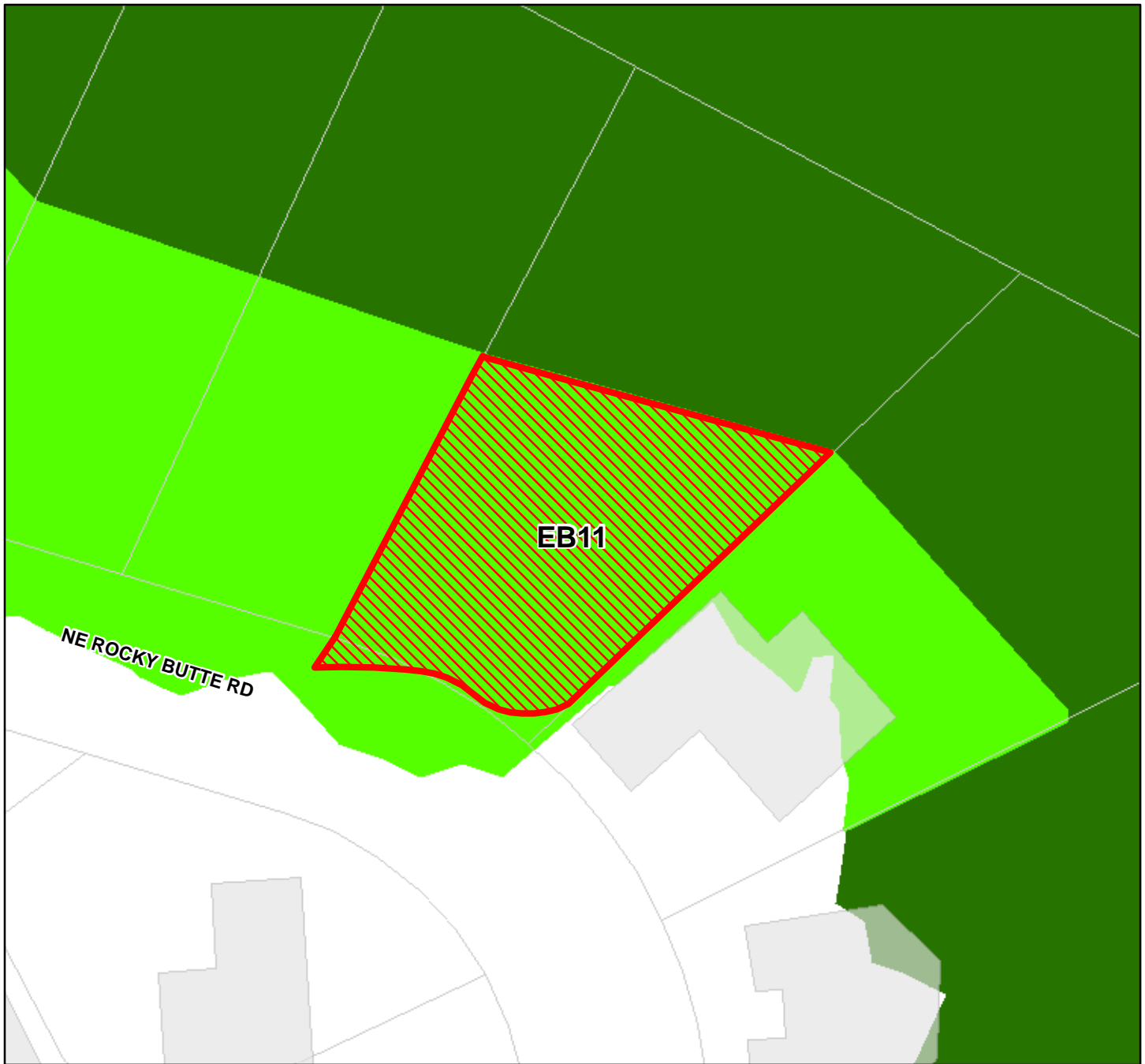
**State ID  
1S2E22CA 6500**



Updated: October 2021



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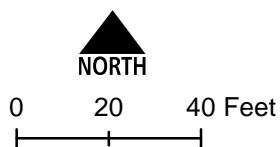
**'P' to 'C' Conversions**

**Conversion Description: Area includes least steeply sloped part of lot and is adjacent to the road.**

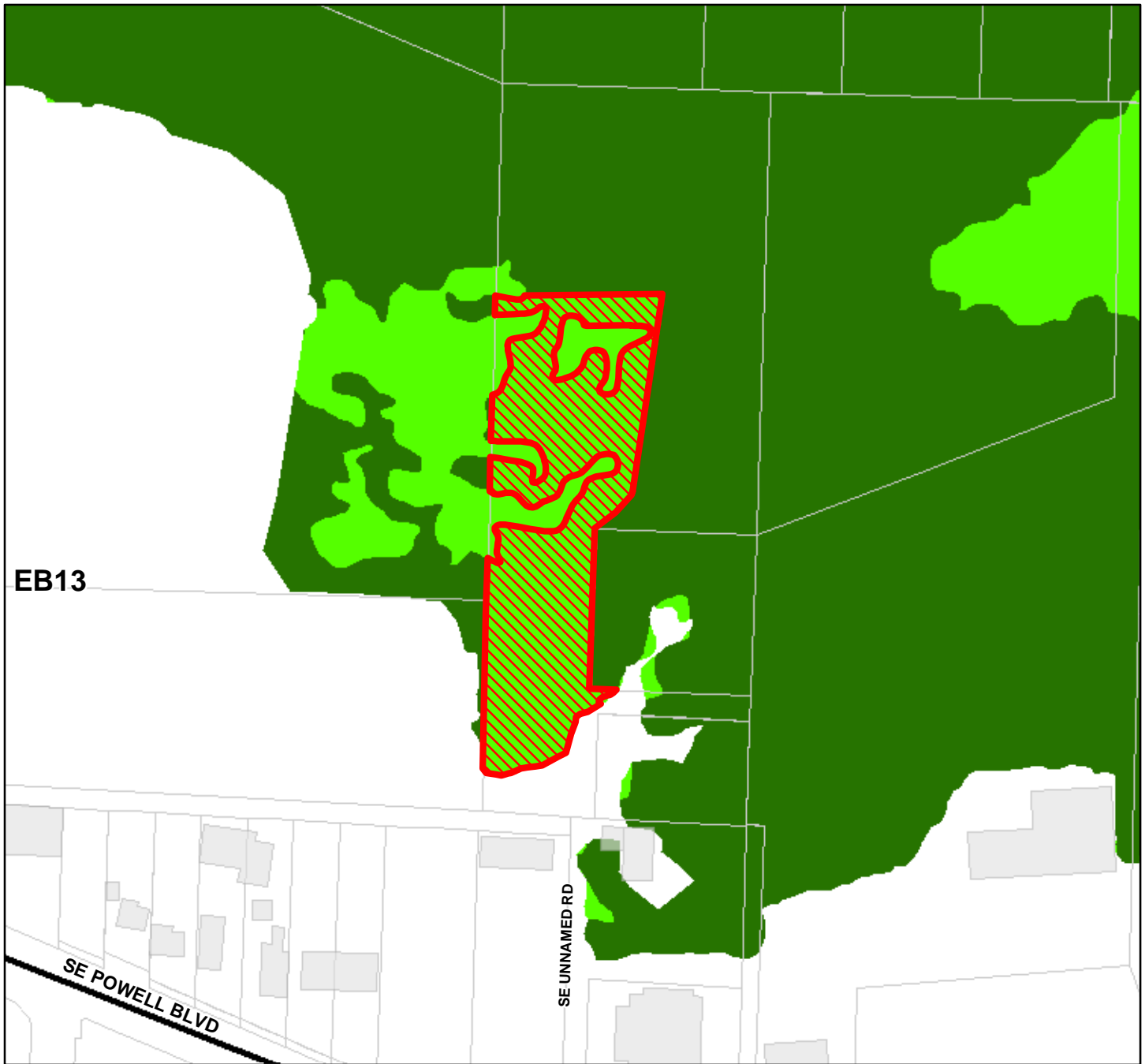
**State ID  
1N2E28AC 1000**



Updated: October 2021














The information on the map was derived from digital databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland ensures meaningful access to city programs, services, and activities to comply with Civil Rights Title VI and ADA Title II laws and reasonably provides: translation, interpretation, modifications, accommodations, alternative formats, auxiliary aids and services. To request these services, contact 503-823-7700, City TTY 503-823-6868, Relay Service: 711.



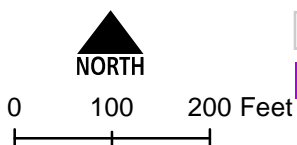
**'P' to 'C'  
Conversions**

**Conversion Description:** Area includes least steeply sloped parts of lot. Some of this area has already been cleared and disturbed. Has access to to streets.

**State ID  
1S2E09AD 400**

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

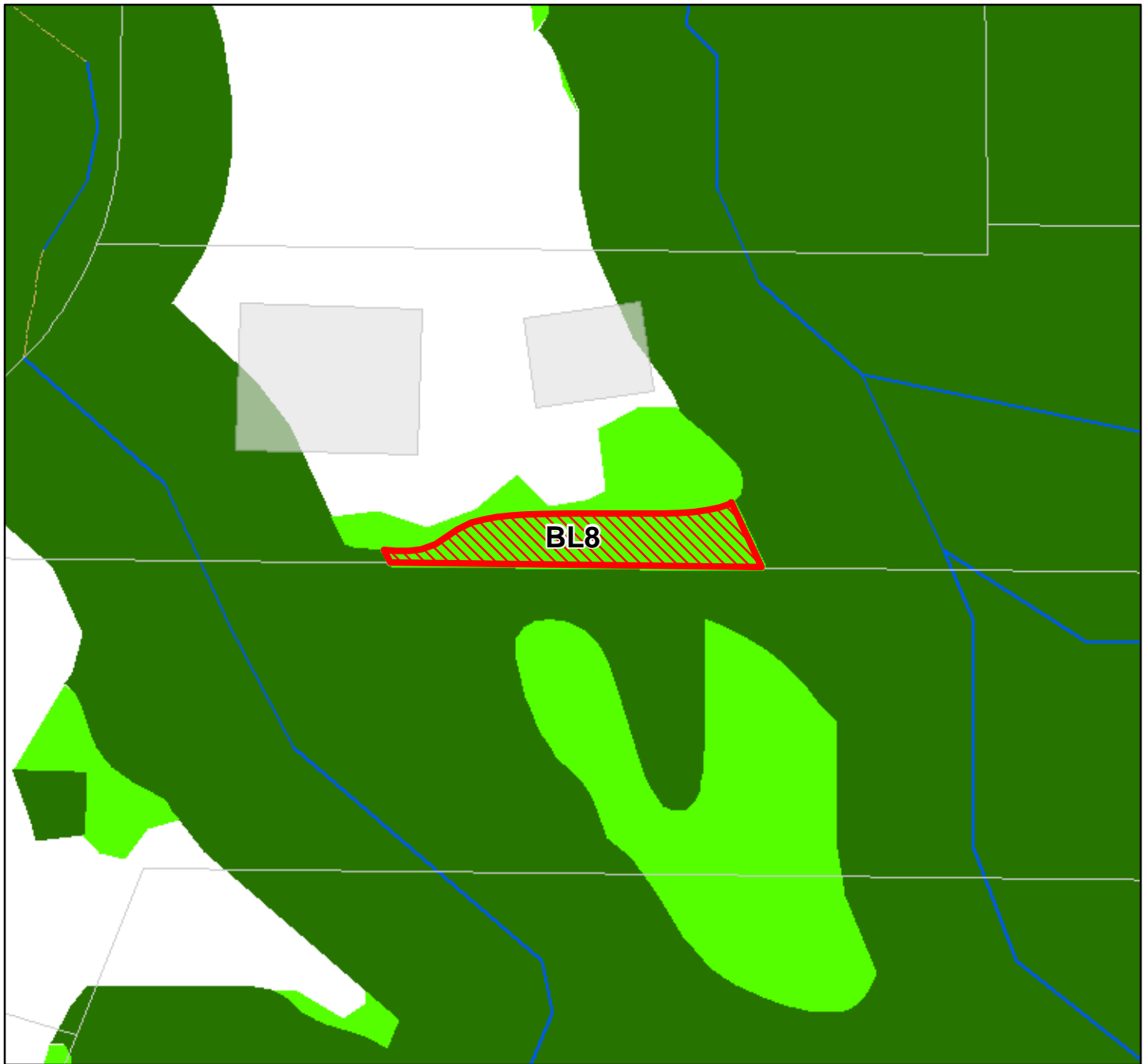
Updated: October 2021



Recommended Draft



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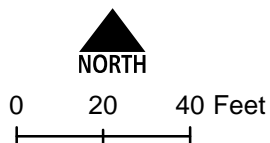
**'P' to 'C'  
Conversions**

**Conversion Description: Area is contiguous to existing development.**

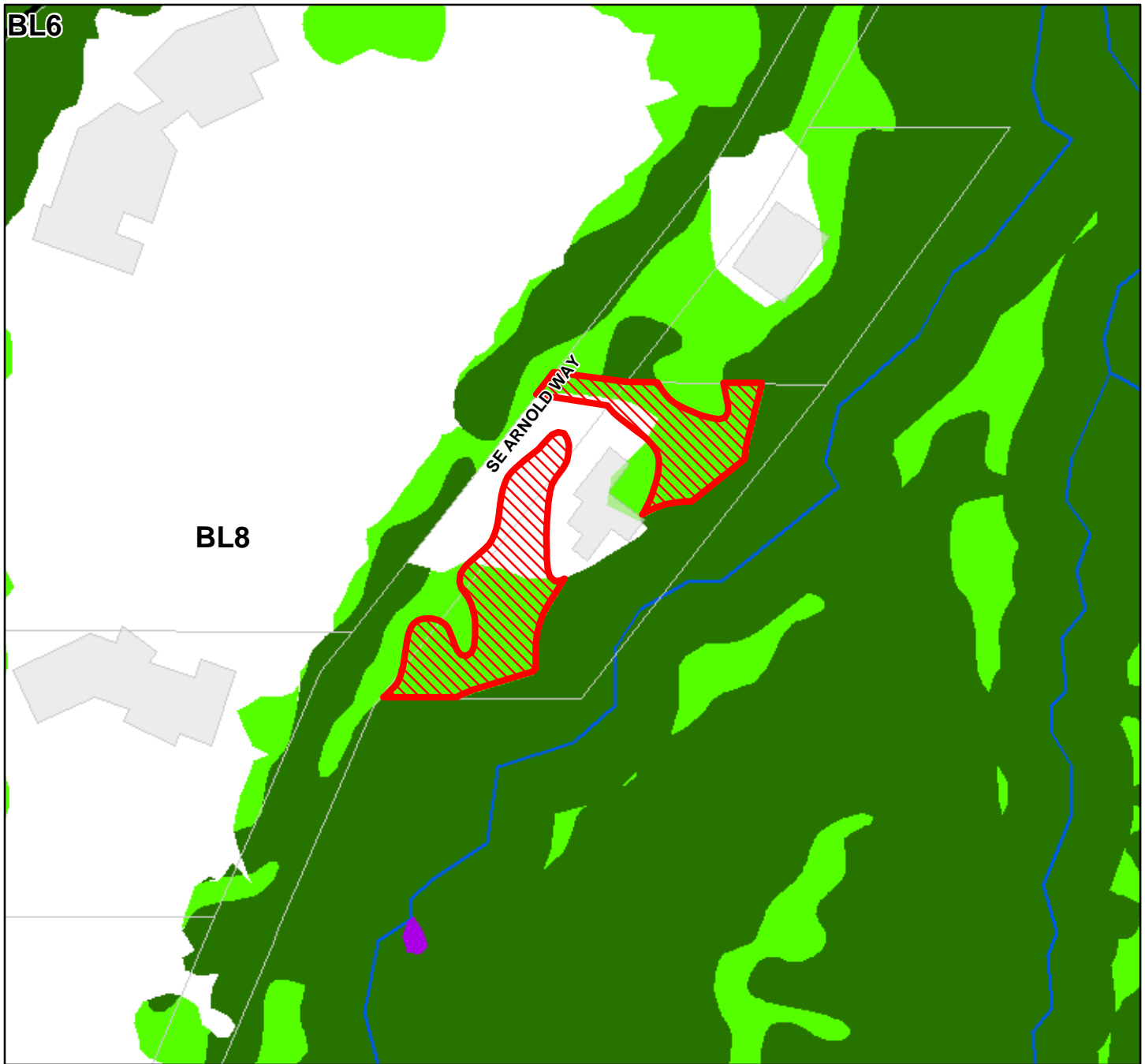
**State ID  
1S2E23DB 200**



Updated: October 2021



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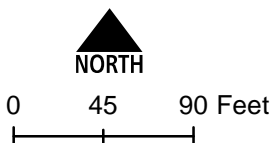
**'P' to 'C'  
Conversions**

**Conversion Description: Area is adjacent to road and existing development. It is contiguous to other c zone.**

**State ID  
1S2E23DB 1400**



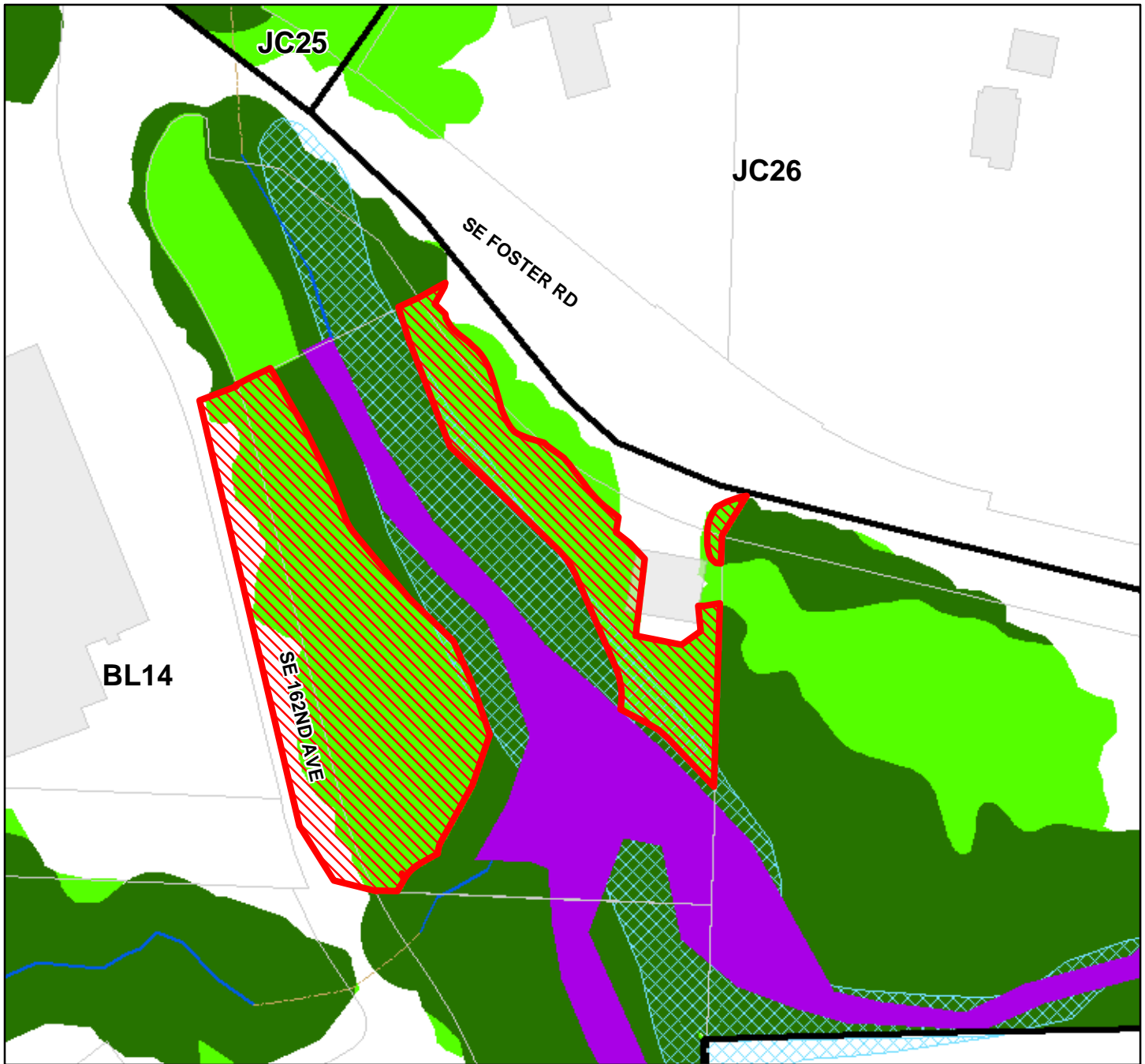
Updated: October 2021



Recommended Draft



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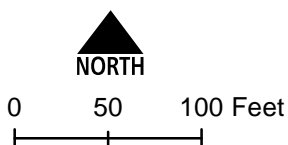
**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R10 Lot. Eastern area is contiguous to existing development and street. Western area, convert area outside riparian zone of stream and wetlands.**

**State ID  
1S2E24AA 600**

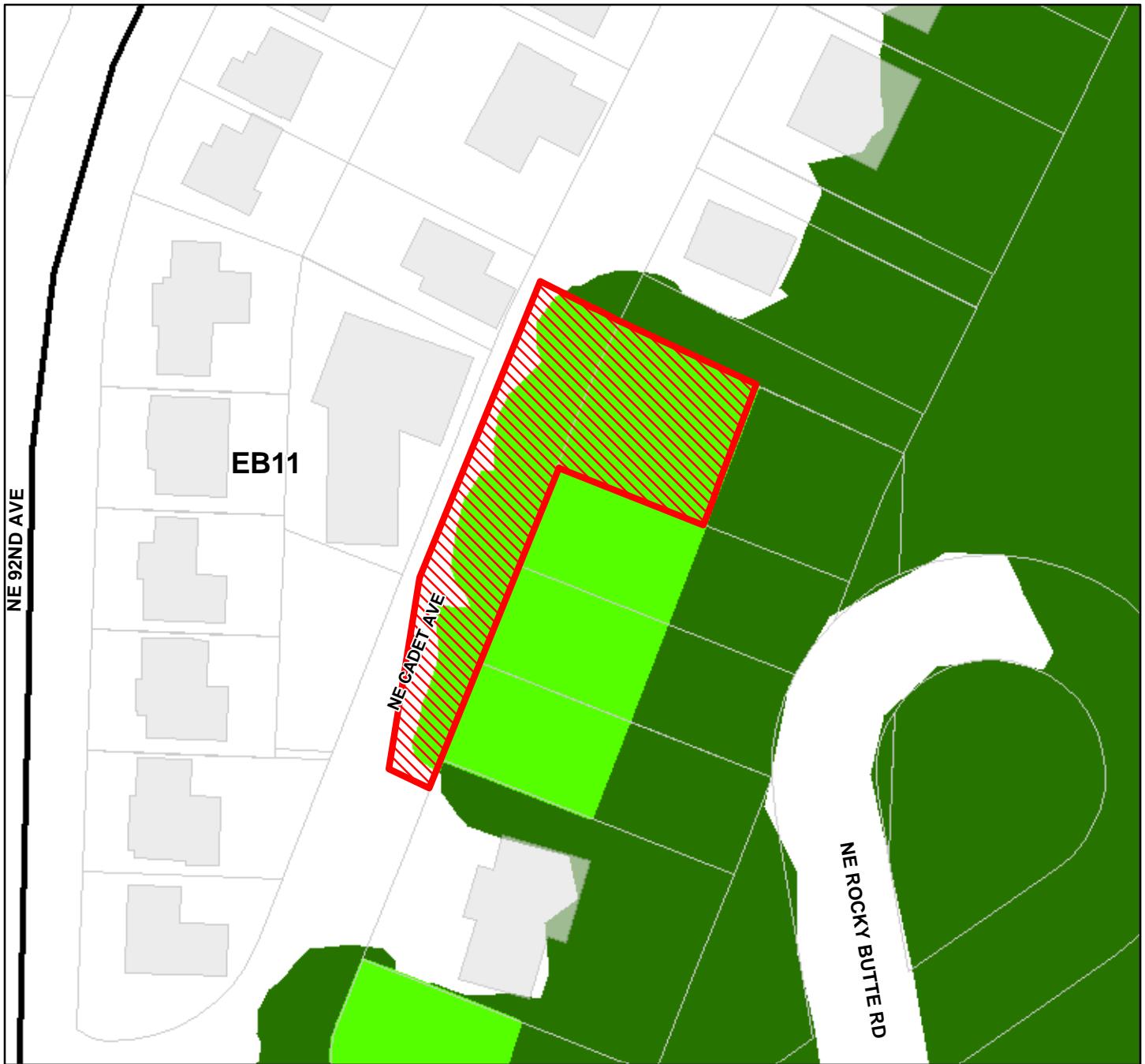


Updated: October 2021



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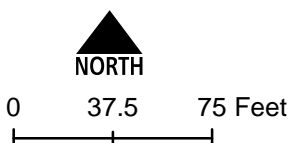
**'P' to 'C'  
Conversions**

**Conversion Description:** Though entire lot is steeply sloped, the area closest to NE Cadet Ave is the only area that could conceivably be developed.

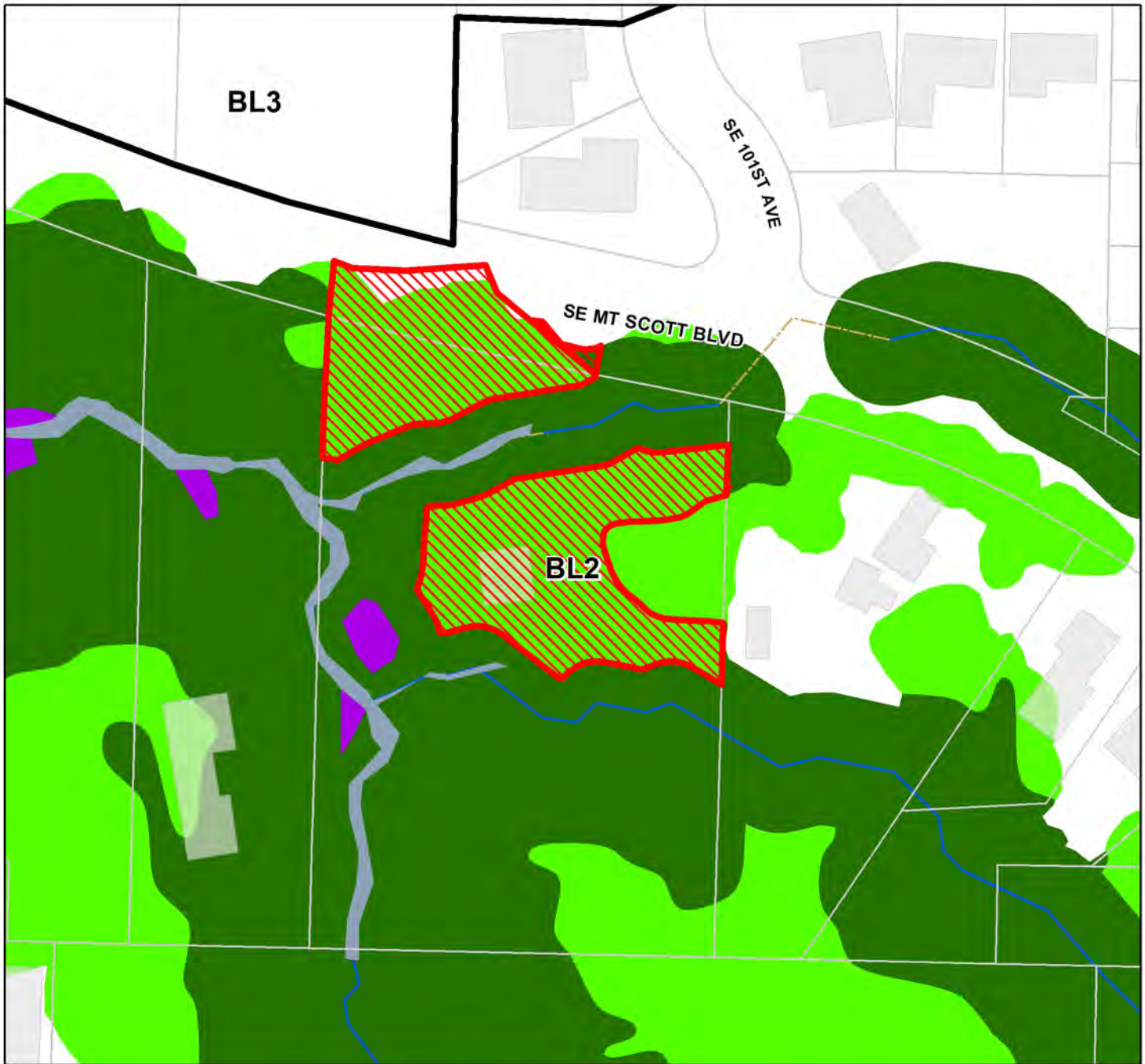
**State ID  
1N2E28BA 18500**



Updated: October 2021



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**'P' to 'C'  
Conversions**

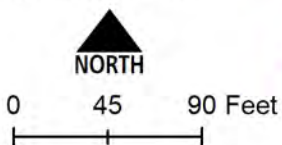
State ID  
1S2E21DA 5800

**Conversion Description:**

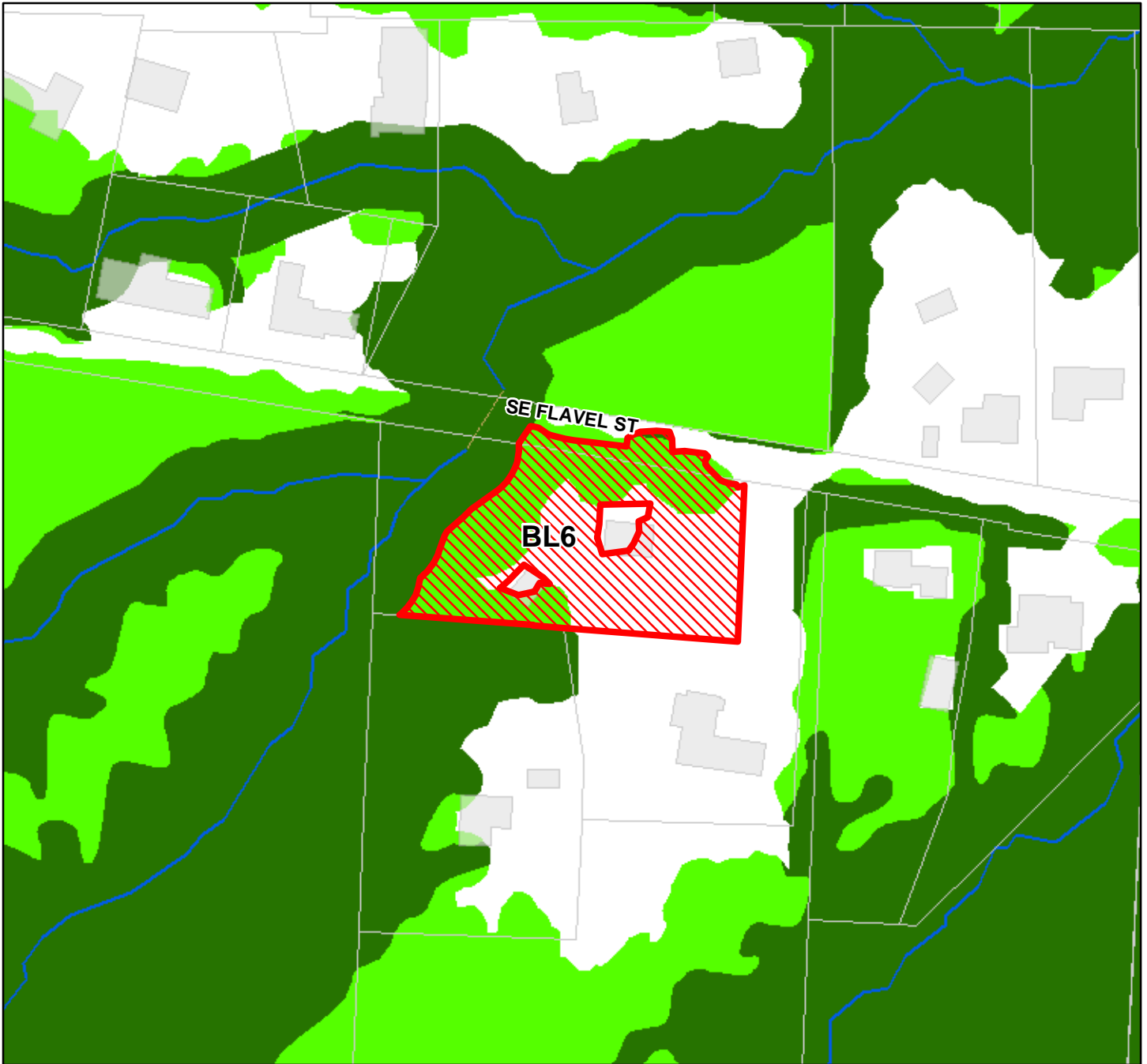
**Northern area:** This carve out creates a very small area of c zone, but it is adjacent to the street. It could theoretically be developed.  
**Southern area:** This area is adjacent to existing disturbance area, c zone, and includes some of the existing development.

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

Updated: October 2021














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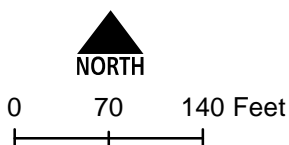
**'P' to 'C'  
Conversions**

**Conversion Description:**  
Area is adjacent to existing development and accessible for vehicles and utilities.

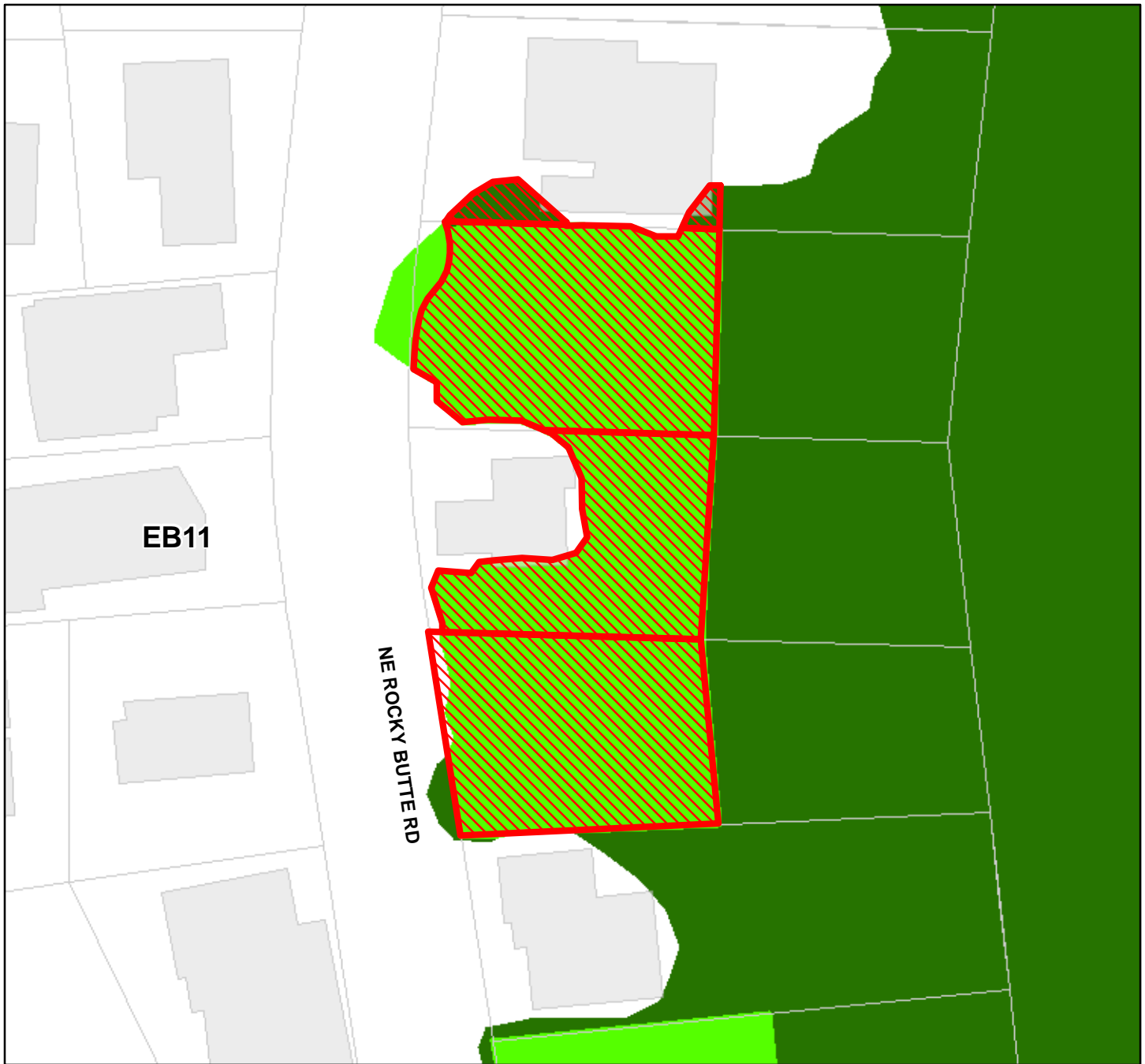
**State ID**  
**1S2E23CB 200**

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

Updated: October 2021













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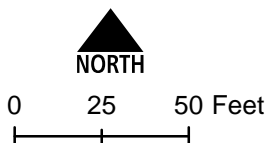
**'P' to 'C'  
Conversions**

**Conversion Description: Area includes the part of the lot that is closest to the existing development and the street. Adjacent areas modified to remove slivers.**

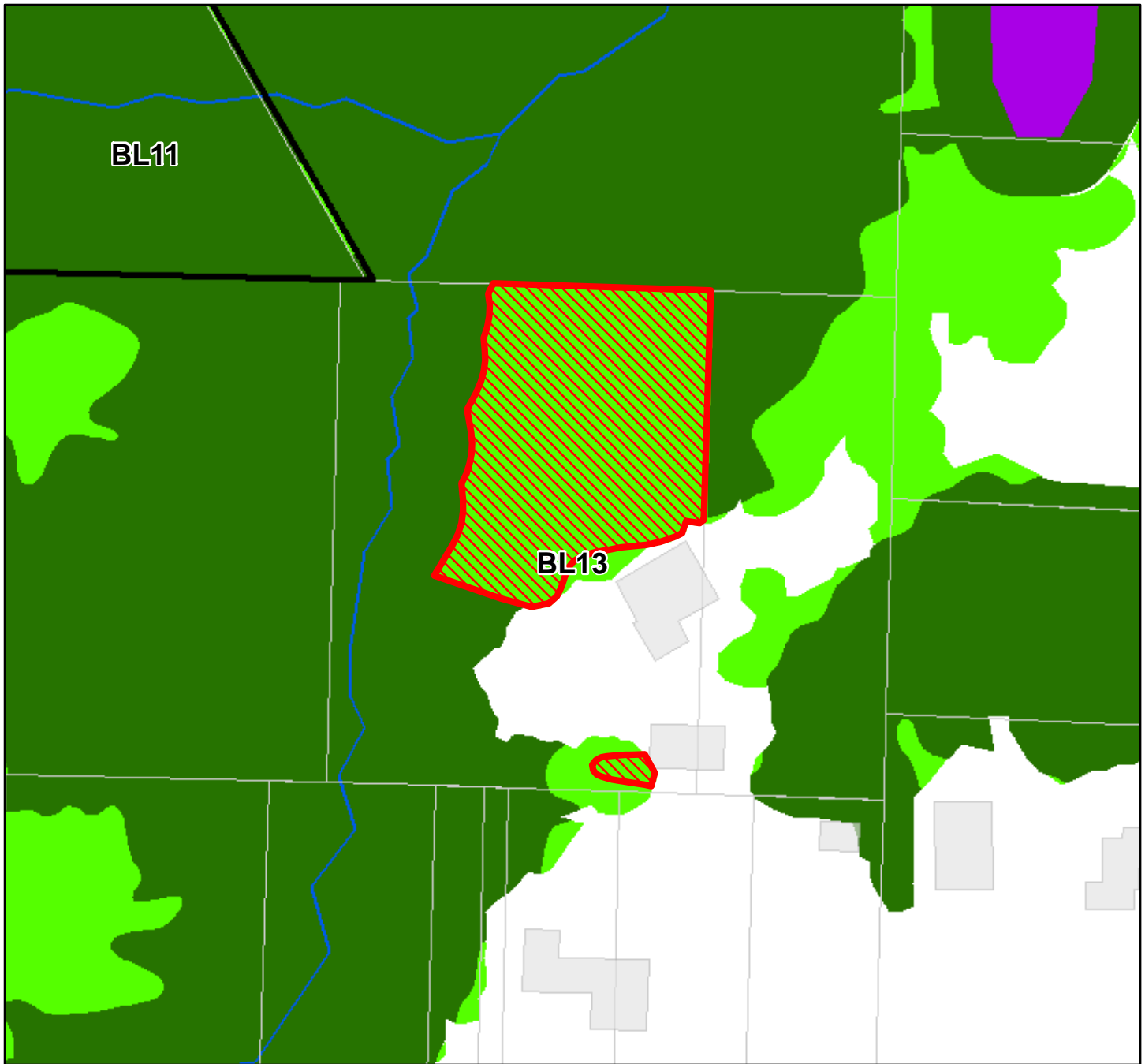
- State ID**  
 1N2E28AC 2000  
 1N2E28AC 1900  
 1N2E28AC 2100  
 1N2E28AC 1800

-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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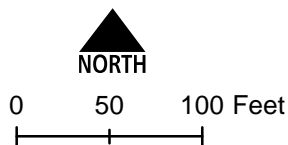
**'P' to 'C'  
Conversions**

**Conversion Description: Area is adjacent to existing development. Though it is steeply sloped forest, this area is less steep than other undeveloped lot area.**

**State ID  
1S2E24C 400**

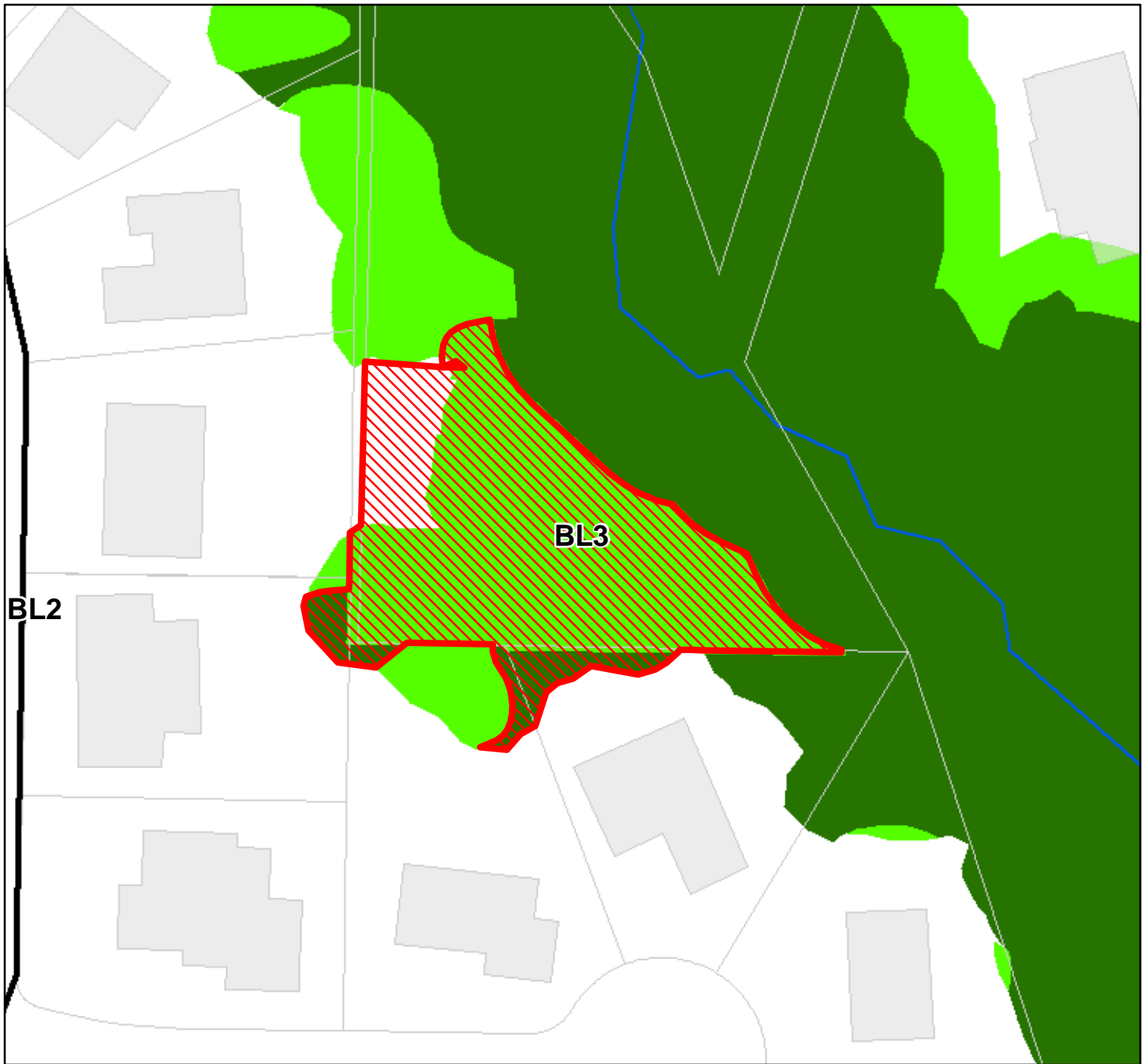


Updated: October 2021



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**'P' to 'C'  
Conversions**

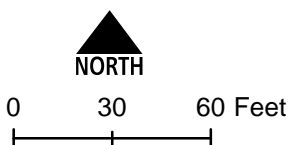
**Conversion Description: LUR 96 00277 determined that this area is the development site on this lot. Slivers on adjacent lots were also changed to 'c' zone.**

**State ID**

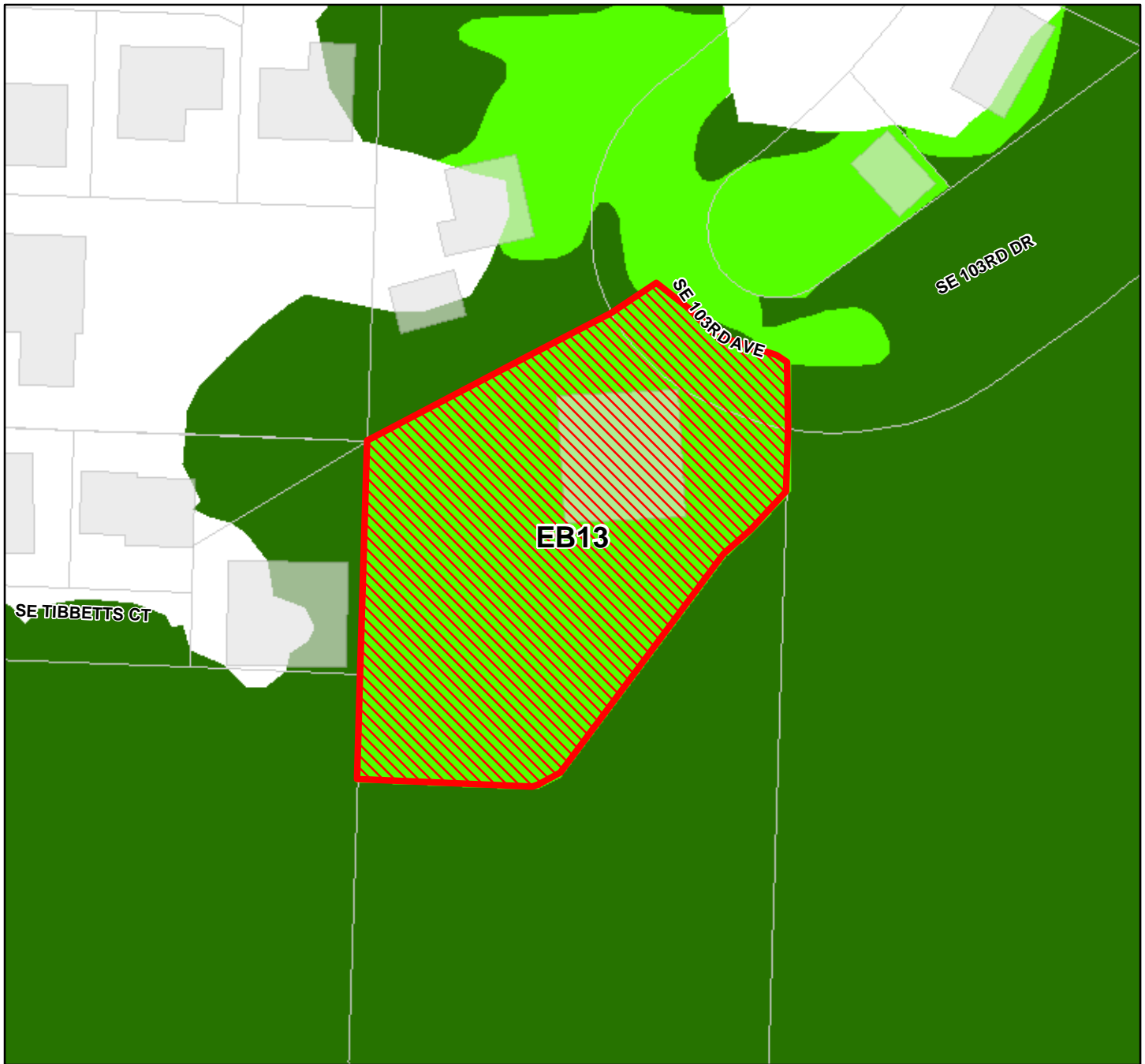
- 1S2E22CA 8915
- 1S2E22CA 8500
- 1S2E22CA 8300
- 1S2E22CA 8600

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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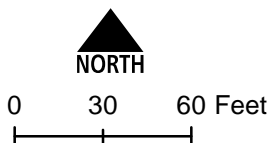
**'P' to 'C'  
Conversions**

**Conversion Description: Area includes the least steep part of the site. It is adjacent to the street and utilities.**

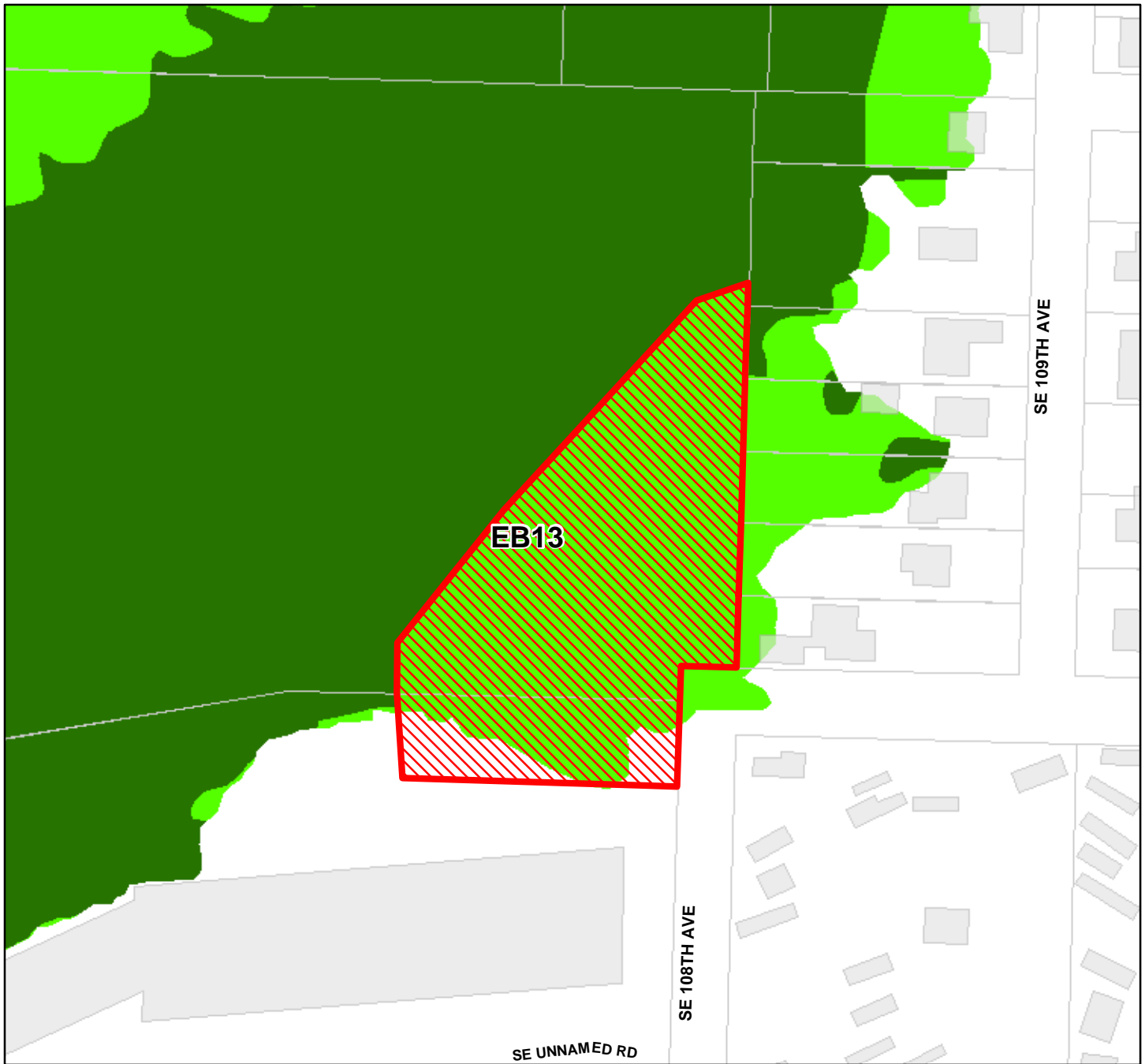
**State ID  
1S2E10B 700**



Updated: October 2021














The information on the map was derived from digital databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland ensures meaningful access to city programs, services, and activities to comply with Civil Rights Title VI and ADA Title II laws and reasonably provides: translation, interpretation, modifications, accommodations, alternative formats, auxiliary aids and services. To request these services, contact 503-823-7700, City TTY 503-823-6868, Relay Service: 711.



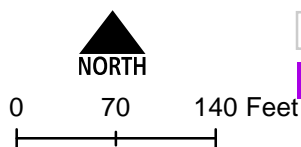
**'P' to 'C'  
Conversions**

**Conversion Description: This portion of the lot includes the least steeply sloped areas and has direct access to existing right of way.**

**State ID  
1S2E10B 1200**

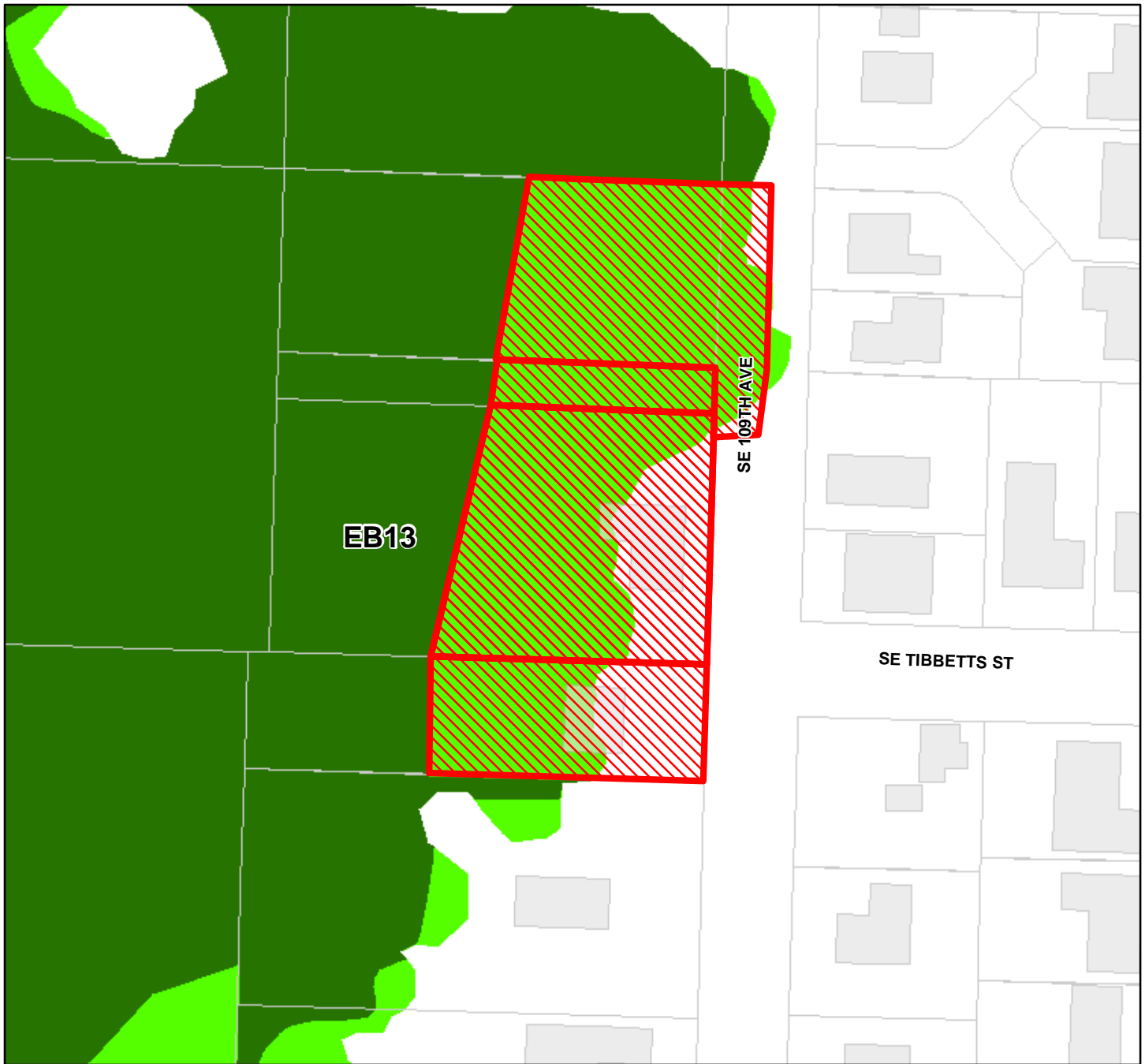
- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

Updated: October 2021



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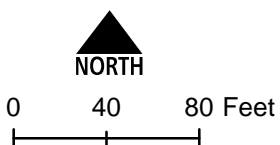
**'P' to 'C'  
Conversions**

**Conversion Description: Area is steeply sloped, but converted area is the closest to the street and existing development.**

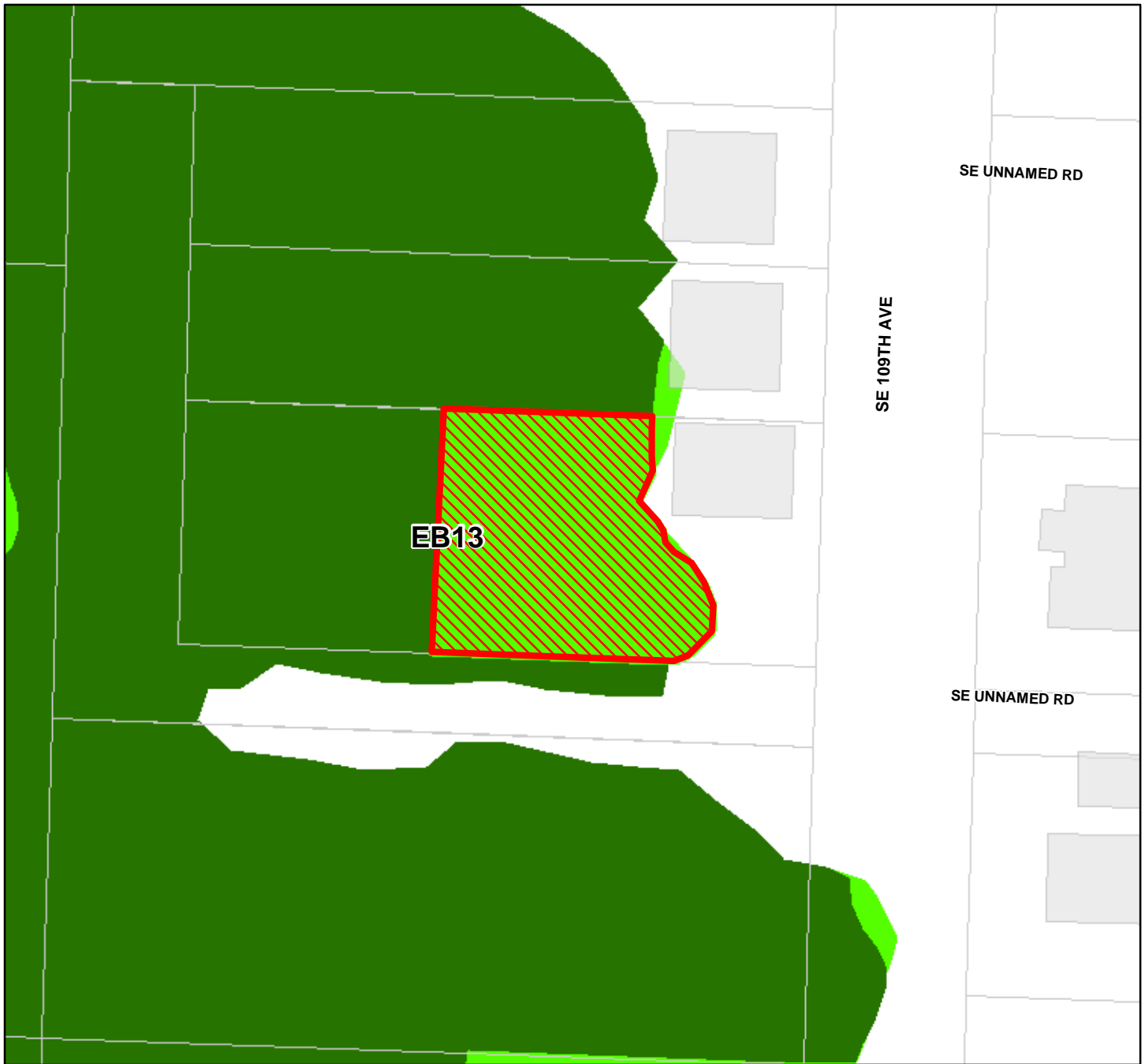
**State ID**  
1S2E10BD 2500  
1S2E10BD 2600  
1S2E10BD 2700  
1S2E10BD 2800

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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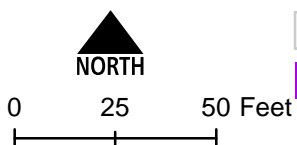


**'P' to 'C'  
Conversions**












**Conversion Description: Entire lot is steeply sloped. This area includes some of the least sloped areas in the p zone, and is adjacent to existing development.**

**State ID  
1S2E10BA 5703**

Updated: October 2021

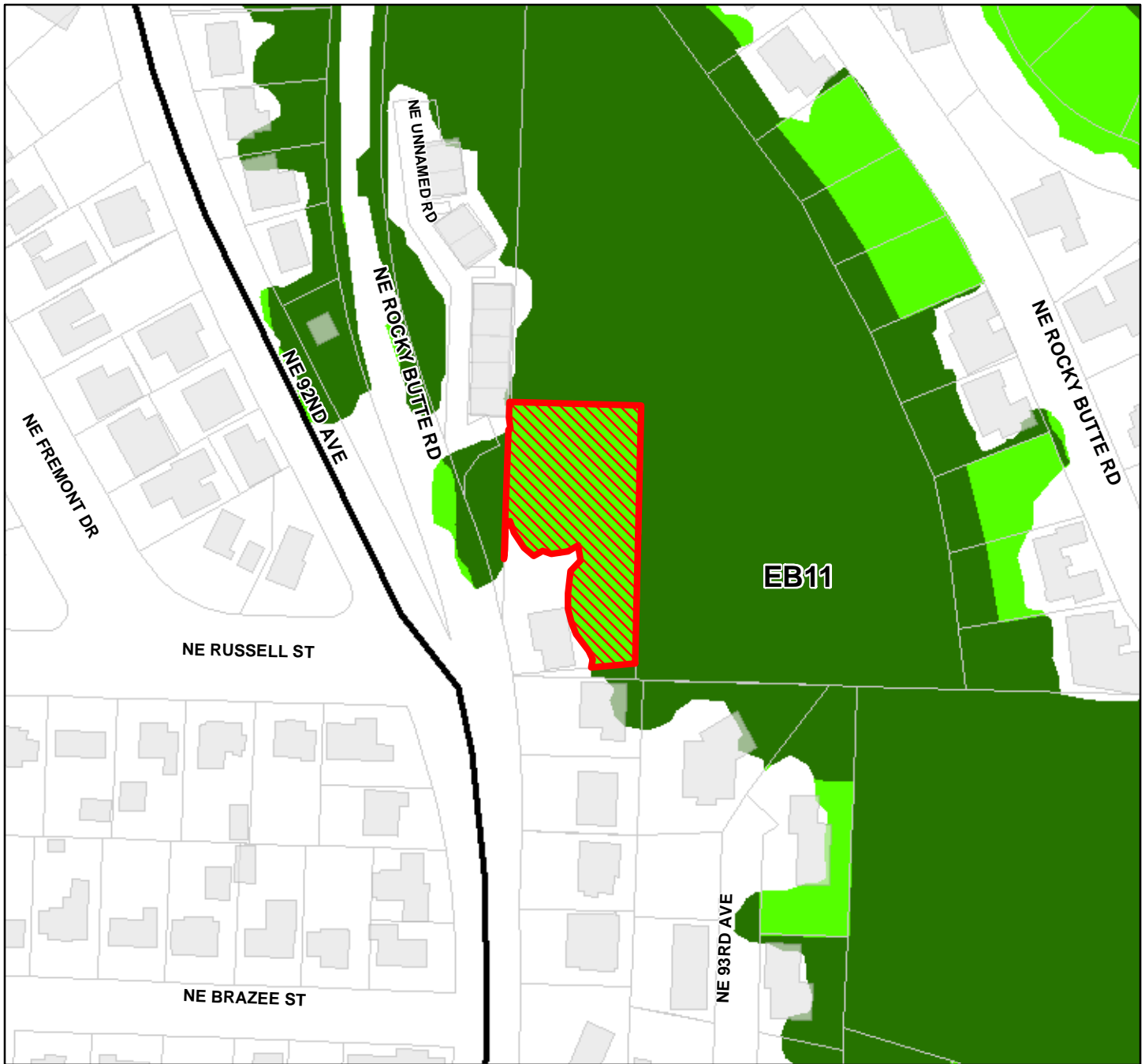


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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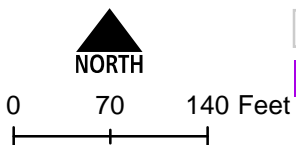


**'P' to 'C'  
Conversions**












**Conversion Description:** Though steeply sloped forest, area is adjacent to existing development and street/utility access.

**State ID**  
**1N2E28AC 6500**

Updated: October 2021

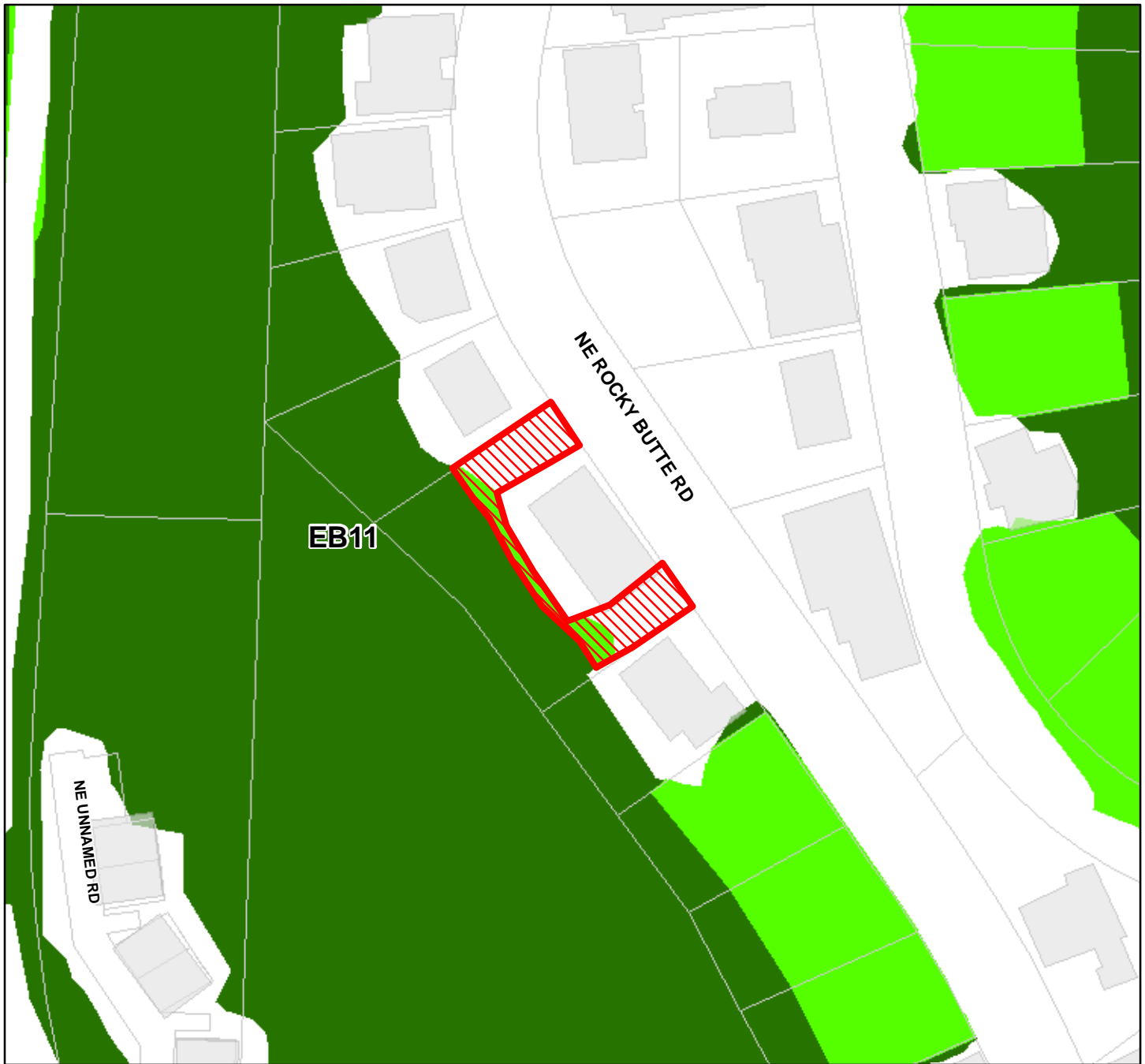


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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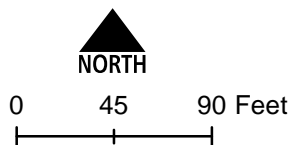


**'P' to 'C'  
Conversions**












**Conversion Description: Lot slopes steeply away from road. Carve out area that is close to road and adjacent to existing development.**

**State ID  
1N2E28AC 5600**

Updated: October 2021

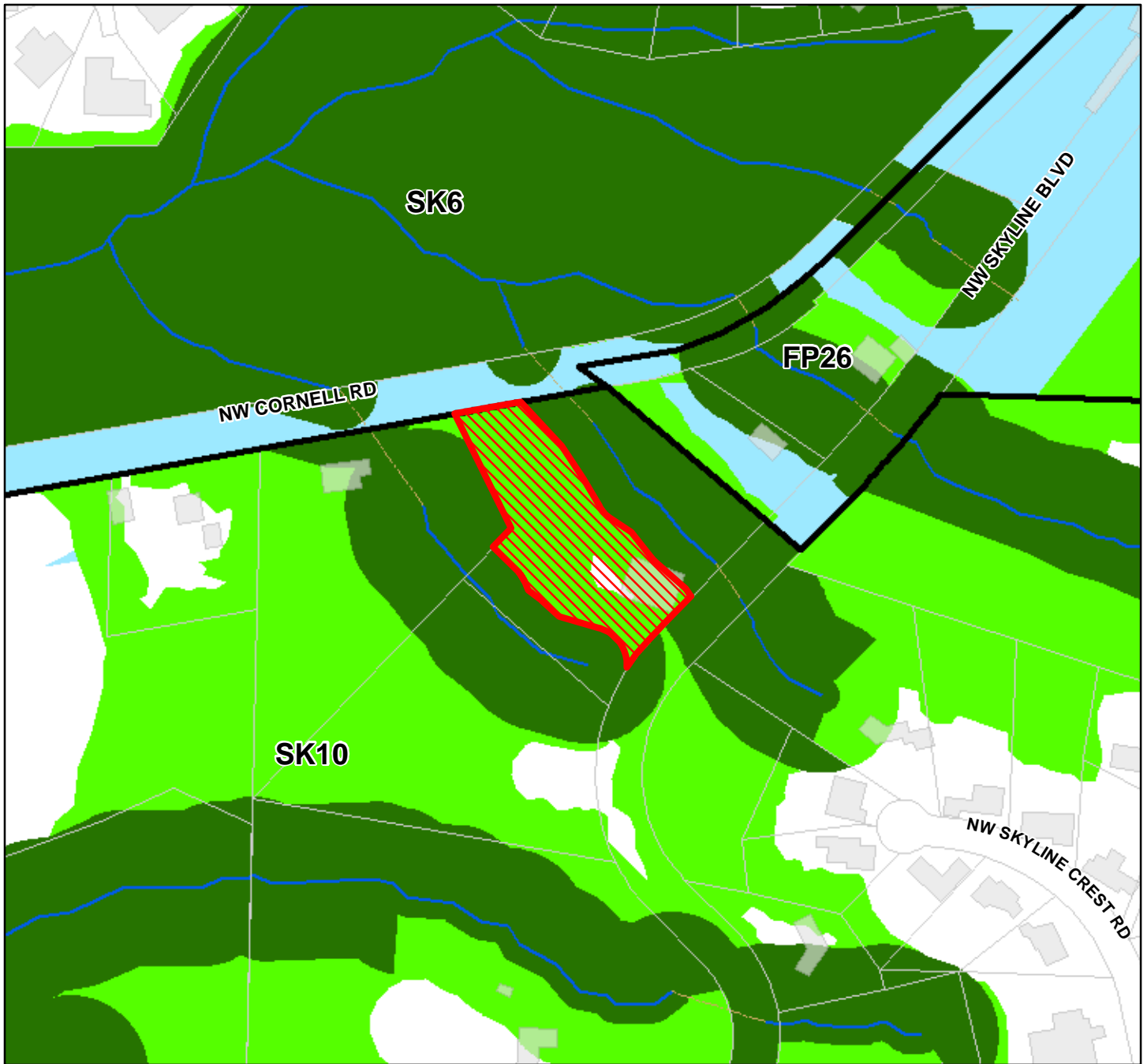


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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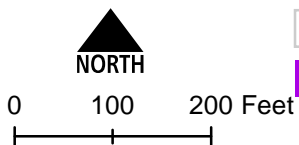


**'P' to 'C'  
Conversions**












**Conversion Description: Converted area greater than 50 ft from streams and adjacent to existing development.**

**State ID  
1N1W36BD 3500**

Updated: October 2021



Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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**'P' to 'C'  
Conversions**

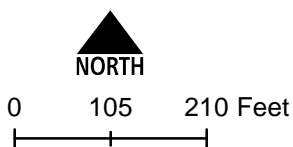
**Conversion Description: These lots are privately owned and were erroneously included in the parks layer. P-zone should not be applied since they are not part of the park.**

**State ID**

- 1N1W11CB 200
- 1N1W11CB 100
- 1N1W11CB 300

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021

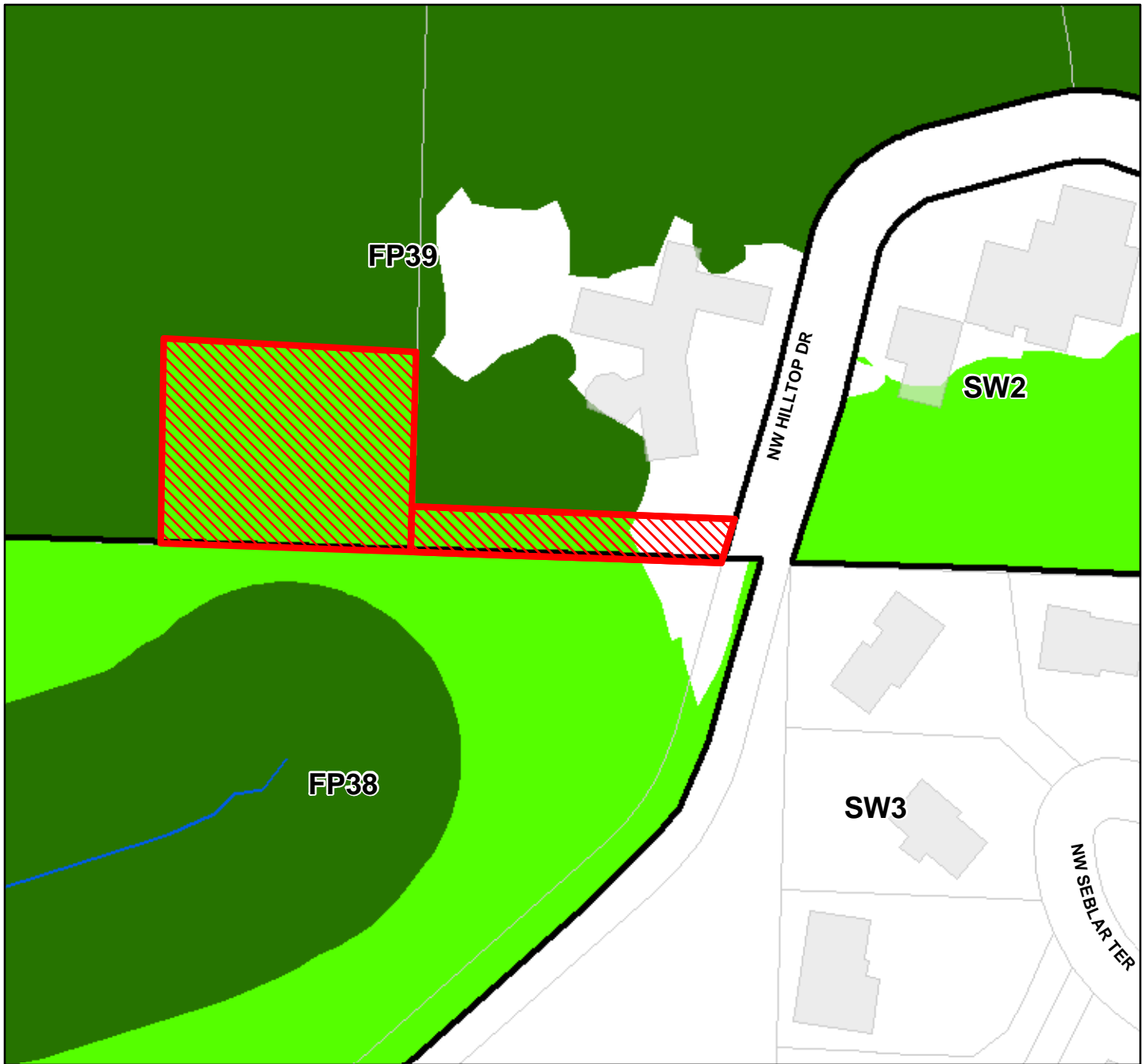


Recommended Draft



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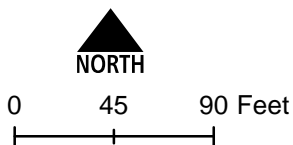


**'P' to 'C'  
Conversions**












**Conversion Description: Undeveloped RF lot. Convert area closest to right-of-way and existing development plus for access to NW Hilltop Dr.**

**State ID**  
1N1E31DA 800  
1N1E31DA 900

Updated: October 2021

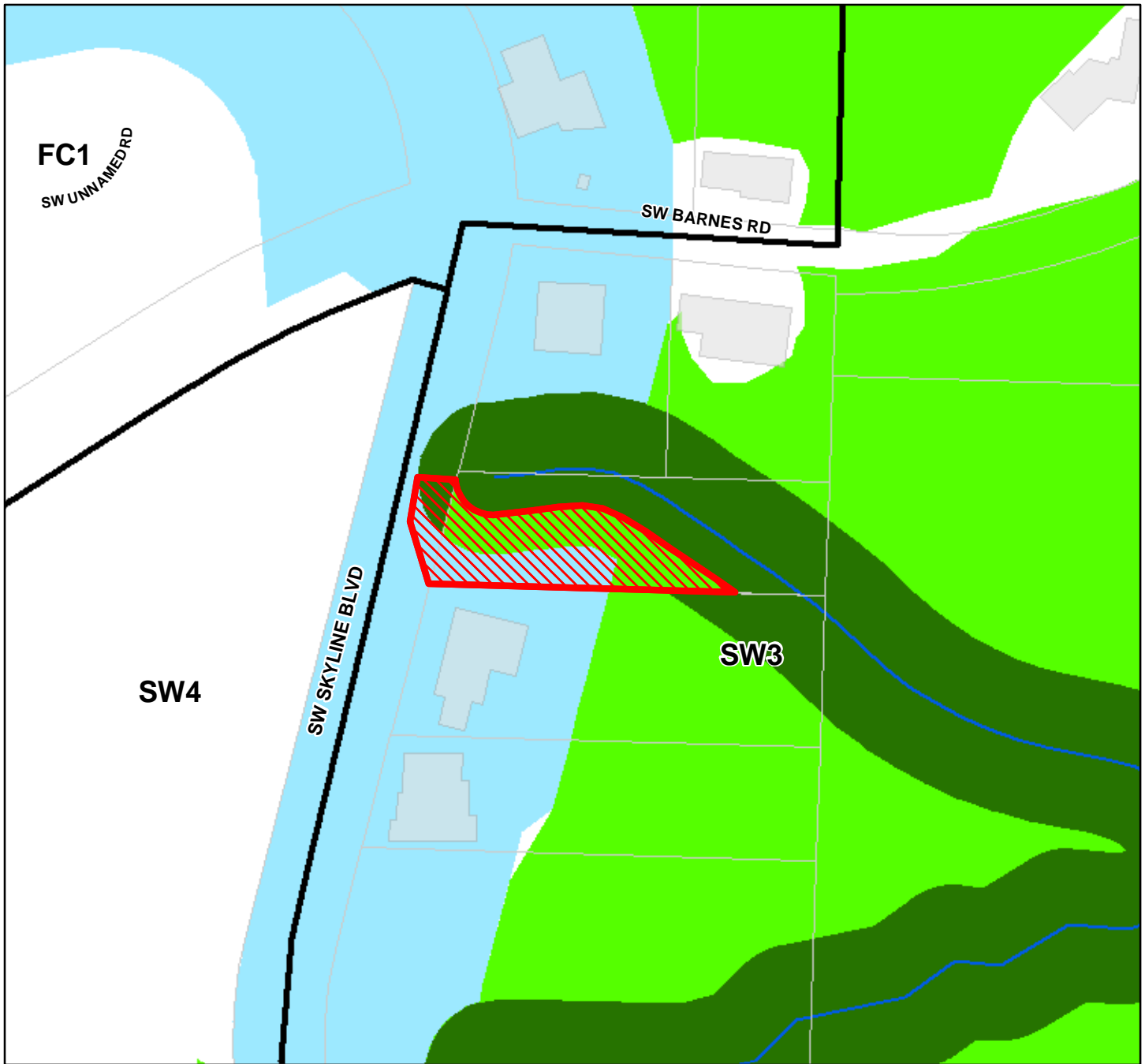


Recommended Draft

- |  |  |
|--|--|
|  'p' to 'c' Conversions |  Open stream channel  |
|  Resource Sites         |  Piped Stream Segment |
|  Urban Service Boundary |  Flood Area           |
|  Taxlots                |  Draft C Zone         |
|  Wetlands               |  Draft P Zone         |
|  |  Draft S Zone         |



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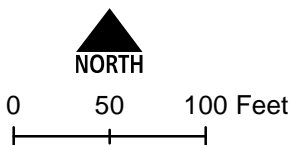


**'P' to 'C' Conversions**












**Conversion Description: Undeveloped R20 lot. Converted area >25' from stream.**

**State ID  
1S1E06AB 2100**

Updated: October 2021



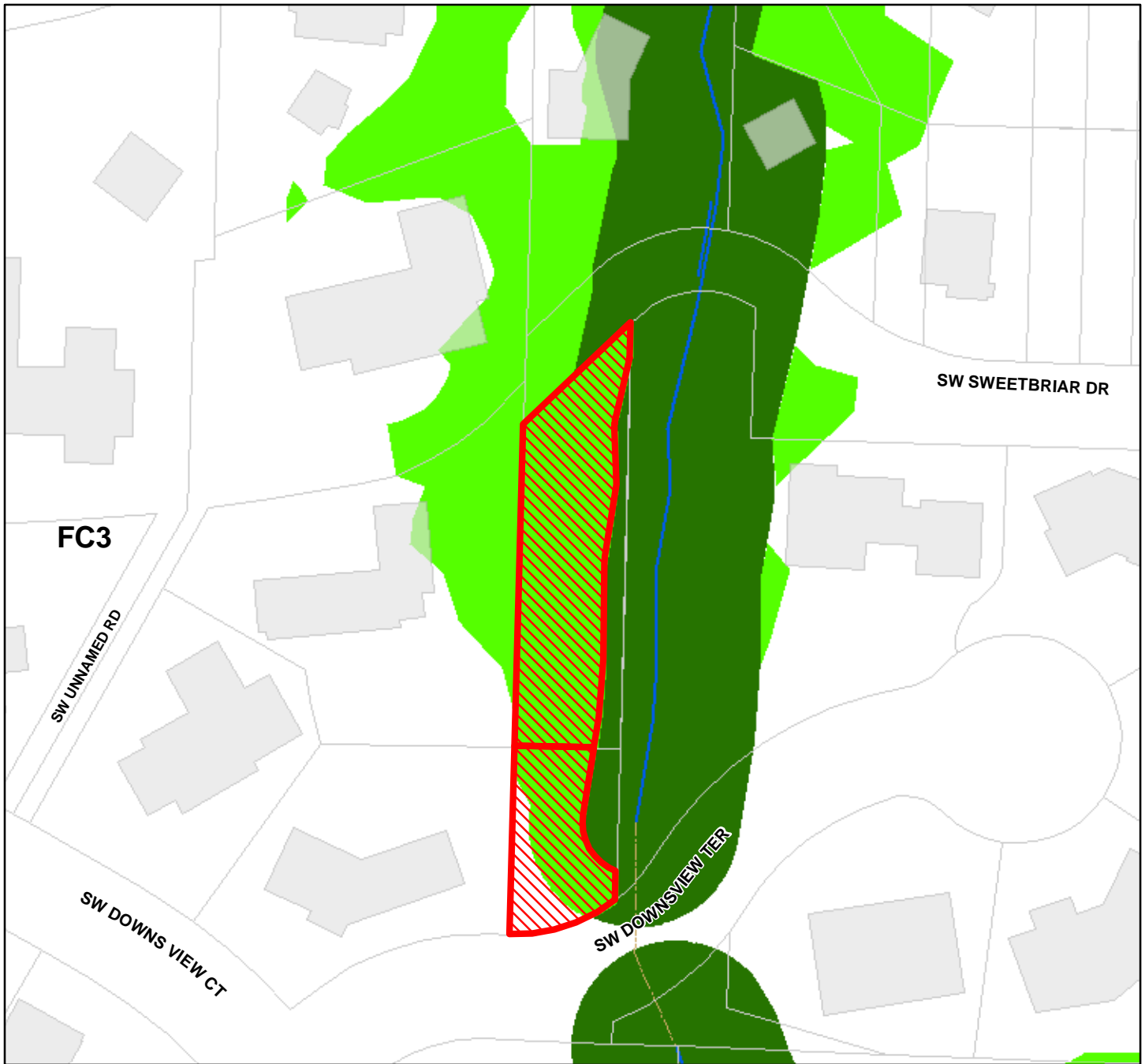
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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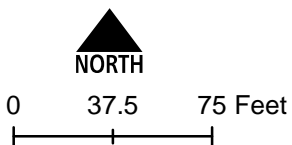













**'P' to 'C'  
Conversions**

**Conversion Description: Vacant residential lots. Carve out area >25' from stream.**

**State ID**  
1S1E08BD 11700  
1S1E08BD 11800

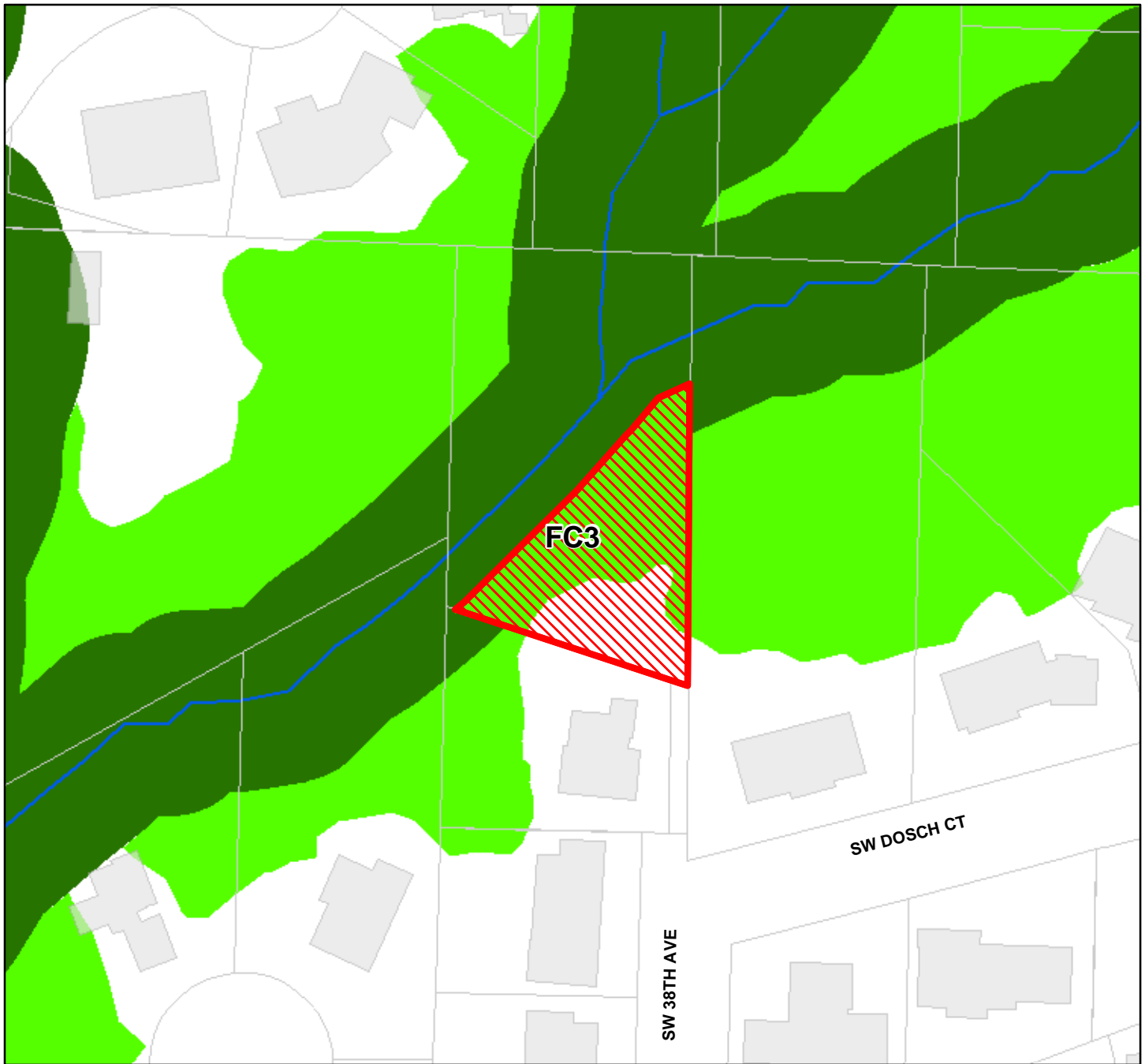
Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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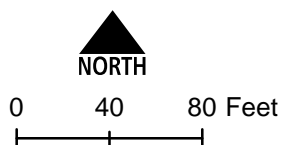


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant dividable R10 lot. Convert area closest to access and existing development >25' from stream.**

**State ID  
1S1E08CA 2800**

Updated: October 2021

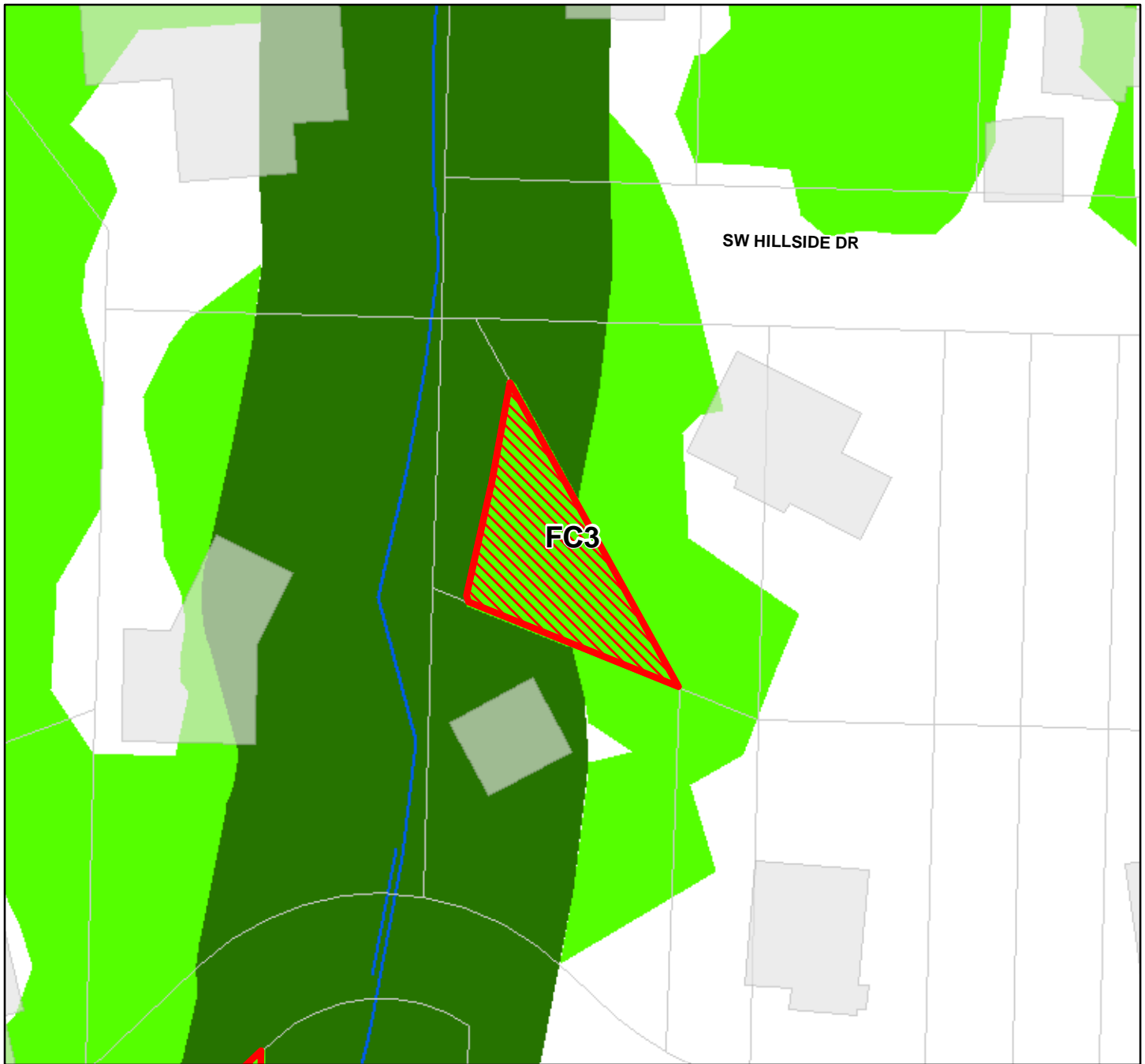


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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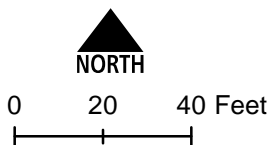


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID  
1S1E08BD 9200**

Updated: October 2021

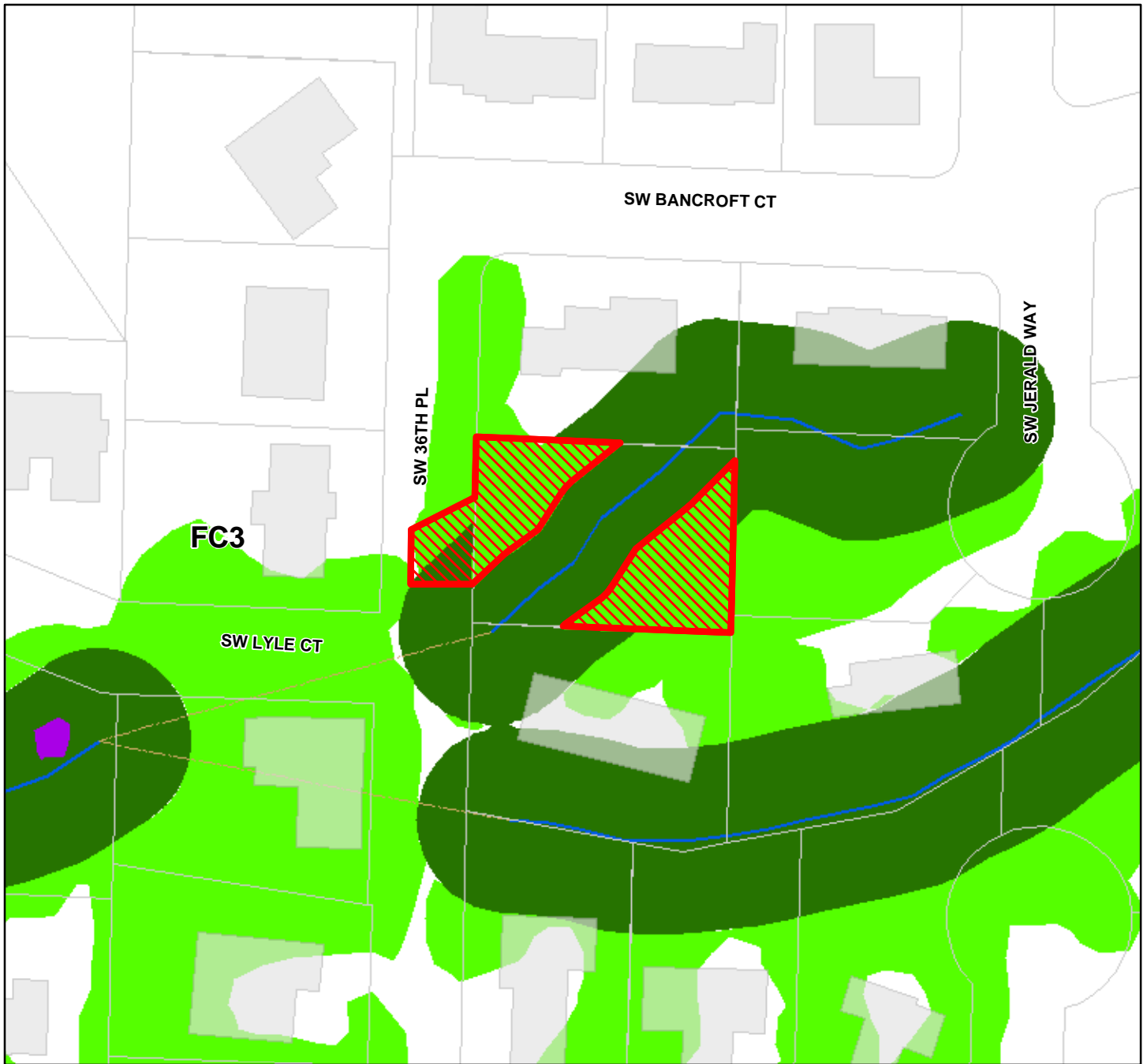


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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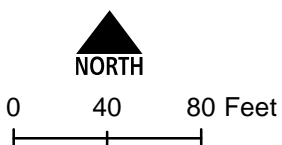


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID  
1S1E08CD 6500**

Updated: October 2021

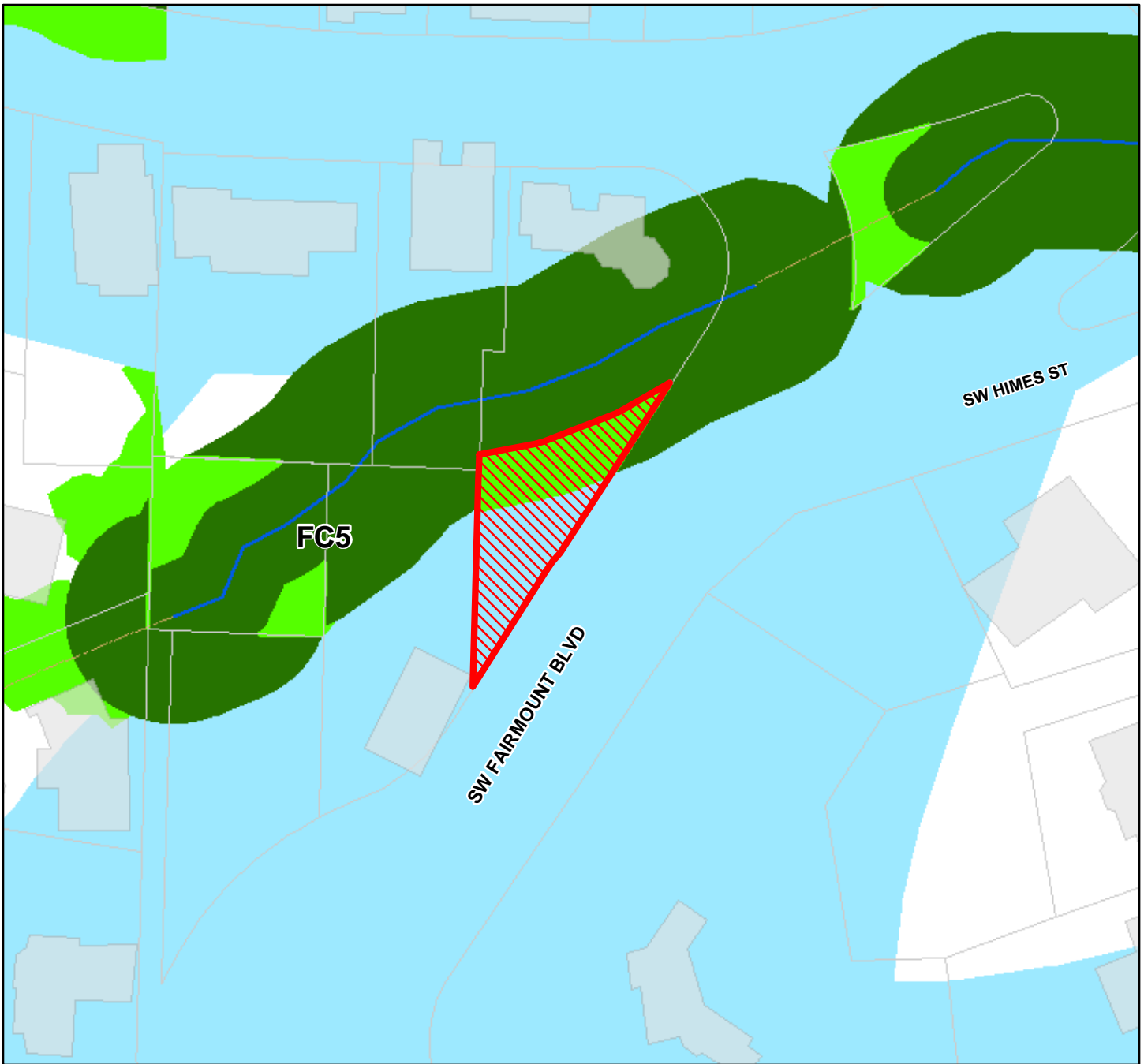


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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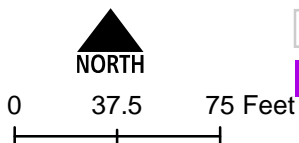


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R7 lot. Convert area >25' from southern edge of stream.**

**State ID  
1S1E08DA 6500**

Updated: October 2021

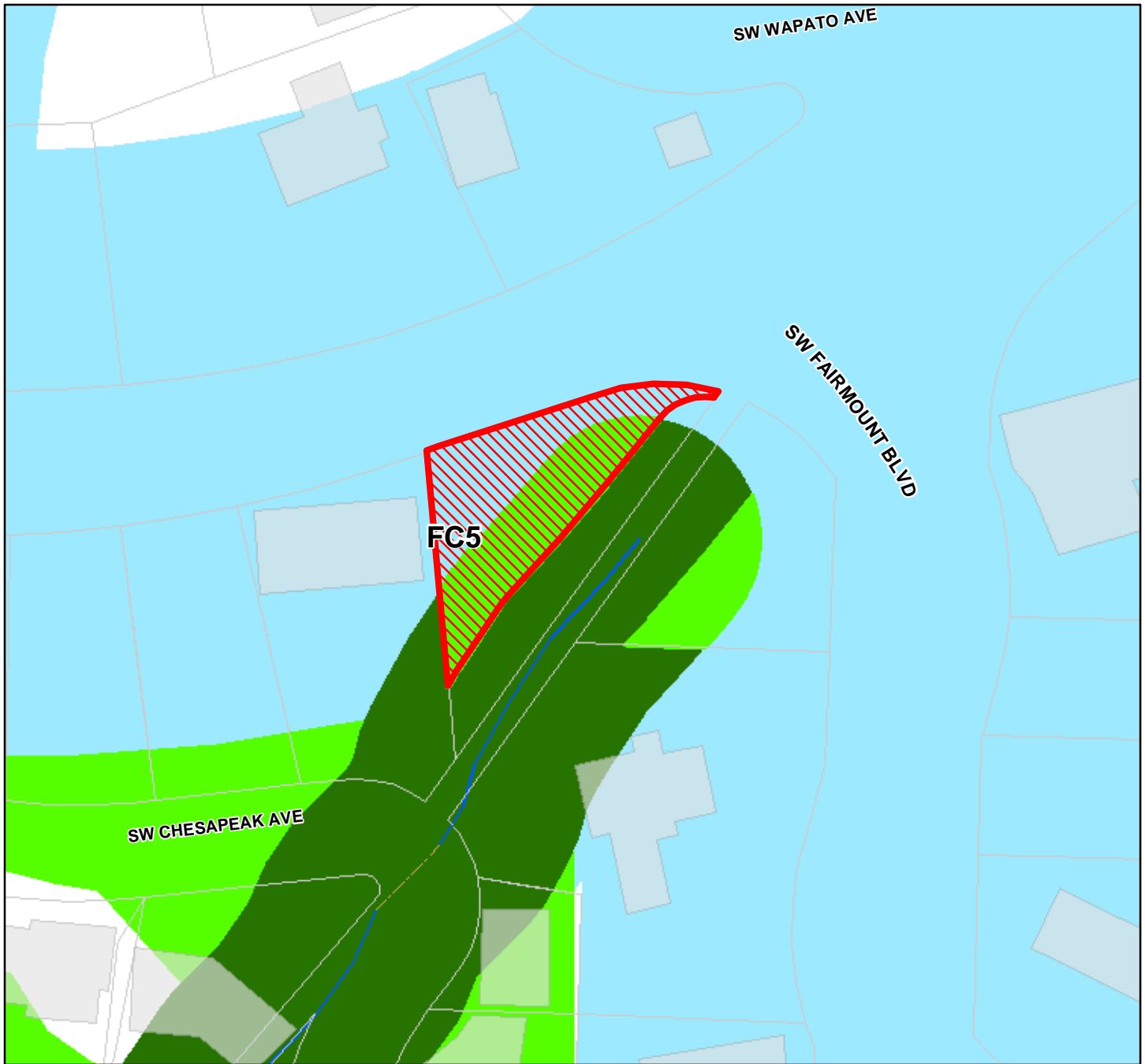


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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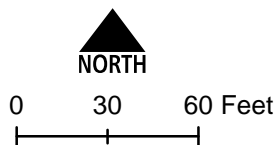


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R7 lot. Convert area >25' from stream.**

**State ID  
1S1E08DA 9001**

Updated: October 2021

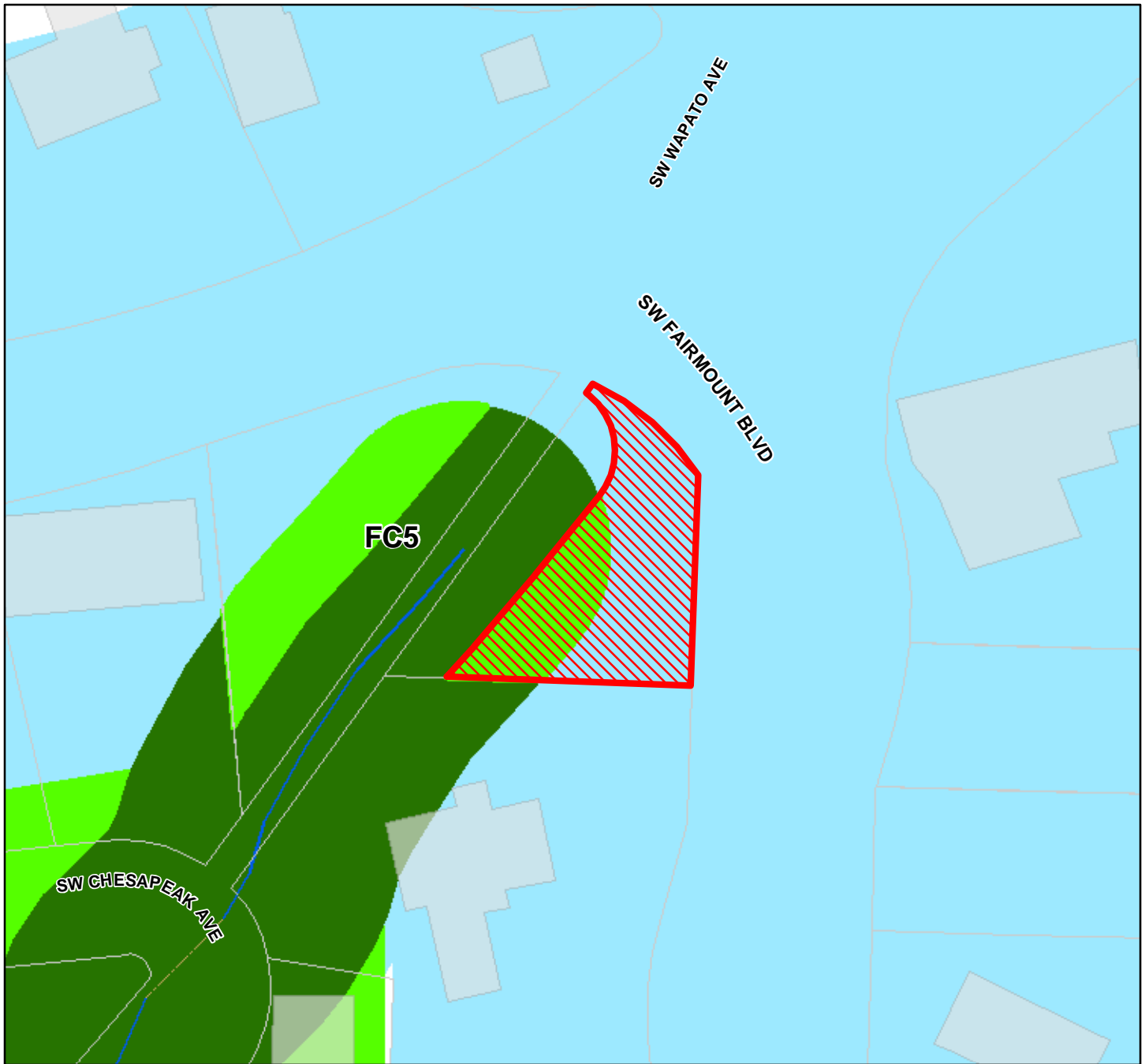


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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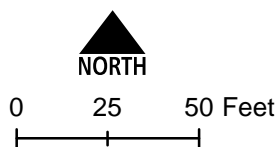


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R7 lot. Convert area >25' from stream.**

**State ID  
1S1E08DA 9300**

Updated: October 2021

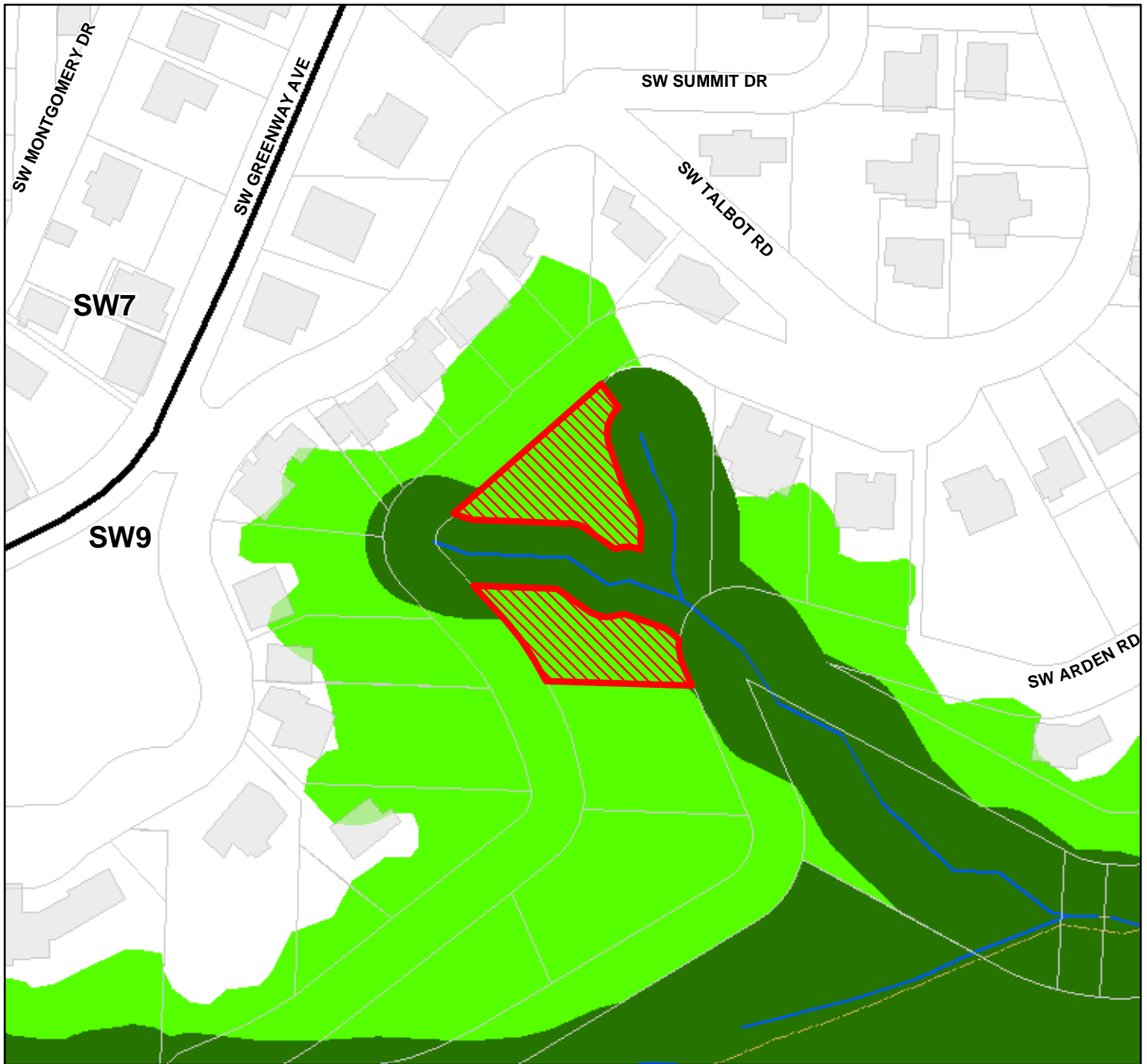


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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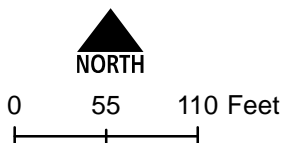













**'P' to 'C'  
Conversions**

**Conversion Description: Vacant dividable R10 lot. Convert area >25 ft from streams in areas that are large enough for development.**

**State ID  
1S1E08AA 1900**

Updated: October 2021

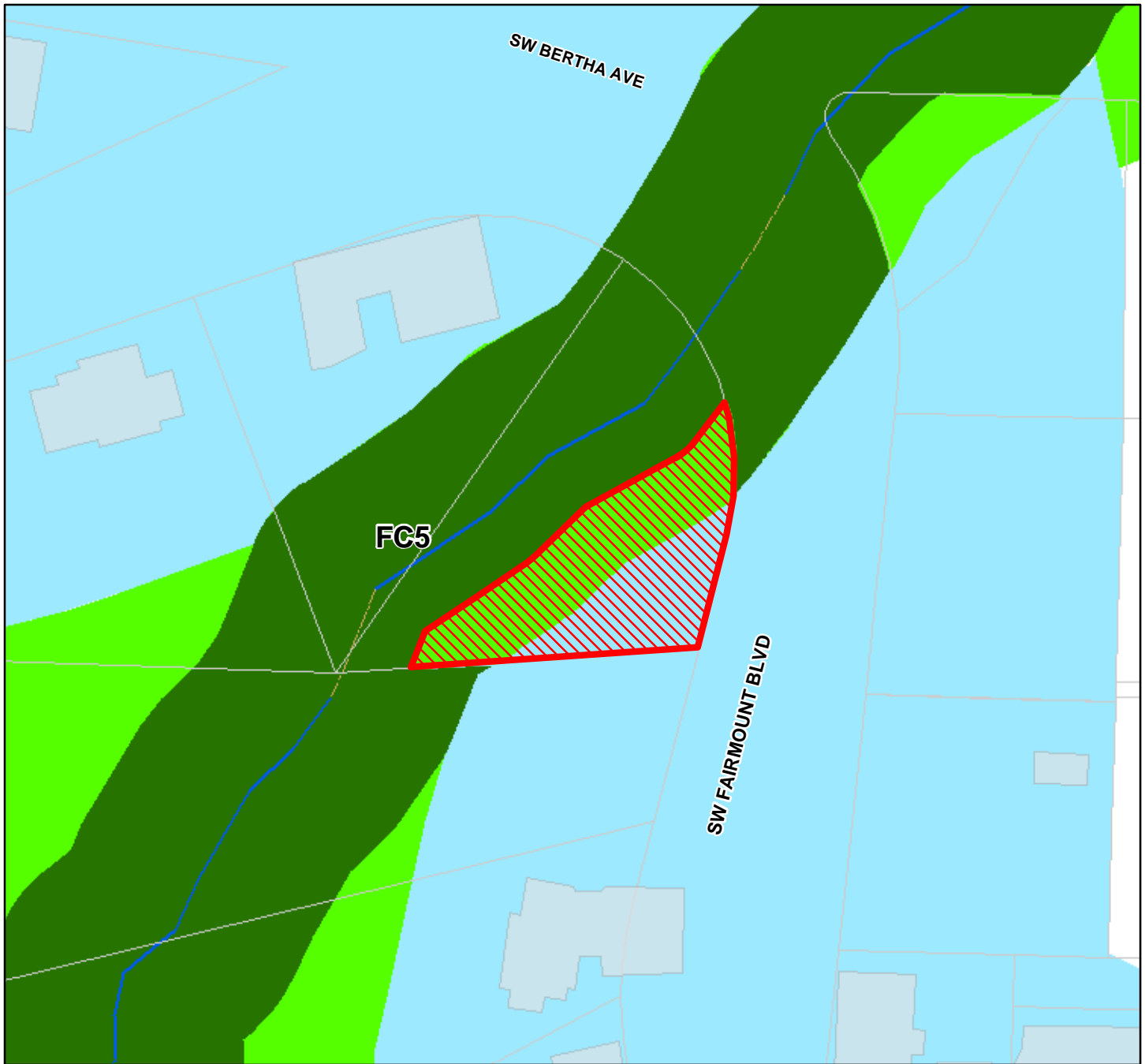


-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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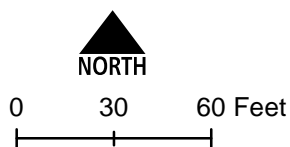


**'P' to 'C' Conversions**












**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID**  
**1S1E09CC 6600**

Updated: October 2021

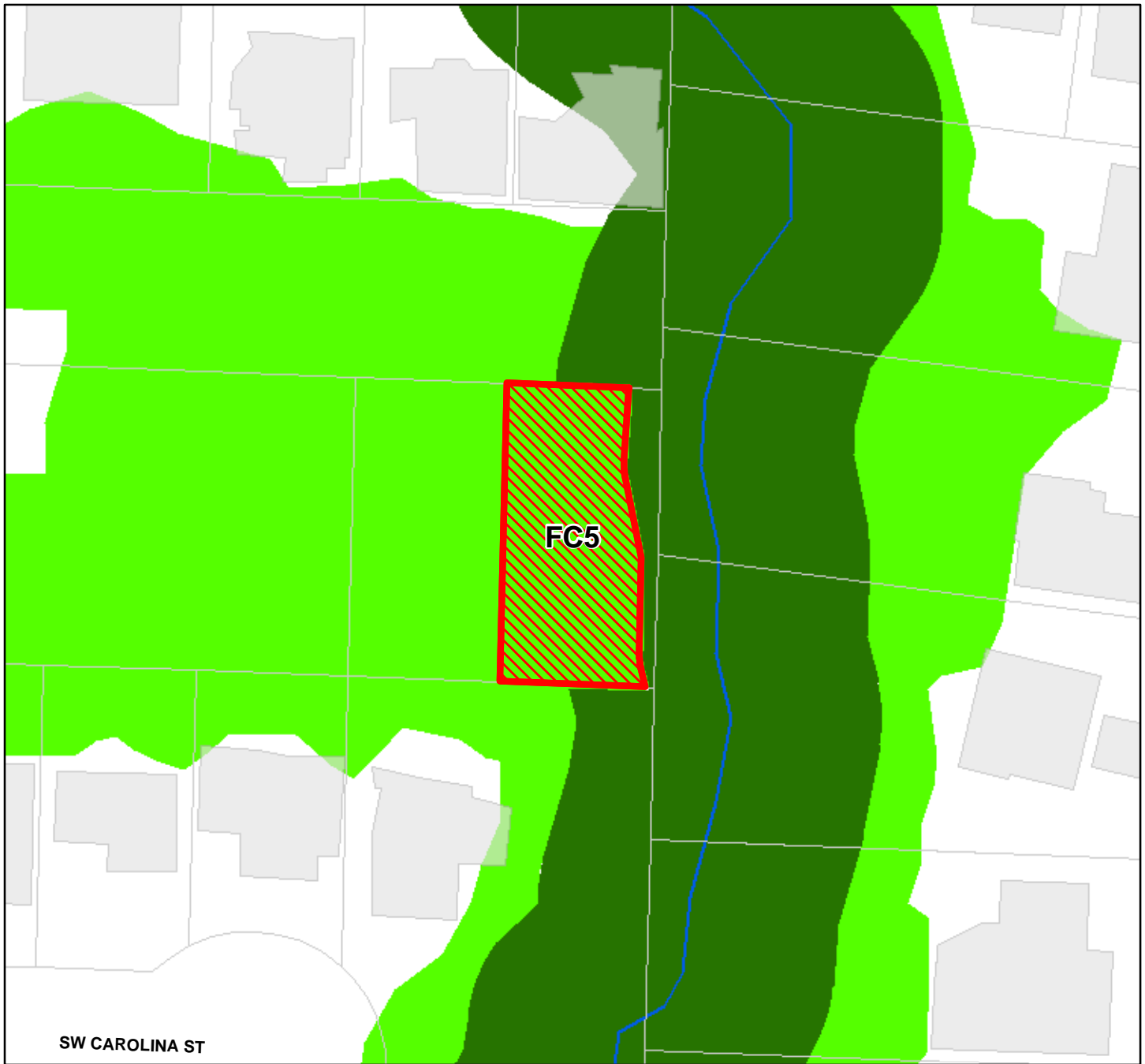


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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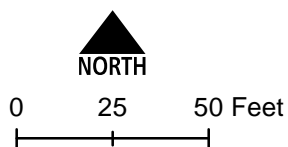


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R5 lot. Convert area >25' from stream.**

**State ID  
1S1E17DD 4600**

Updated: October 2021

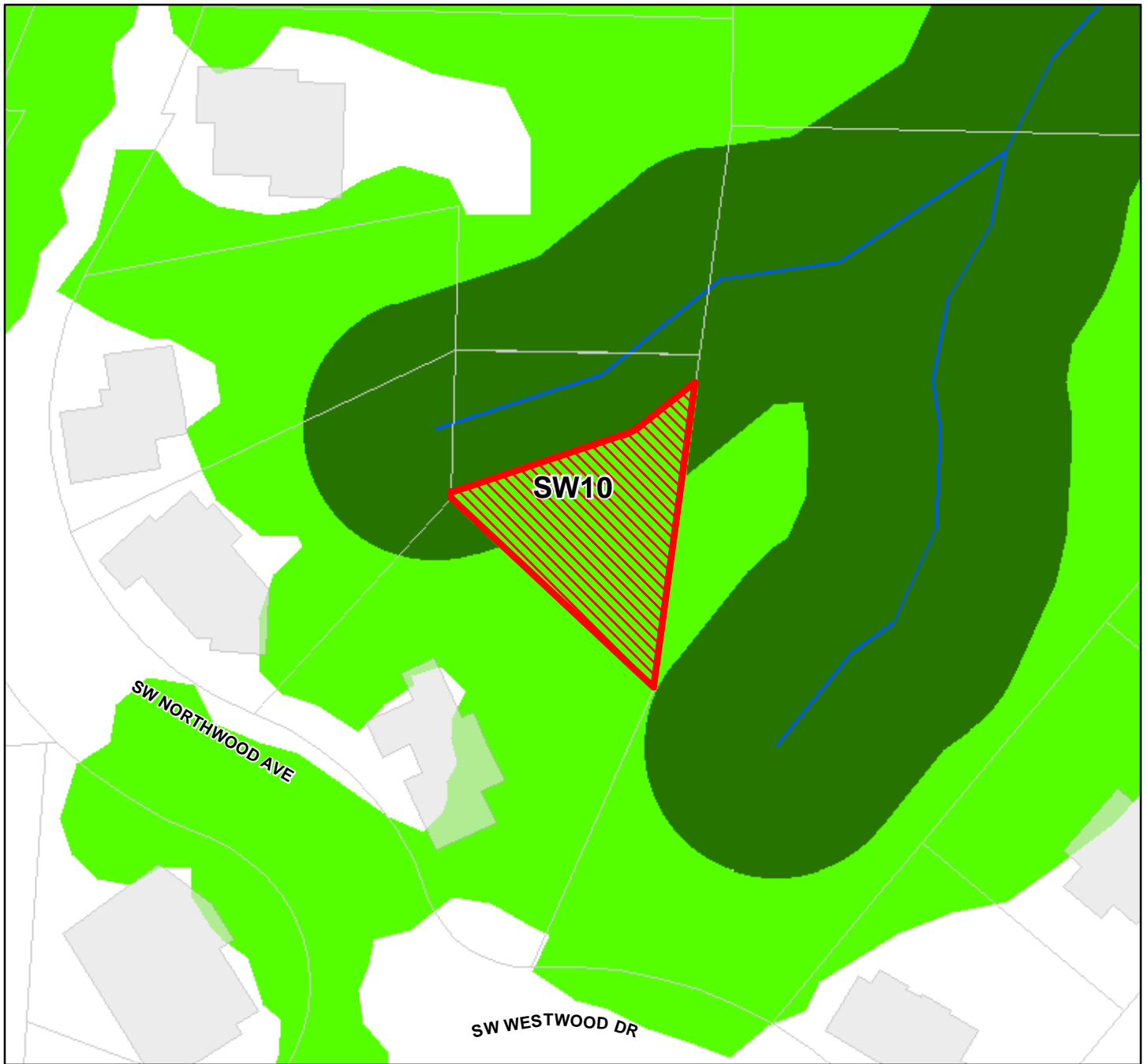


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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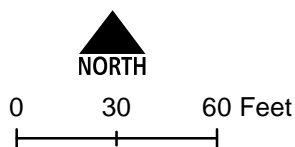













**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R7 lot. Convert area >25' from stream.**

**State ID  
1S1E16AC 900**

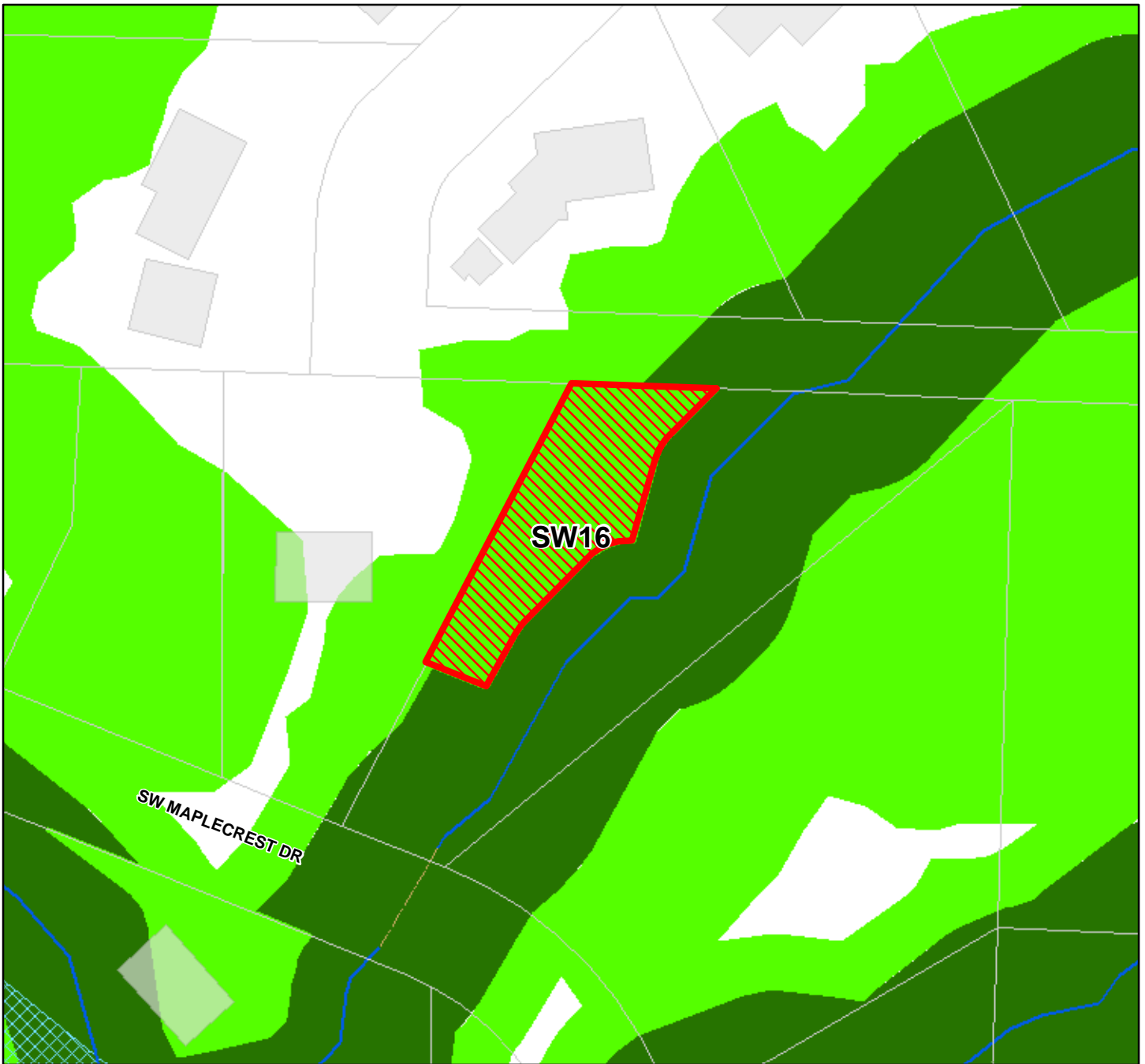
Updated: October 2021



- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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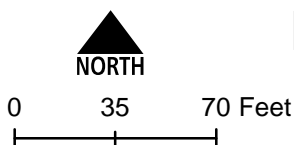


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R20 lot. Convert area >25' from stream.**

**State ID  
1S1E28DB 3000**

Updated: October 2021

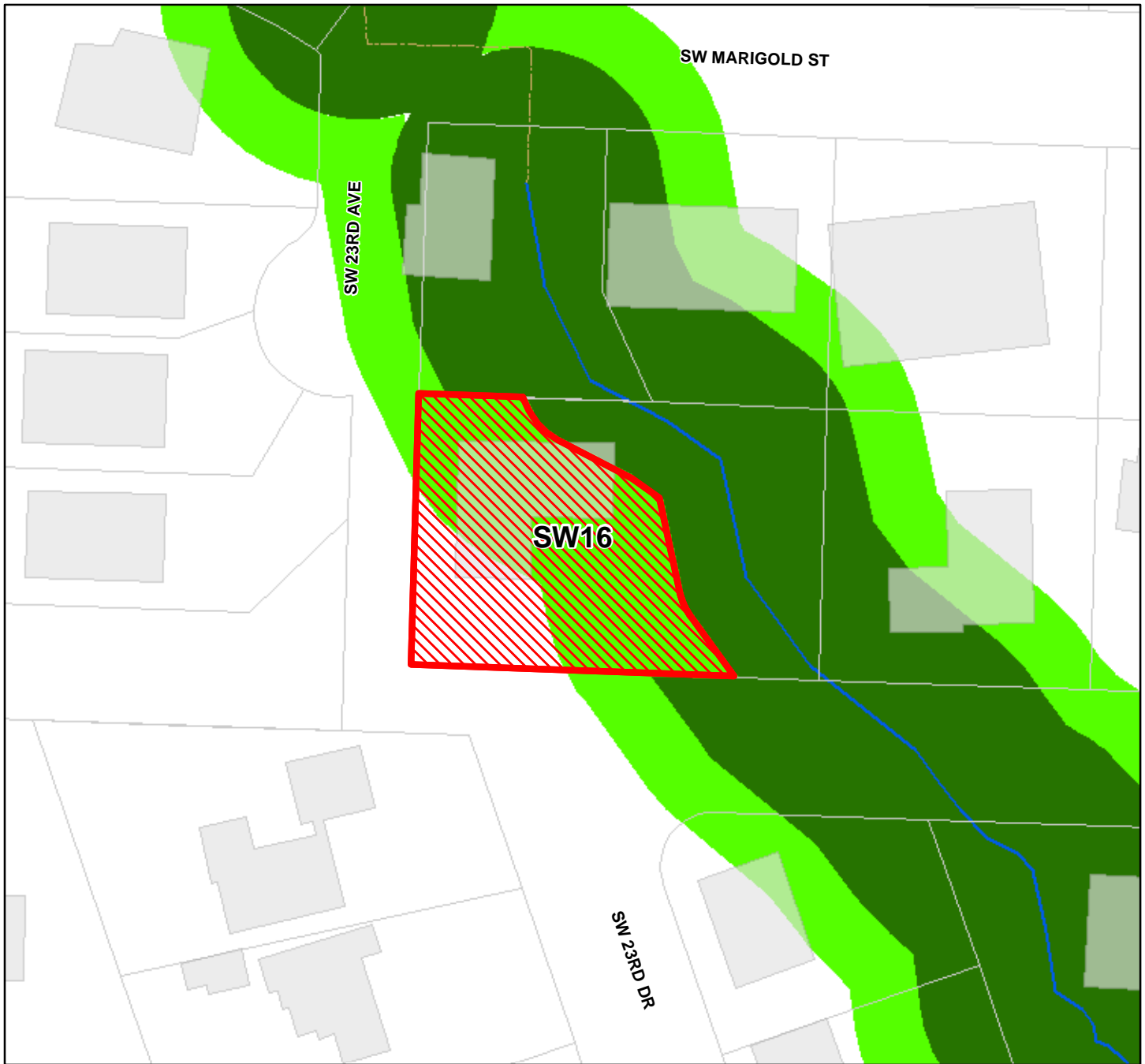


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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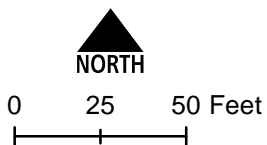


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R7 lot. Convert area >25' from stream.**

**State ID  
1S1E28BB 5500**

Updated: October 2021

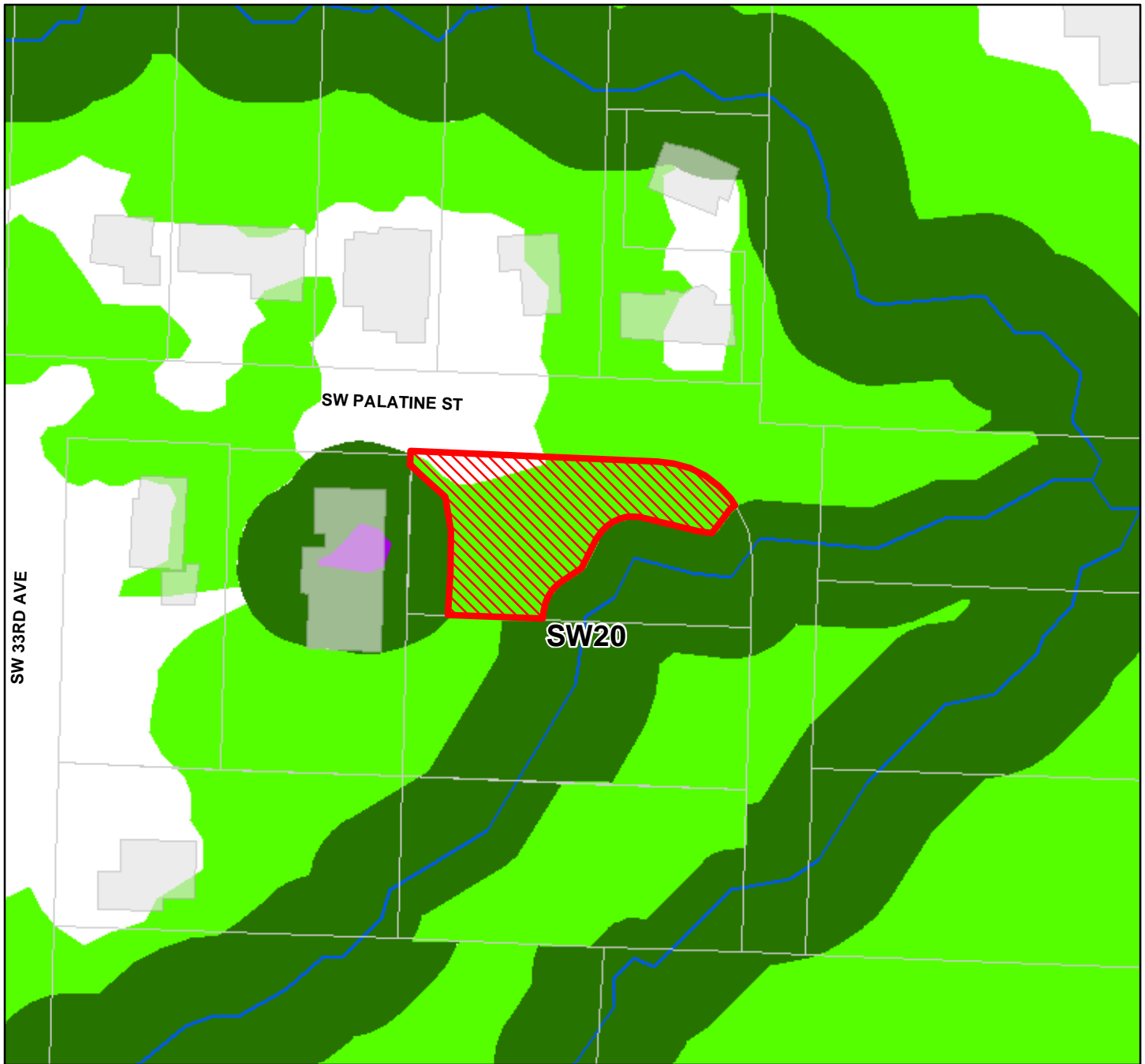


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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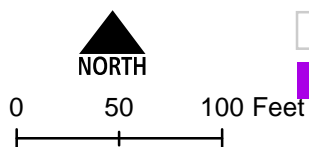


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R20 lot. Convert area >25' from stream.**

**State ID  
1S1E32AC 600**

Updated: October 2021

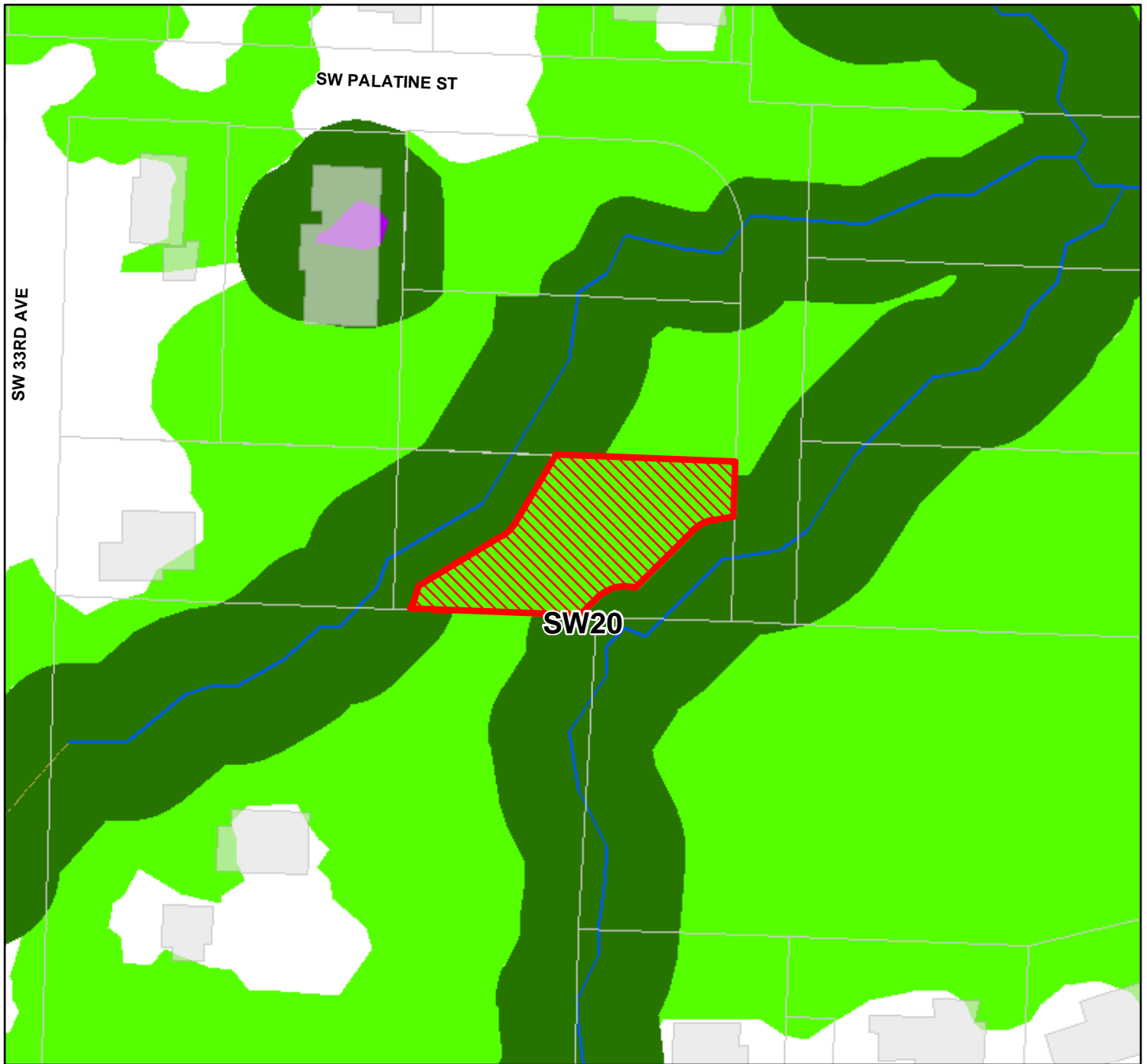


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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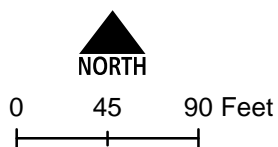


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area >25' from streams.**

**State ID  
1S1E32AC 400**

Updated: October 2021

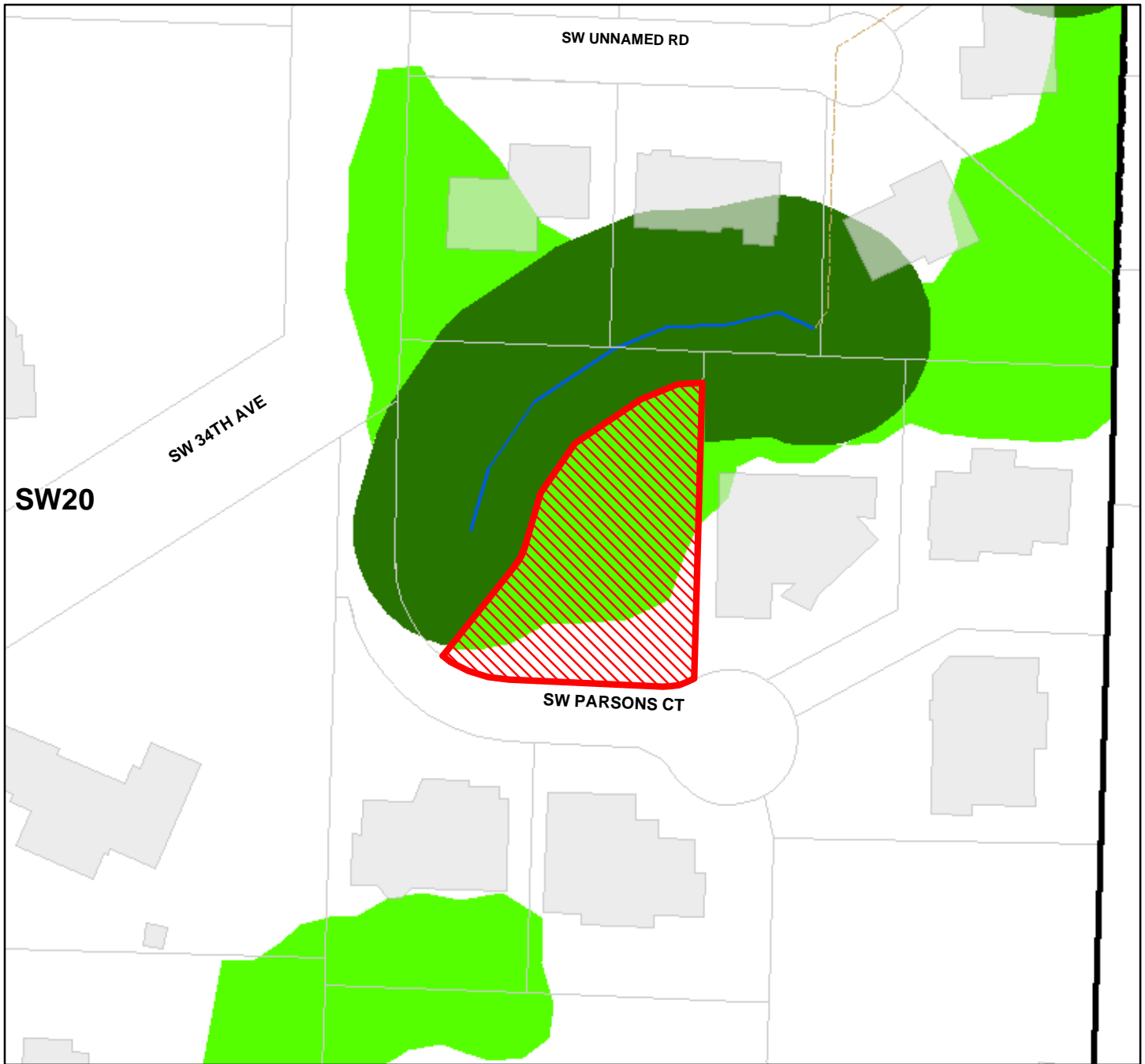


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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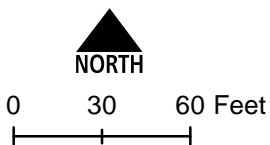


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID  
1S1E32DB 9000**

Updated: October 2021



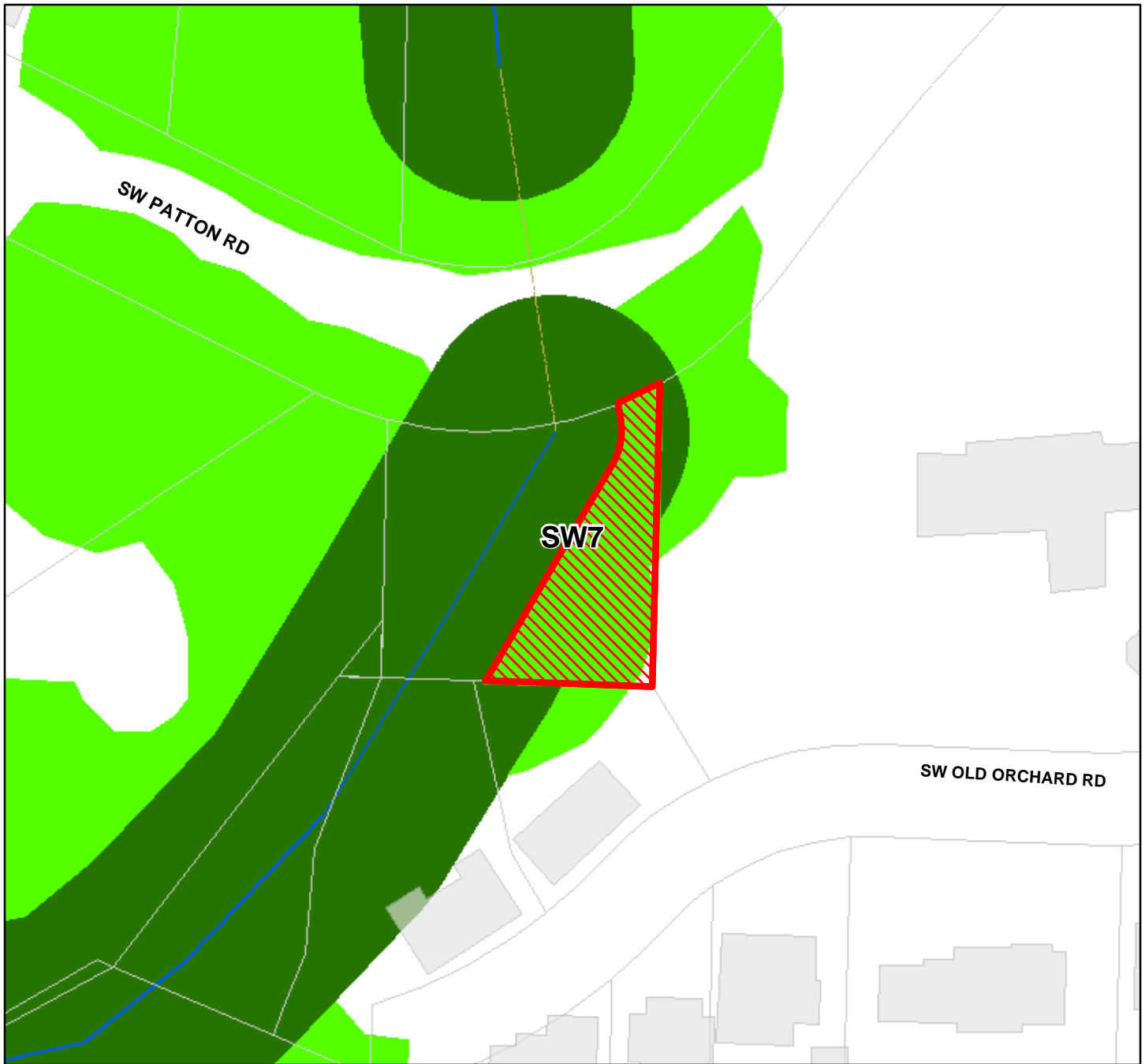
Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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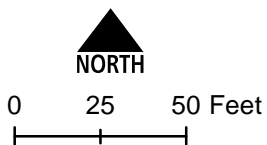


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R5 lot. Carve out portion furthest from stream.**

**State ID  
1S1E08AB 5800**

Updated: October 2021

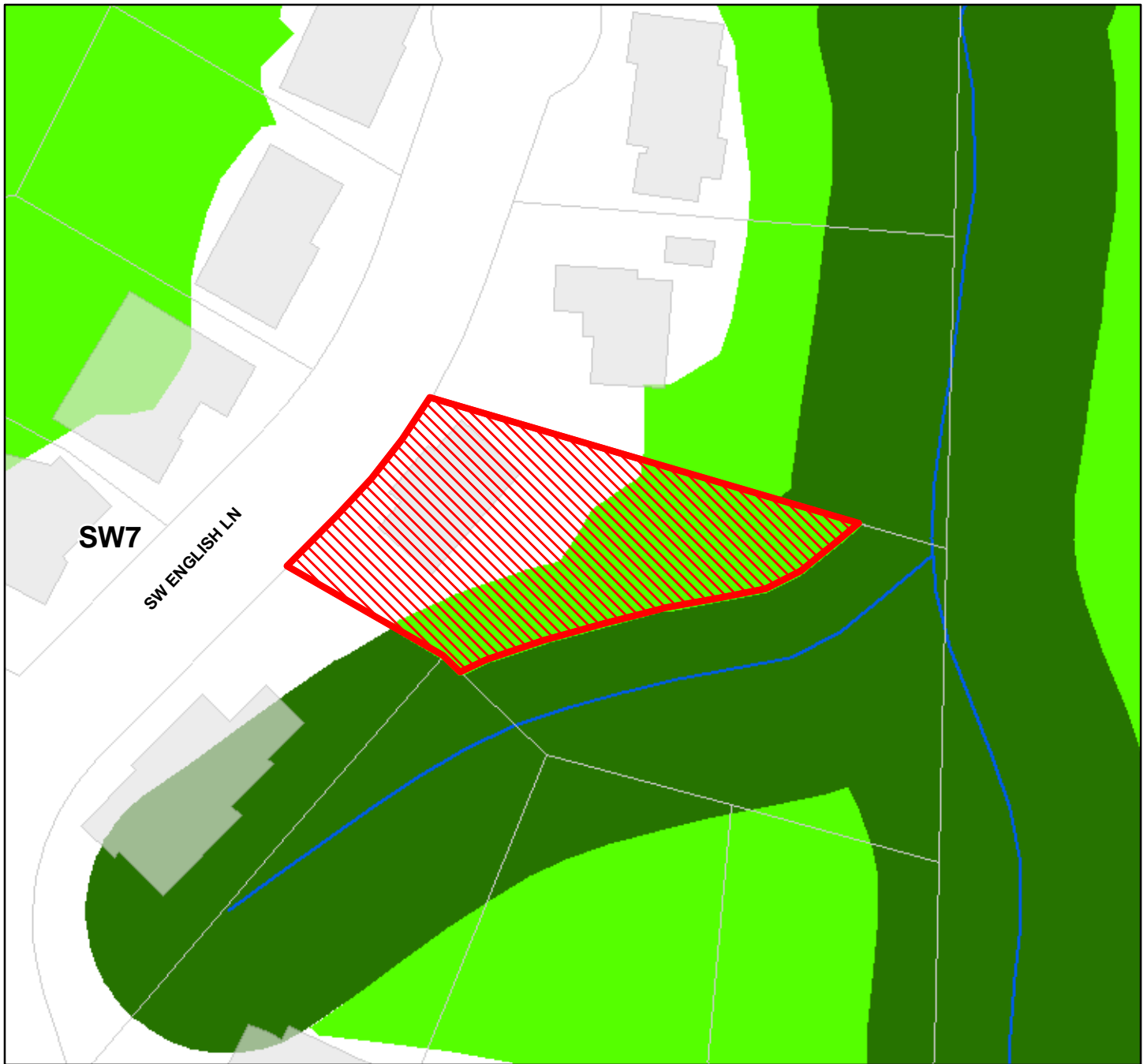


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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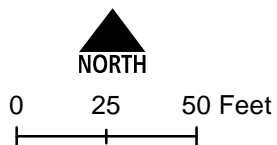


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R10 lot. Convert area >25 ft from stream.**

**State ID  
1S1E08AB 600**

Updated: October 2021

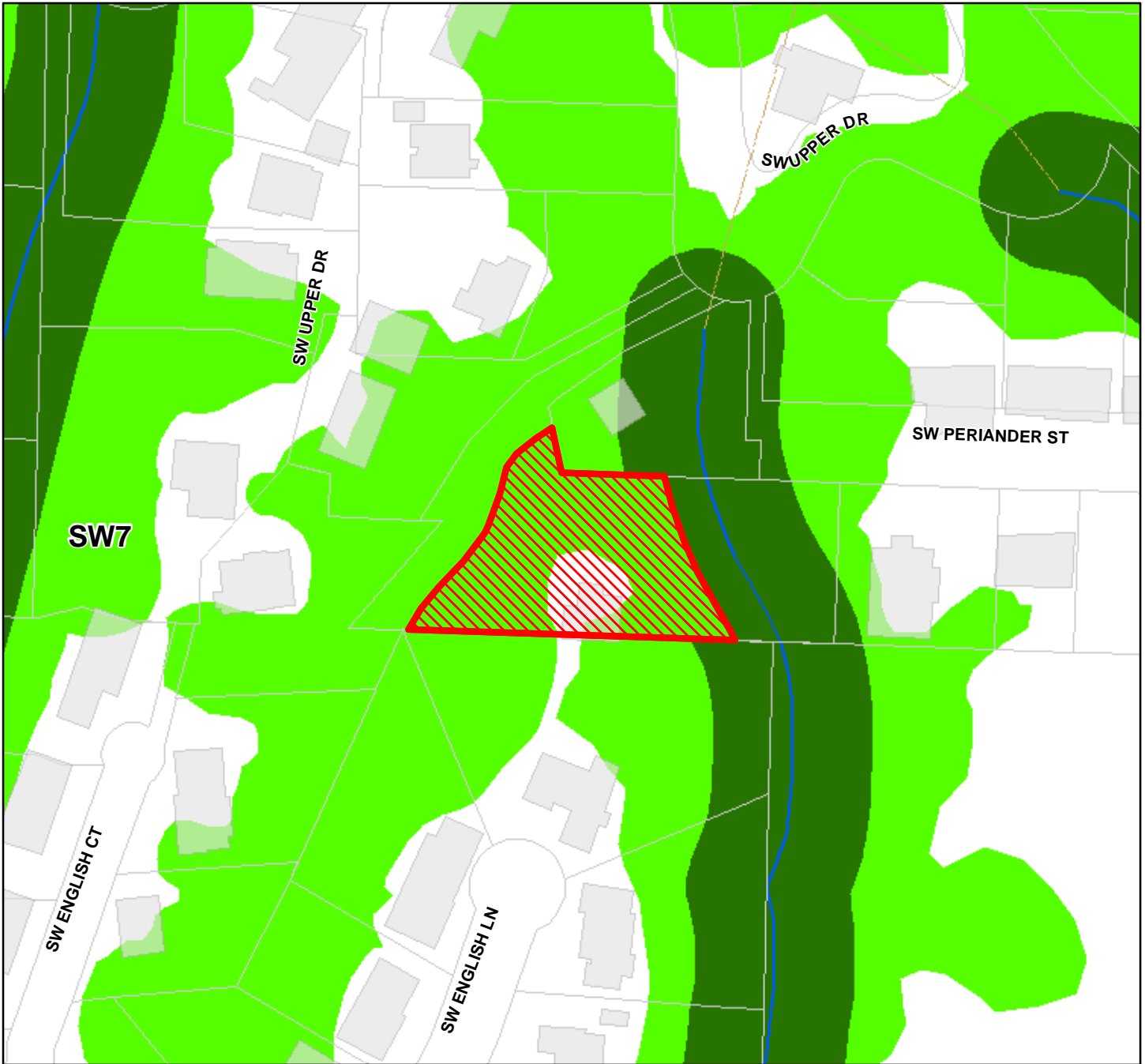


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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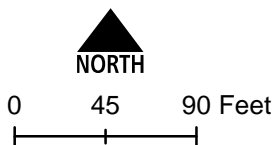


**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R10 lot. Convert area >25' on side closest to existing development/access.**

**State ID  
1S1E05DC 4201**

Updated: October 2021

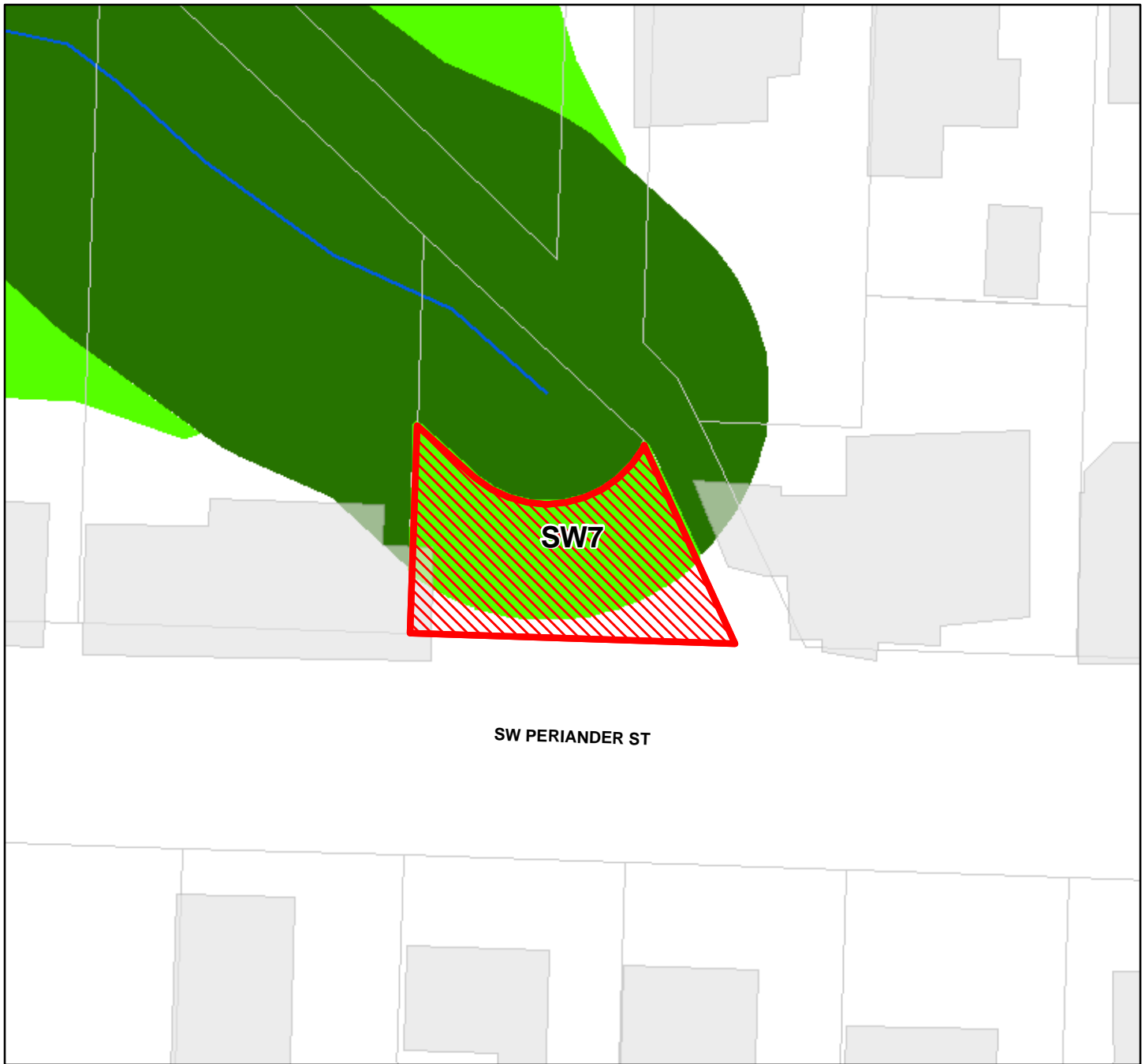


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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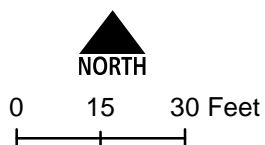


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID  
1S1E05DD 12800**

Updated: October 2021

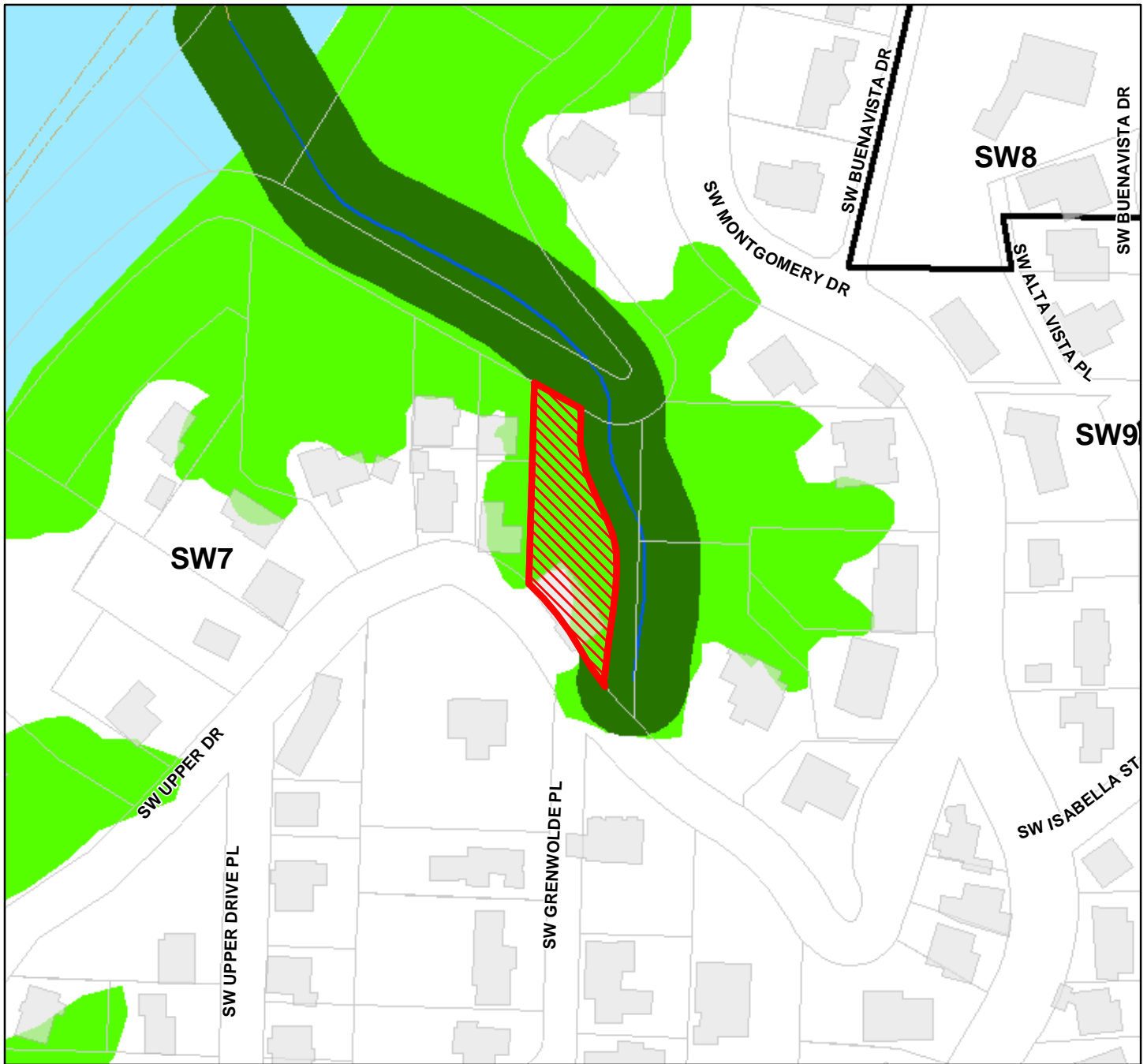


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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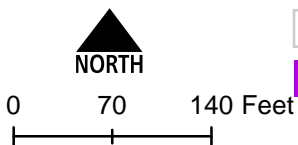


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area >25' from stream.**

**State ID  
1S1E05DD 4900**

Updated: October 2021

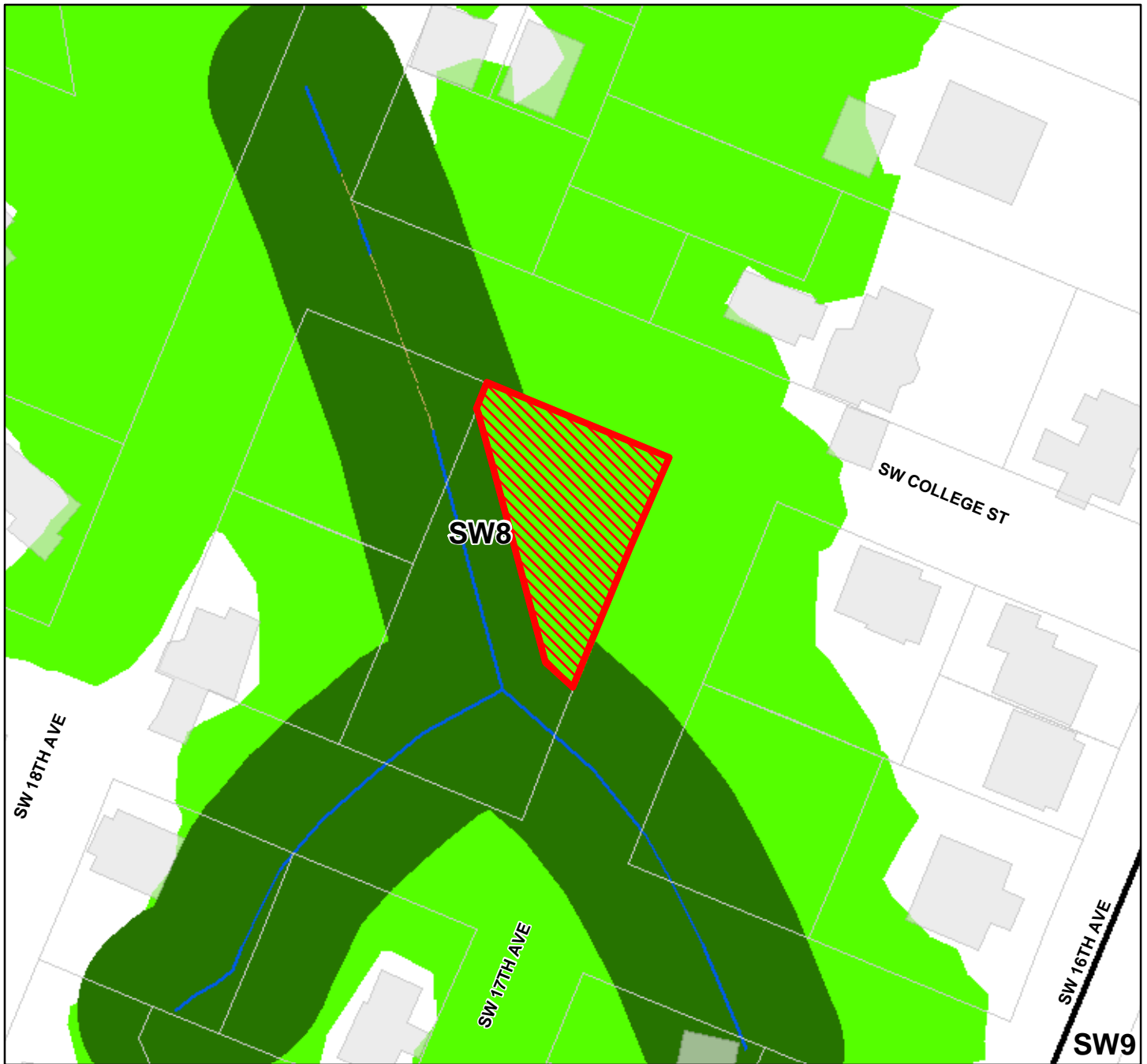


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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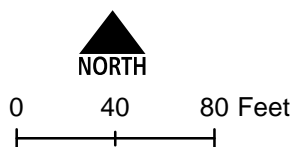


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R5 lot. Convert area >25' from stream.**

**State ID  
1S1E04BD 7700**

Updated: October 2021

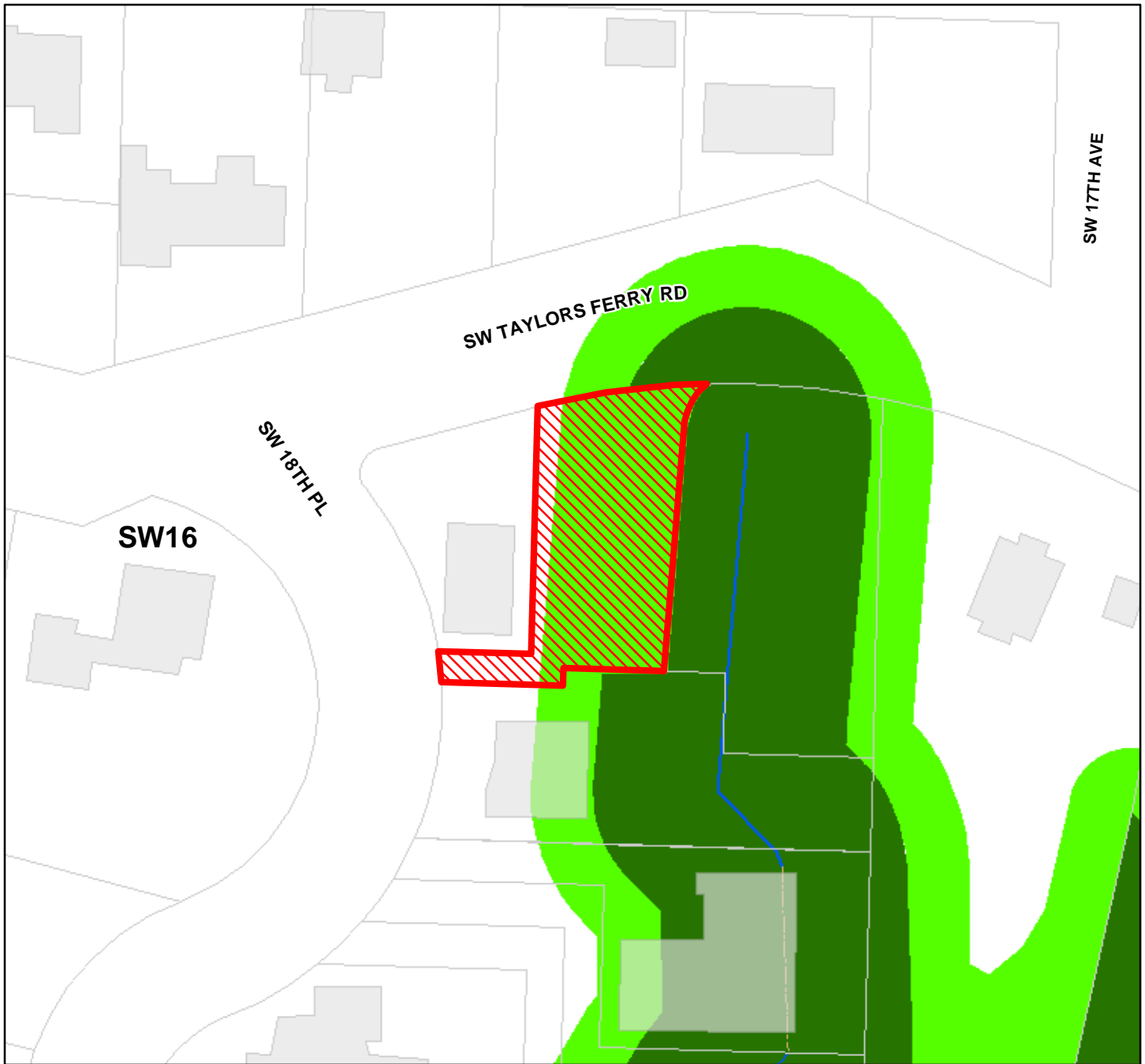


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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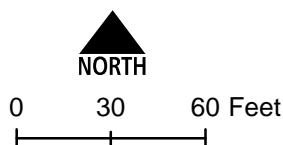













**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID  
1S1E28BA 13700**

Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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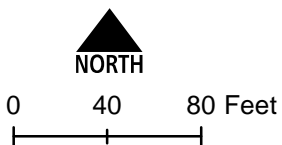


**'P' to 'C'  
Conversions**

**Conversion Description: R7 lot. Convert area >25' from stream.**

**State ID  
1N1E32BD 2800**

Updated: October 2021



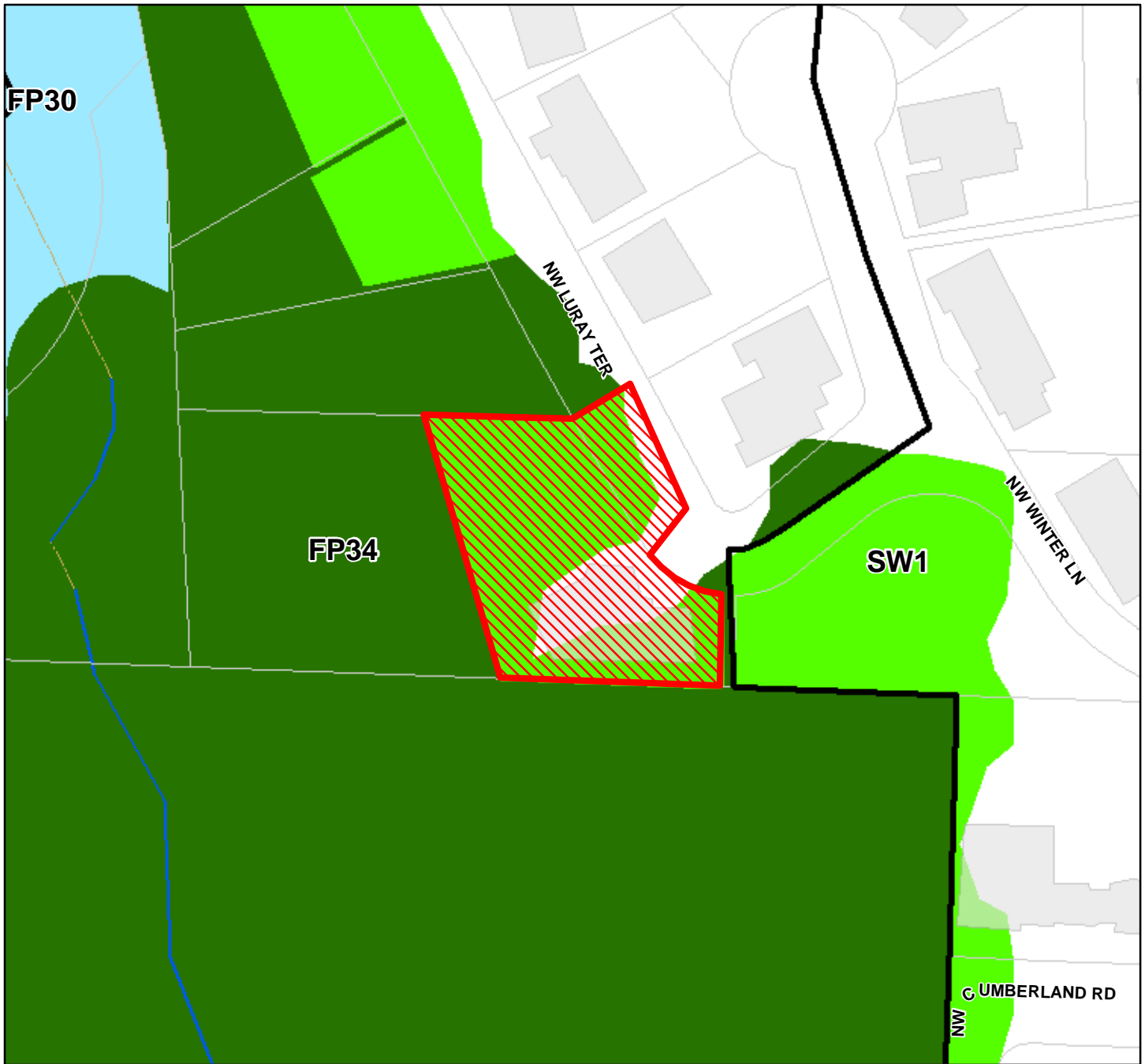
Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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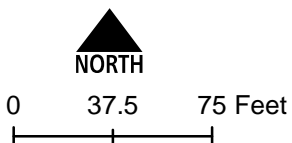


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R7 lot. Convert area closest to right-of-way.**

**State ID  
1N1E32BD 700**

Updated: October 2021

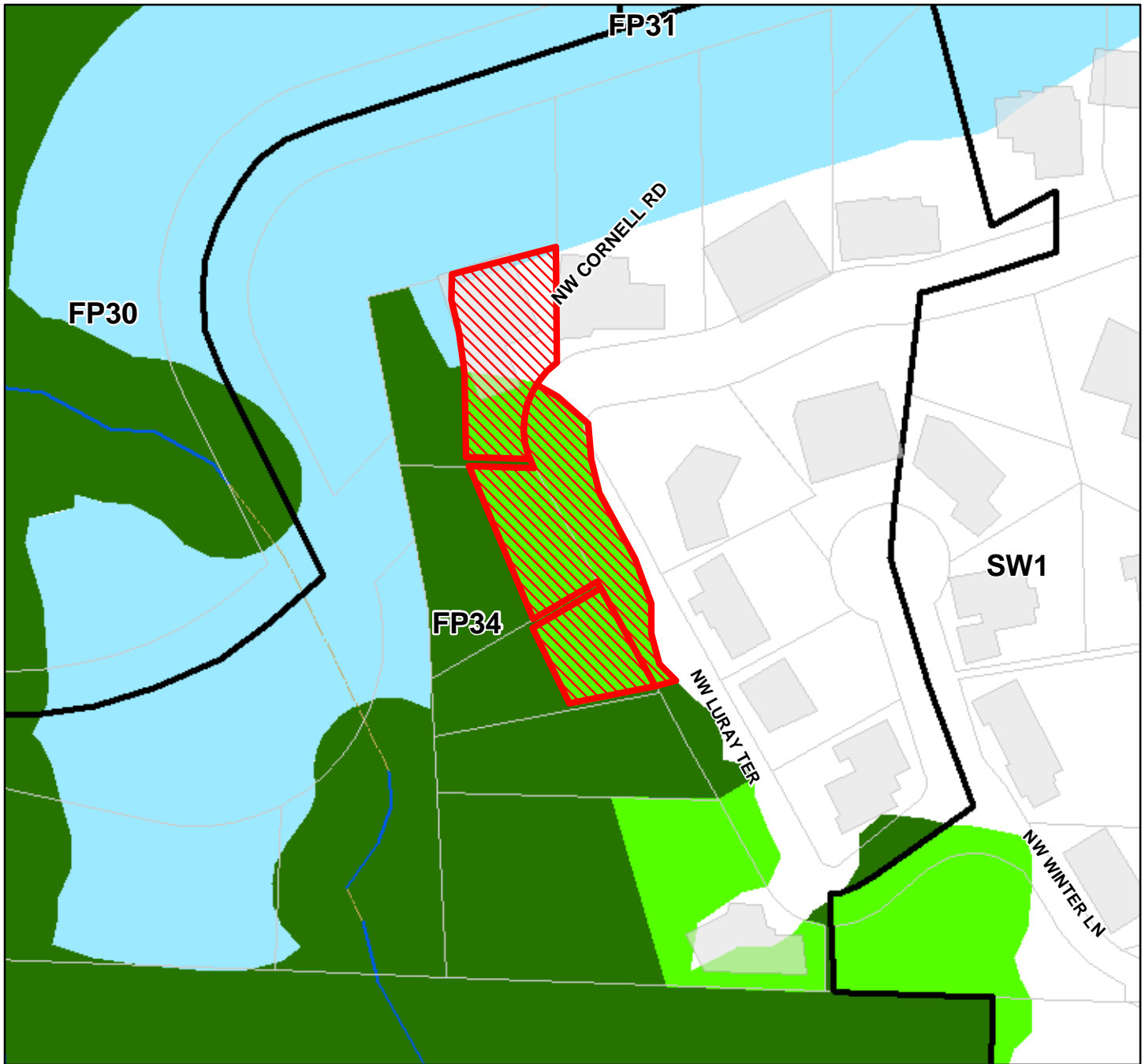


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |














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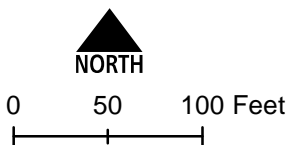
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant and/or dividable R7 lots. Convert areas closest to right-of-way.**

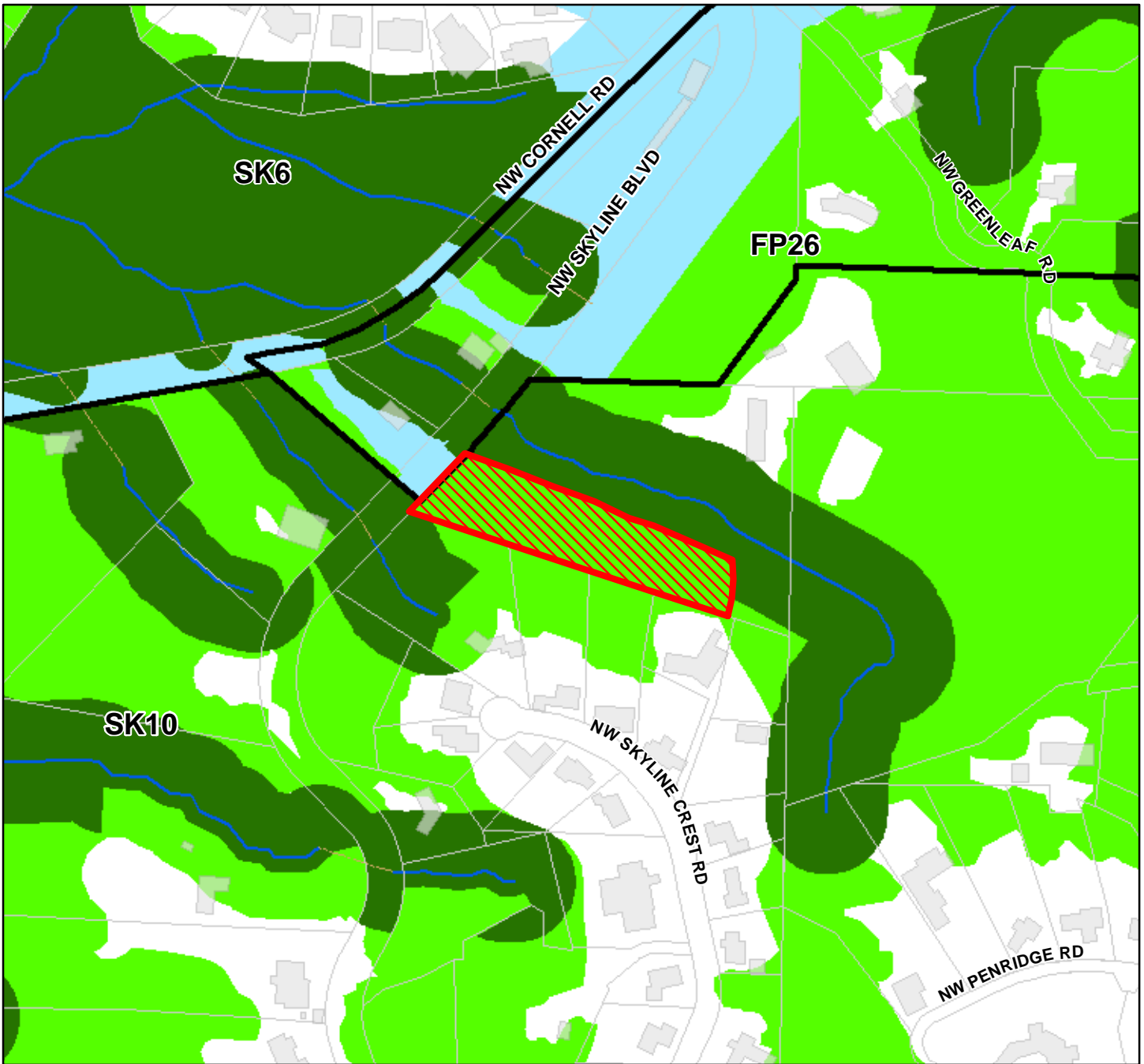
**State ID**  
1N1E32BA 1600  
1N1E32BA 4700  
1N1E32BA 4800

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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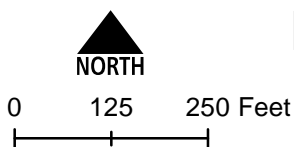


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area to the south of stream to provide additional developable area.**

**State ID  
1N1W36BD 100**

Updated: October 2021

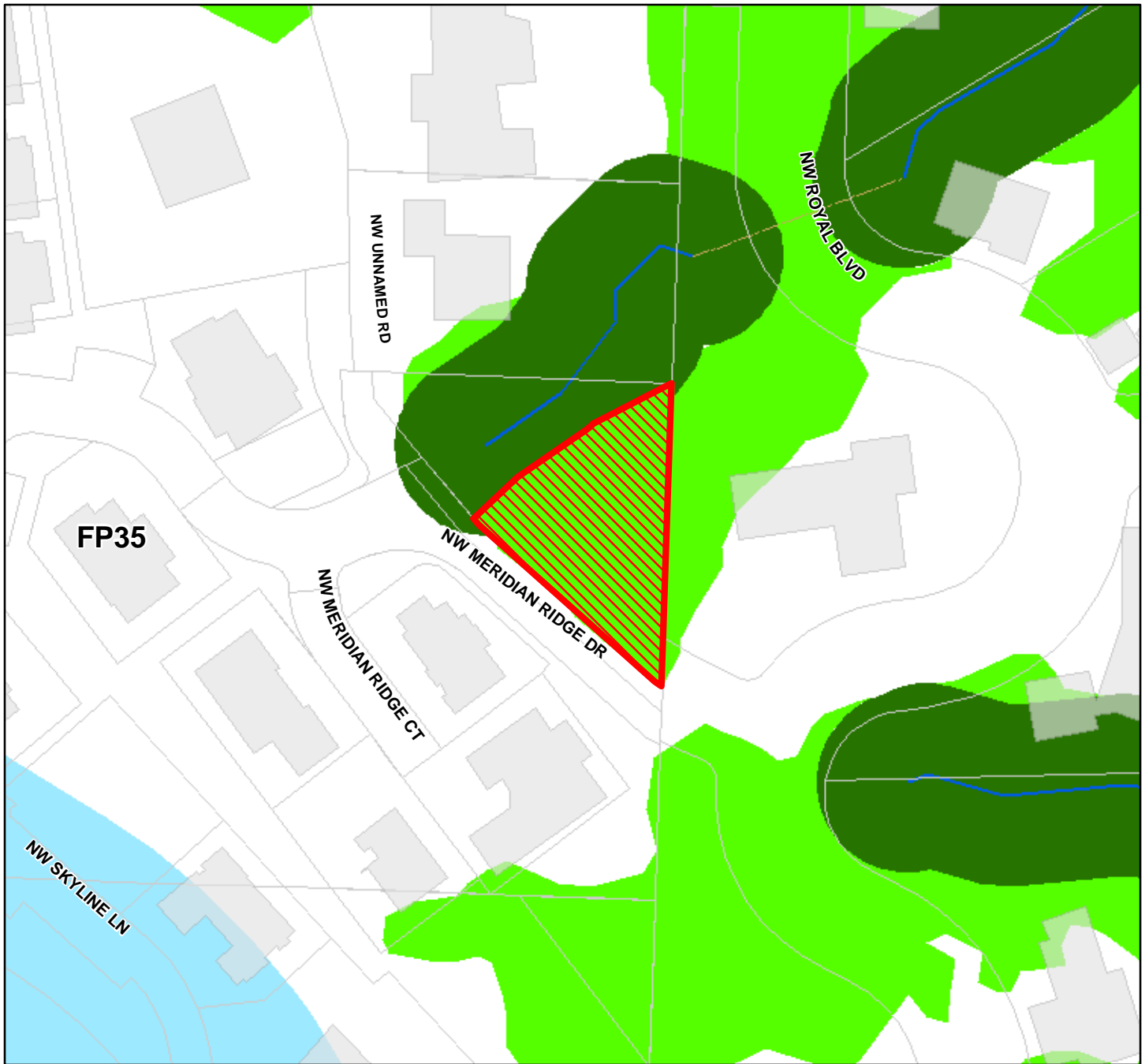


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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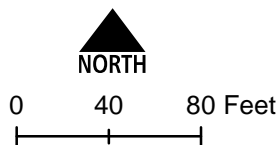


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant RF lot. Convert area >25' from stream.**

**State ID  
1N1W36DA 1900**

Updated: October 2021

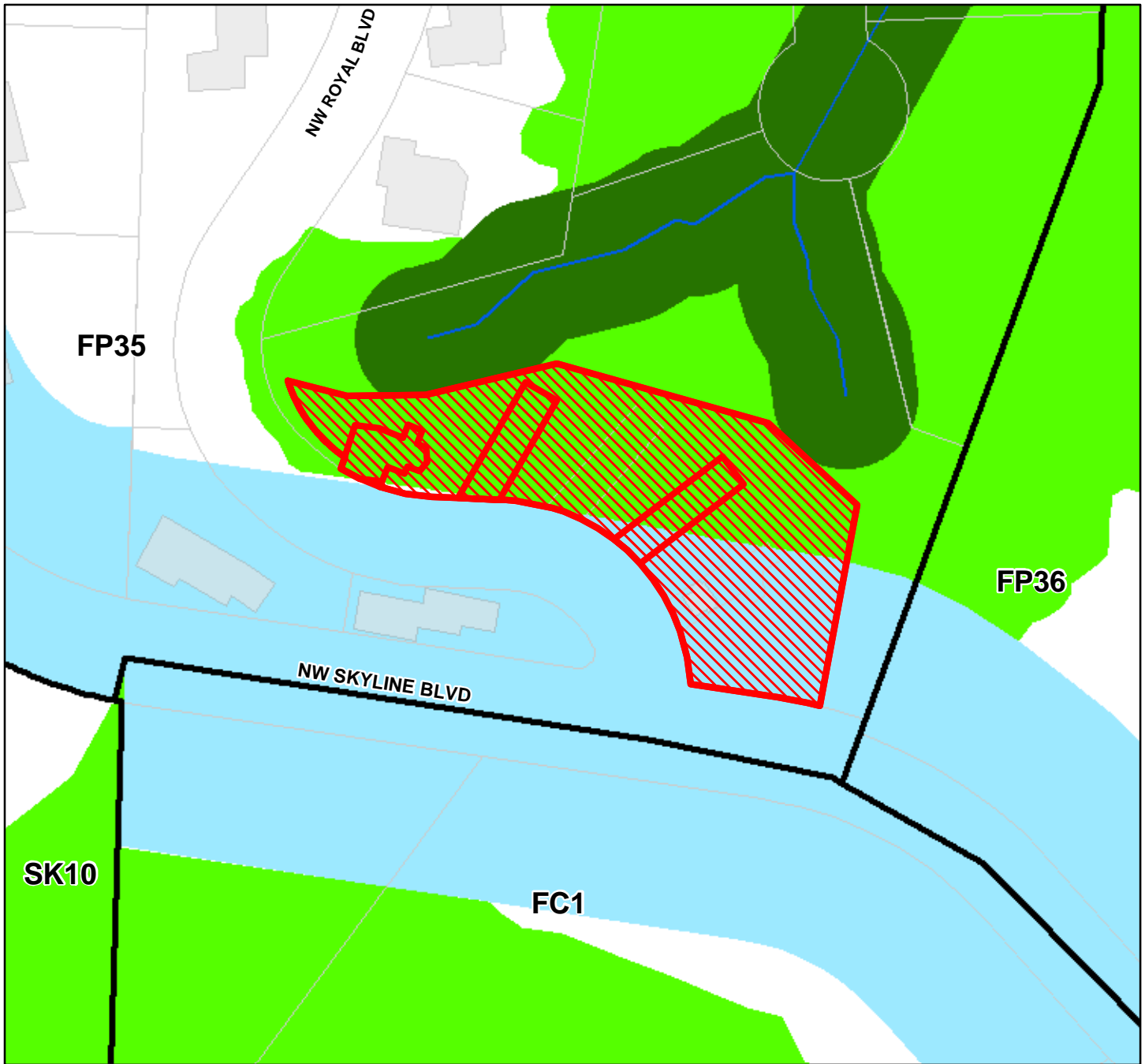


Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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**'P' to 'C'  
Conversions**

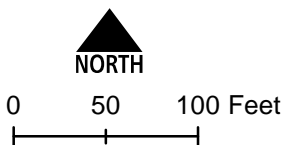
**Conversion Description: Env Review for side approved temporary disturbance area in resource tract.**

**State ID**

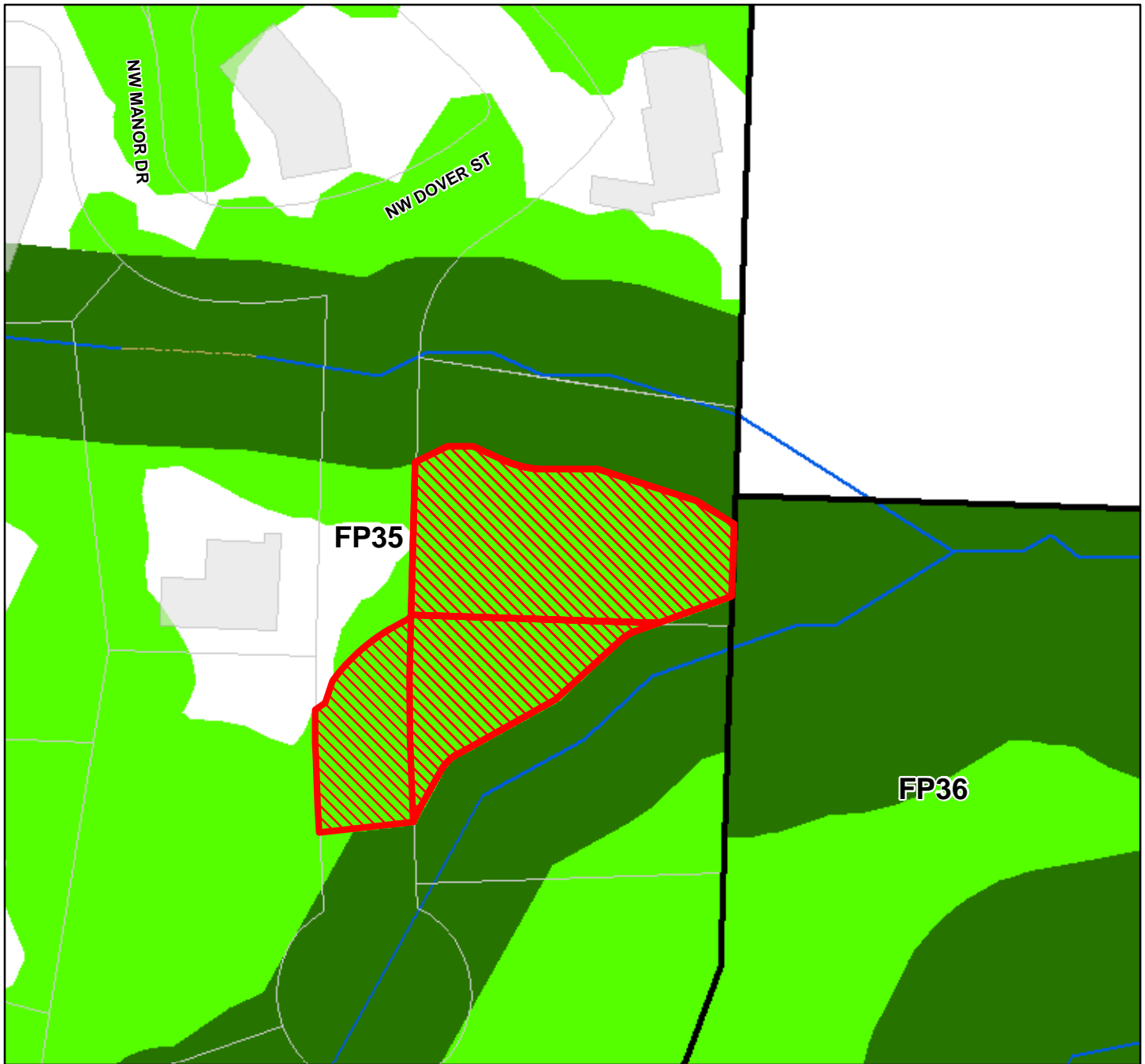
- 1N1E31CC 404
- 1N1E31CC 405
- 1N1E31CC 406
- 1N1E31CC 401
- 1N1E31CC 402
- 1N1E31CC 403

Updated: October 2021

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone














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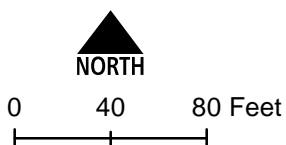
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R20 lot. Covert area >25' from stream to the south, and area >50' from the stream to the North.**

**State ID**  
1N1E31CC 200  
1N1E31CC 100

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

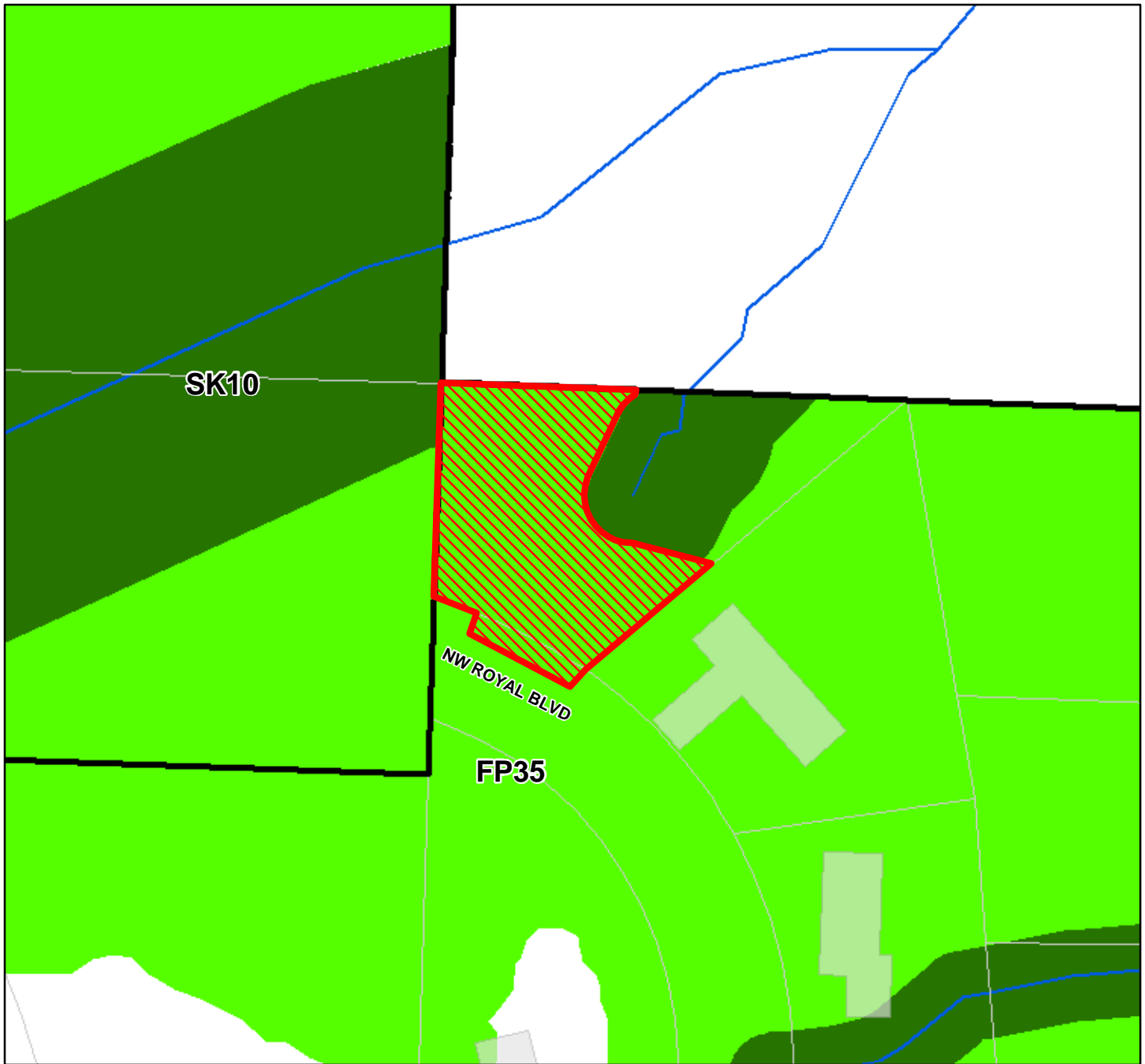
Updated: October 2021



Recommended Draft



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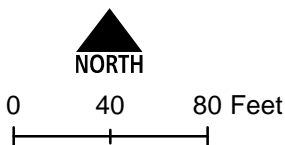


**'P' to 'C' Conversions**












**Conversion Description: Vacant R20 lot. Convert area >25' from stream.**

**State ID**  
**1N1E31CB 1900**

Updated: October 2021



Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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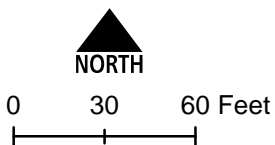


**'P' to 'C'  
Conversions**












**Conversion Description: R20 lot with existing development.  
Convert area >25' from stream towards existing development.**

**State ID  
1S1E05BC 1100**

Updated: October 2021



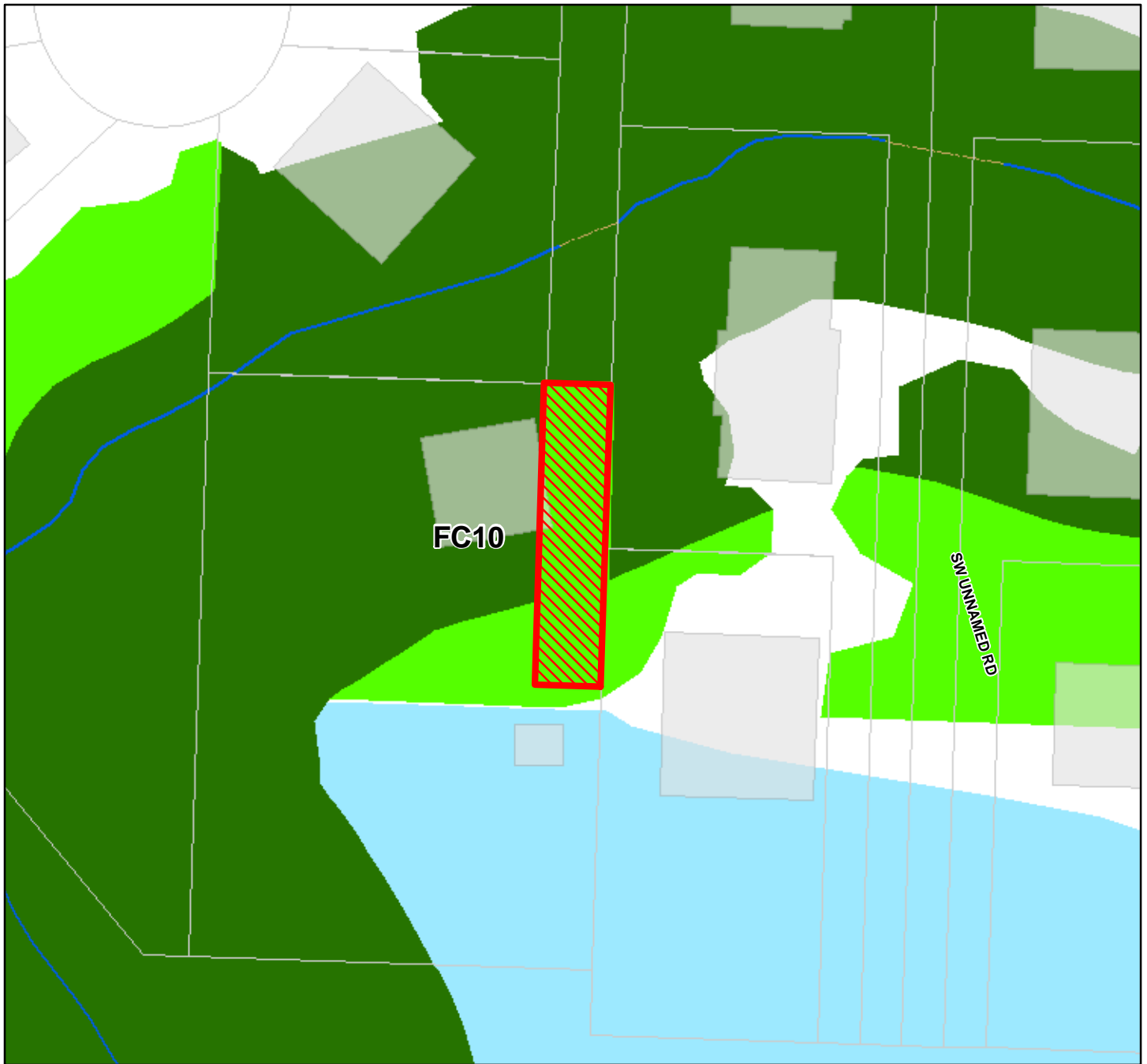
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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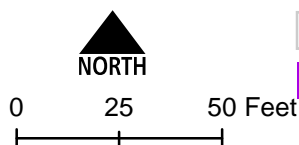













**'P' to 'C'  
Conversions**

**Conversion Description: Dividable residential lot. conversion would allow site access from existing driveway tract to portion of lot outside of p zone.**

**State ID  
1S1E19DB 1600**

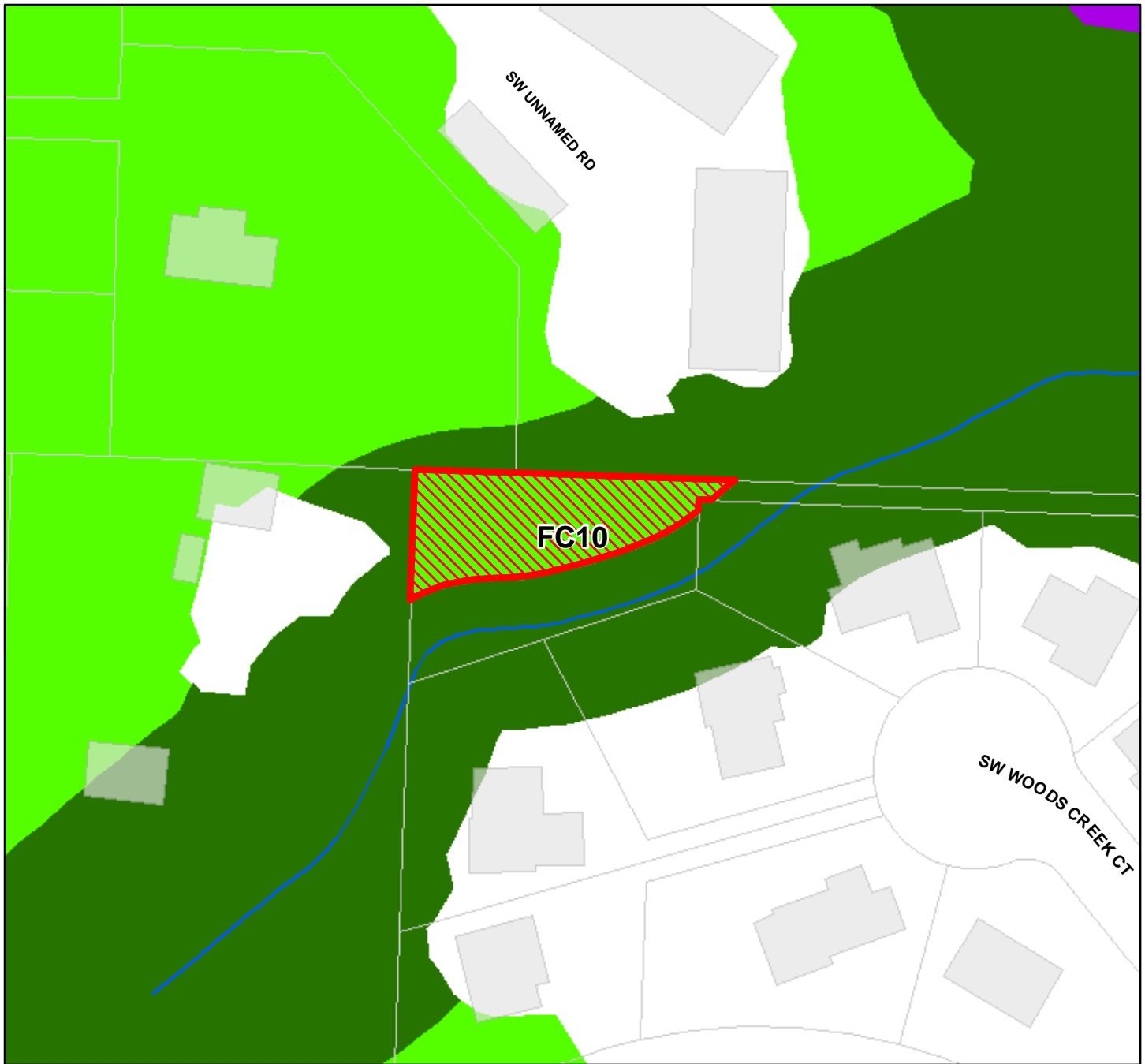
Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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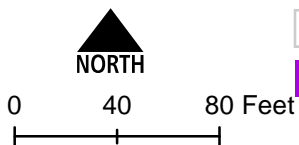


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant dividable R10 lot. Convert area >25' from streams.**

**State ID  
1S1E19DC 200**

Updated: October 2021

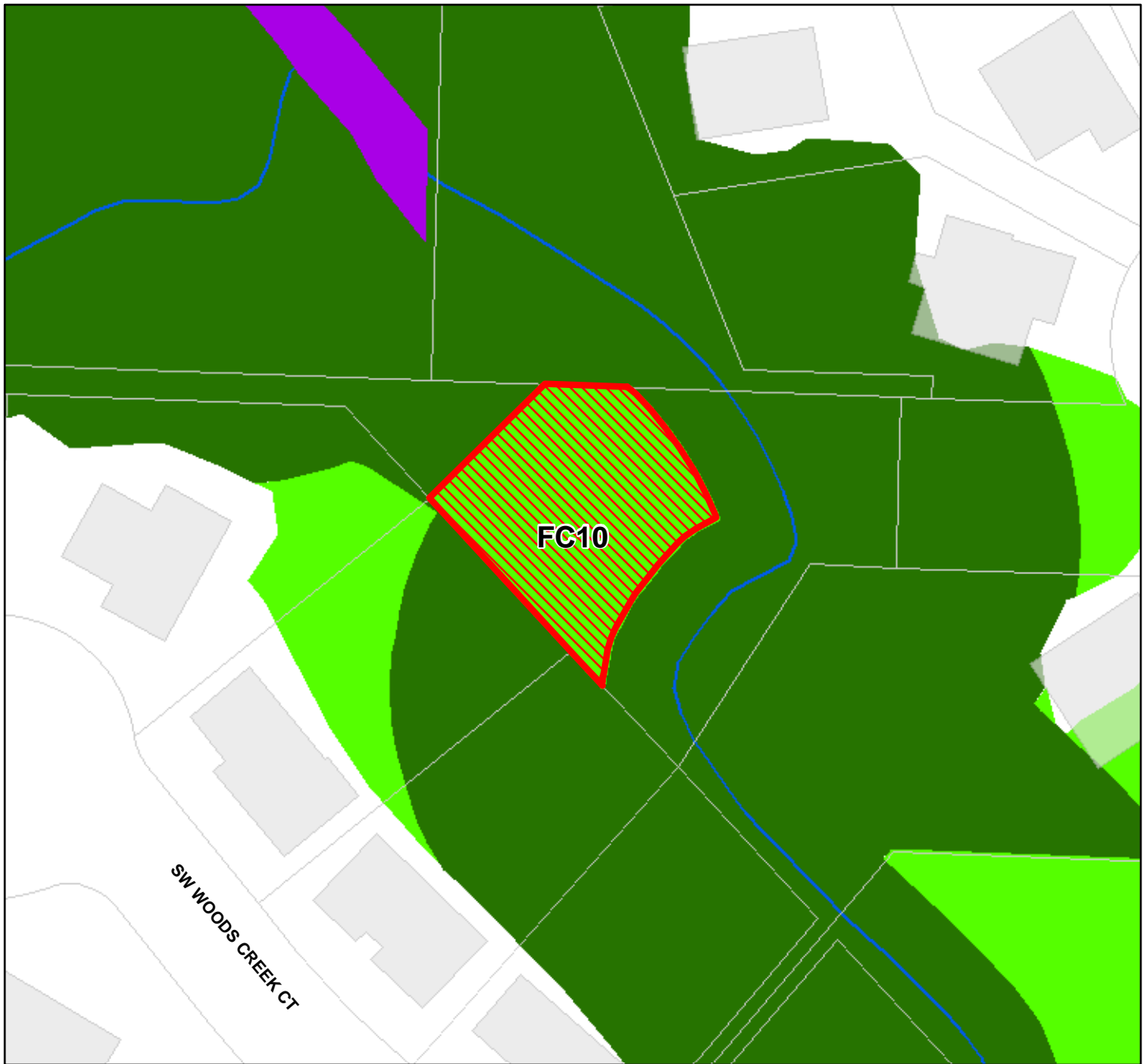


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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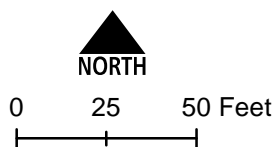


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant dividable R10 lot. Convert area >25' from streams.**

**State ID  
1S1E19DC 200**

Updated: October 2021

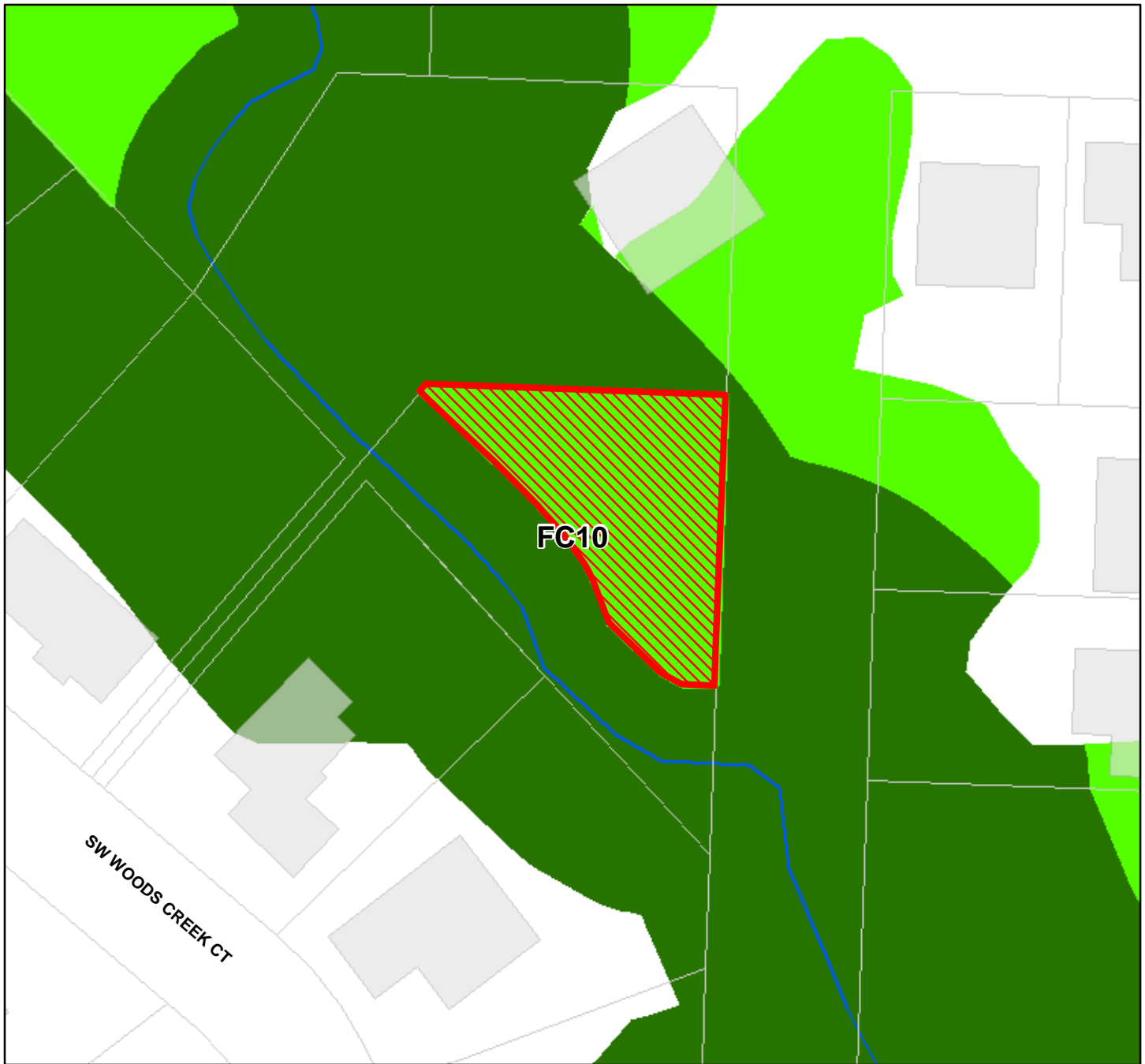


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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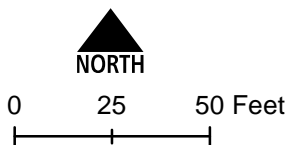


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID  
1S1E19DC 400**

Updated: October 2021

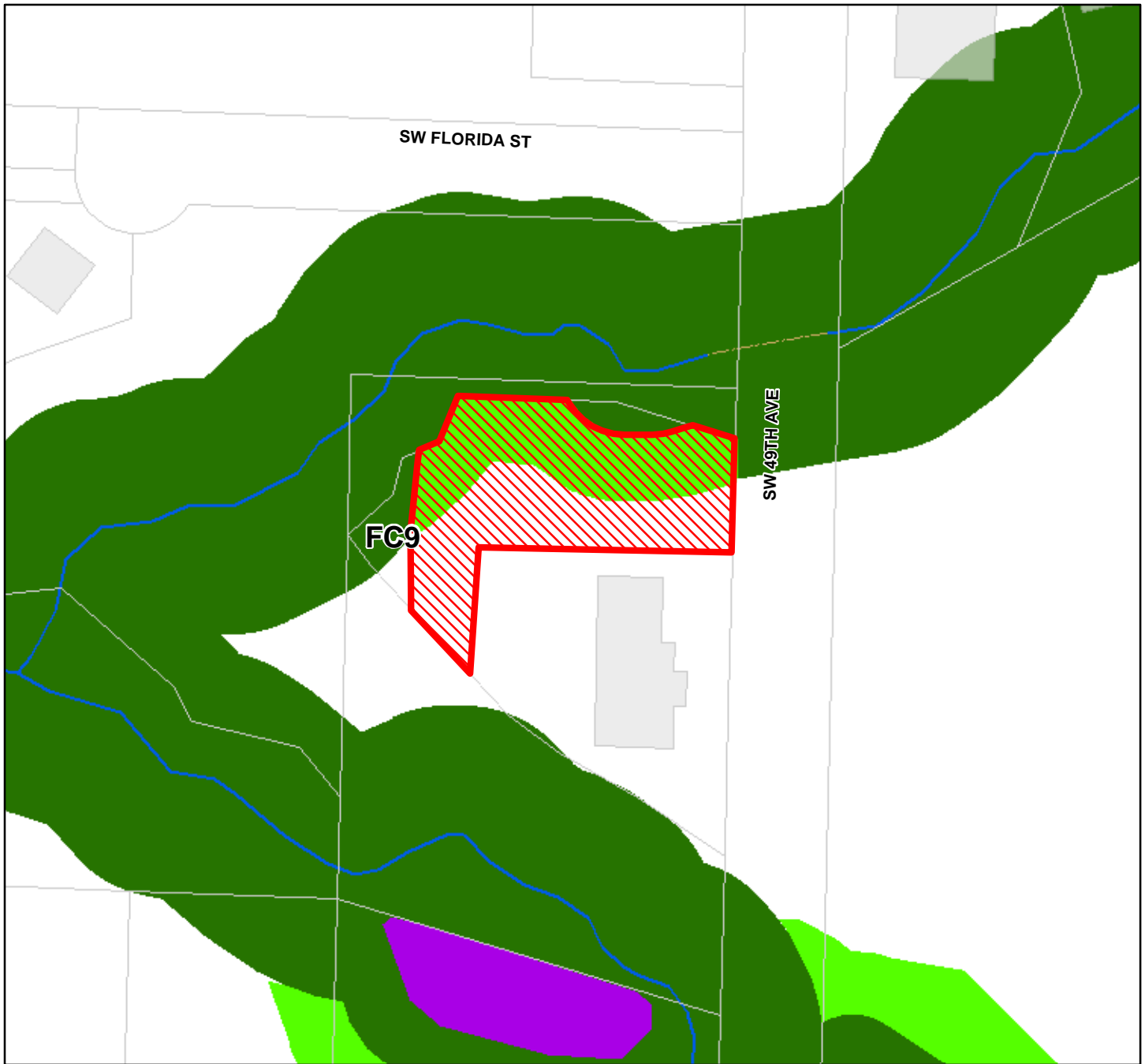


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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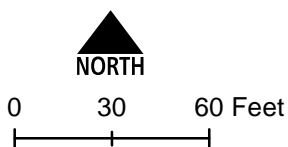


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R7 lot. Convert area >25' from stream.**

**State ID  
1S1E19AA 4304**

Updated: October 2021

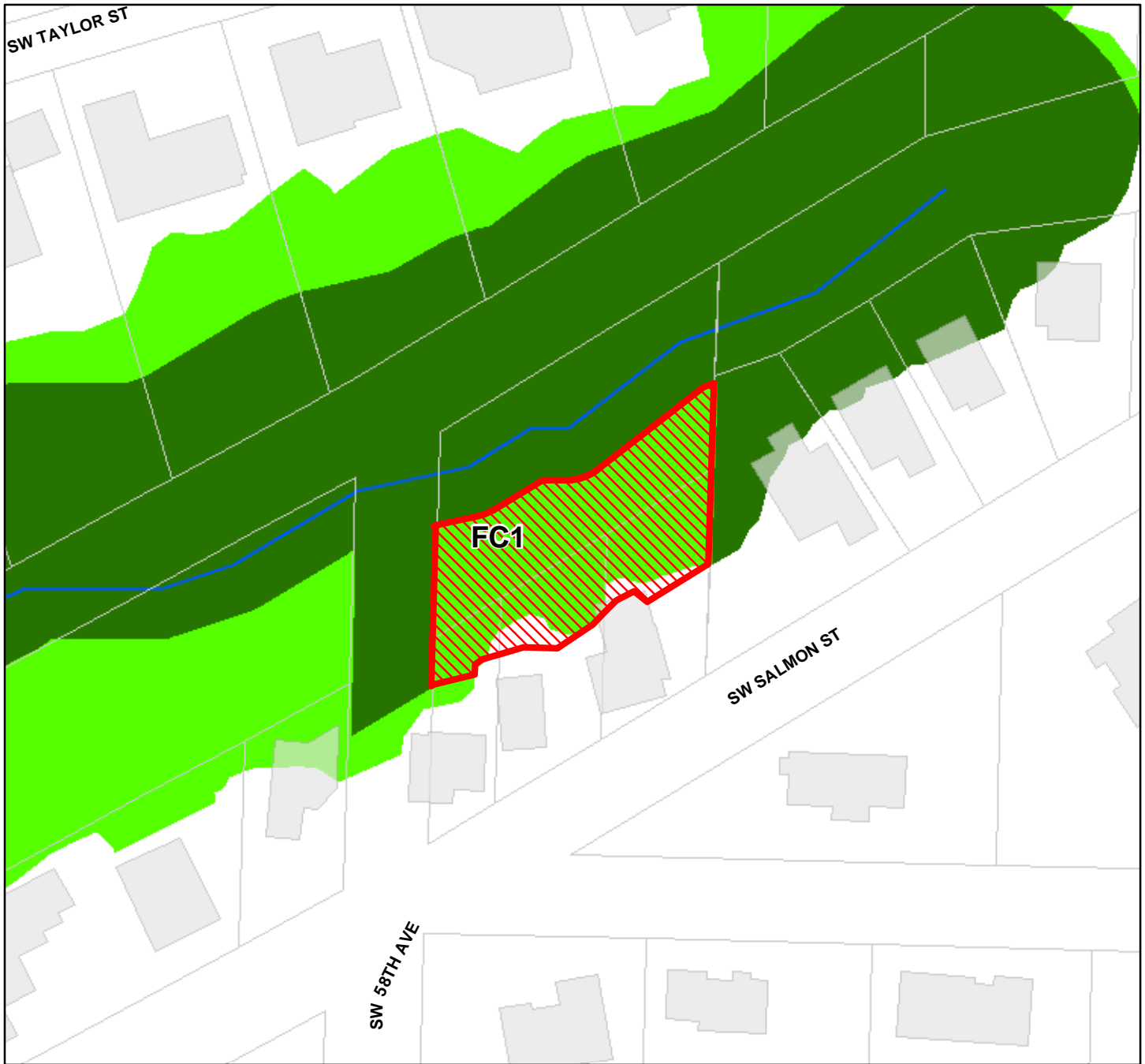


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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**'P' to 'C'  
Conversions**

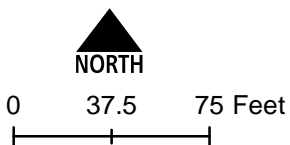
**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID**

- 1S1E06BD 6200
- 1S1E06BD 5600
- 1S1E06BD 5700
- 1S1E06BD 5500

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



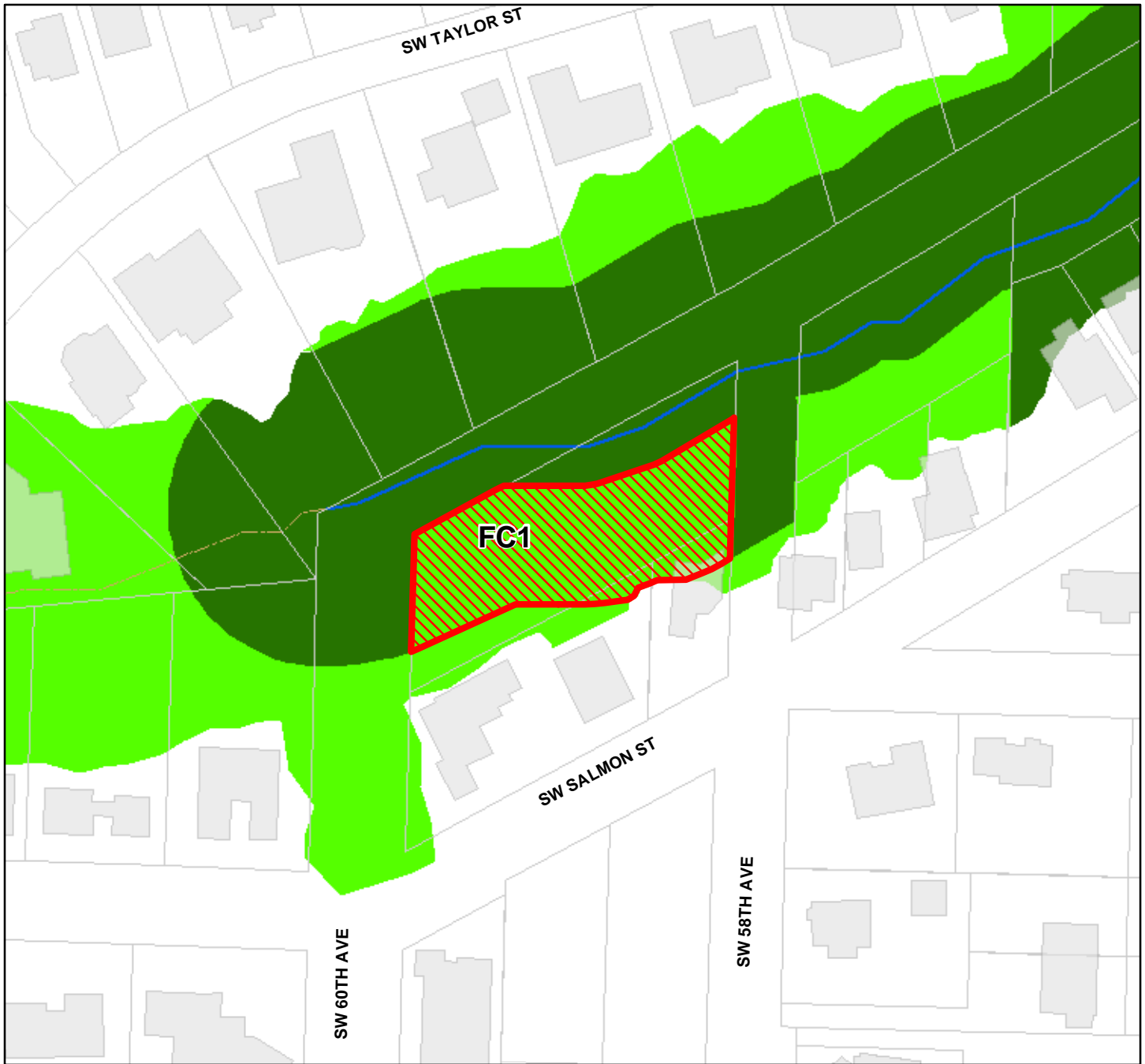
Recommended Draft

200



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January 2022

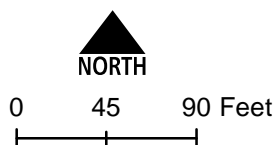


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant dividable R10 lot. Convert area >25' from stream.**

**State ID**  
1S1E06BD 6300  
1S1E06BD 5400  
1S1E06BD 5200

Updated: October 2021

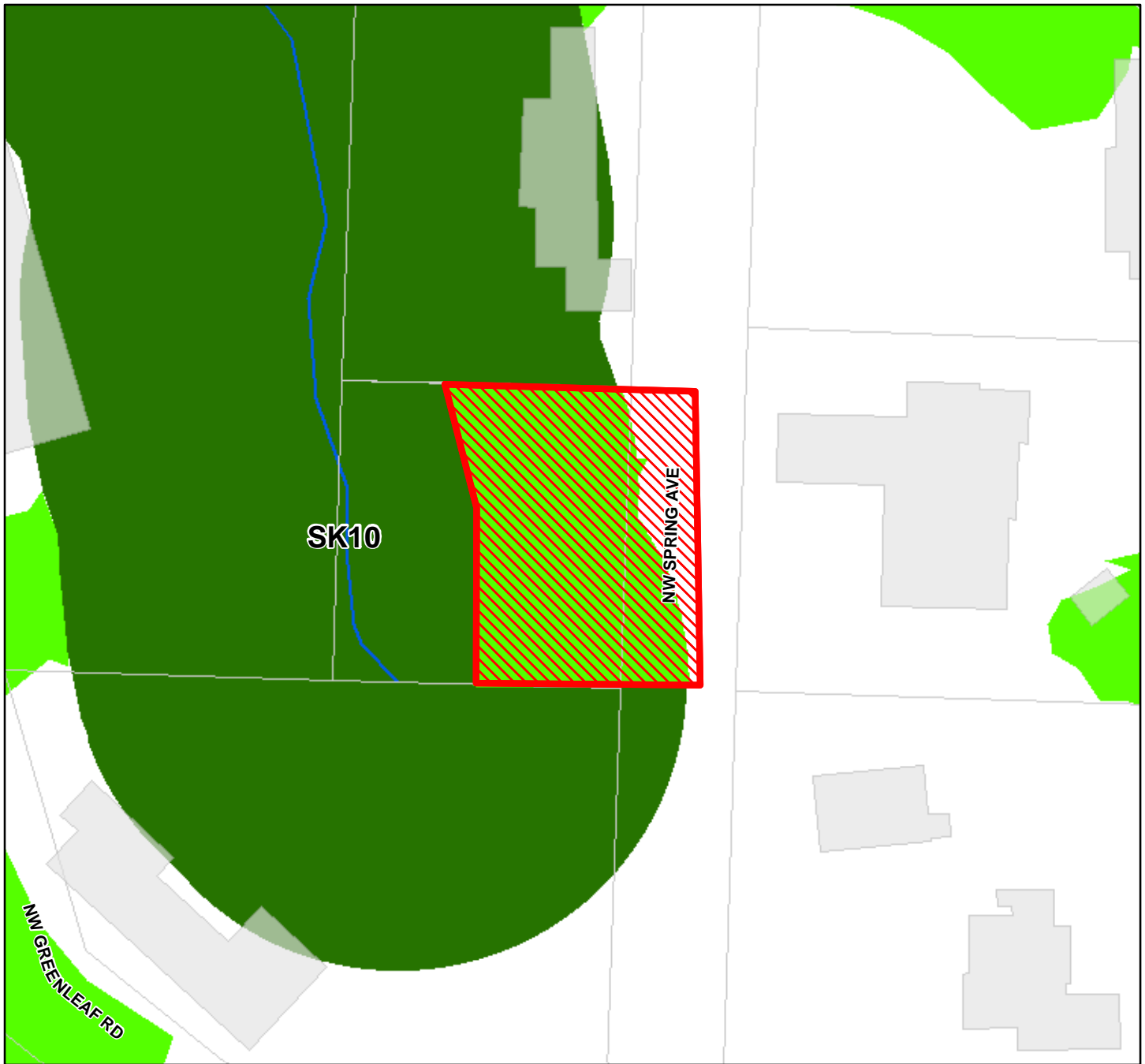


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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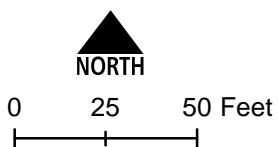


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R20 lot. Convert area closest to right-of-way and furthest from stream.**

**State ID  
1N1W36AC 1000**

Updated: October 2021



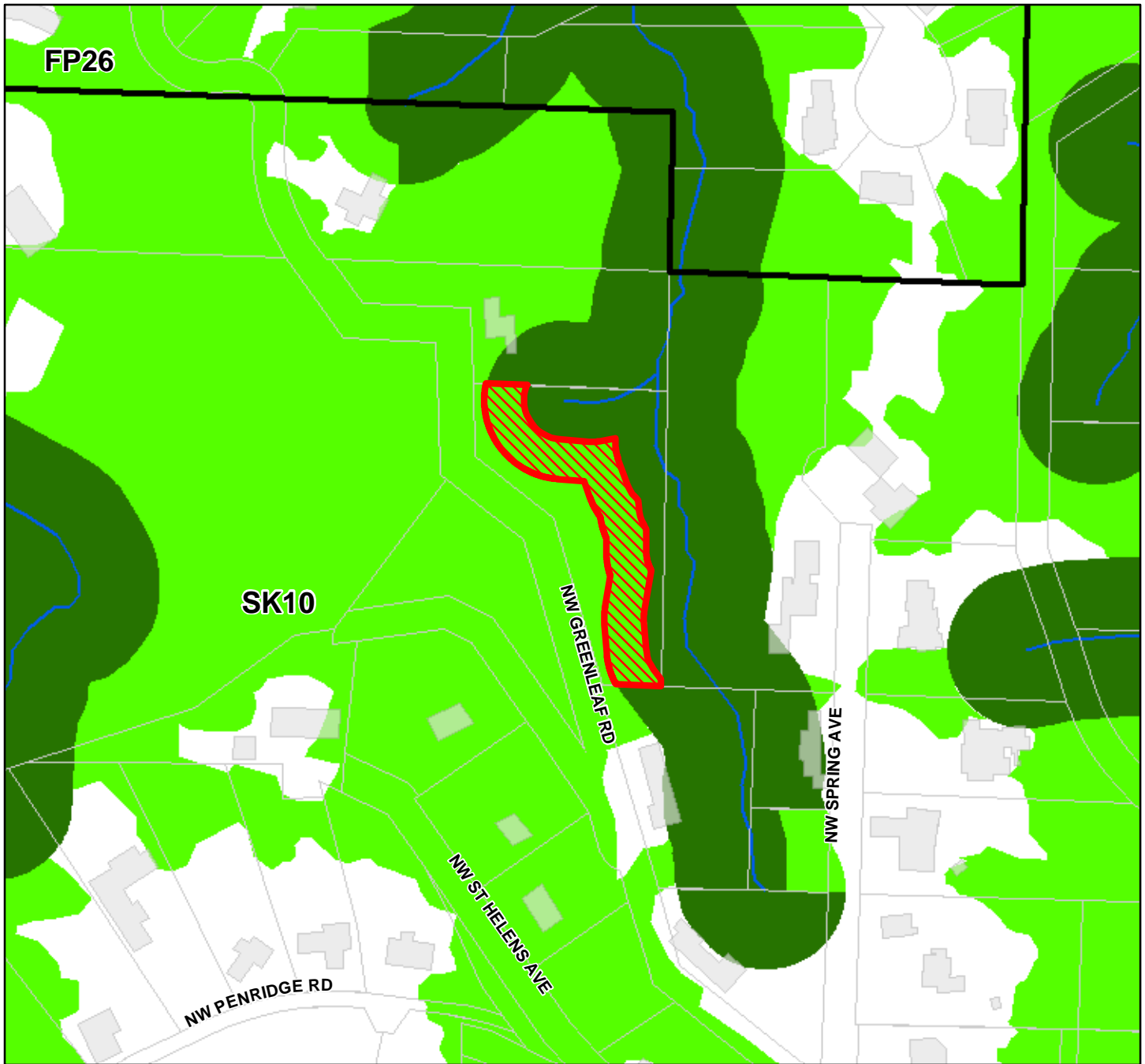
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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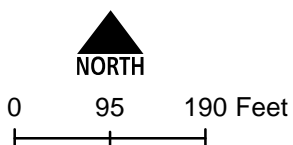


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant dividable R20 lot. Convert area >25' from stream.**

**State ID  
1N1W36AC 1300**

Updated: October 2021

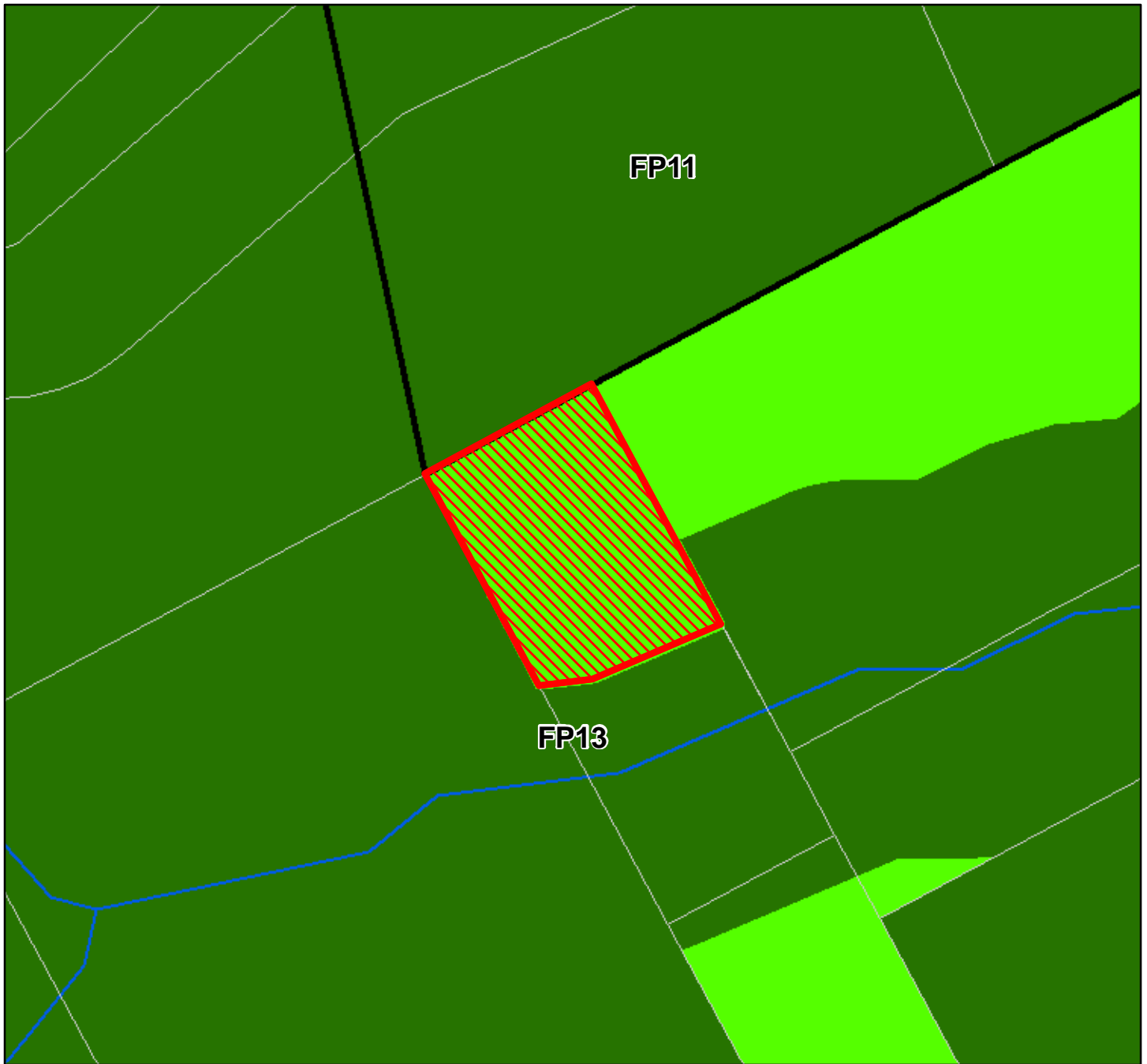


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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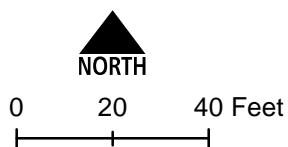


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R20 lot. Convert area >25' from stream.**

**State ID  
1N1W11BD 3200**

Updated: October 2021

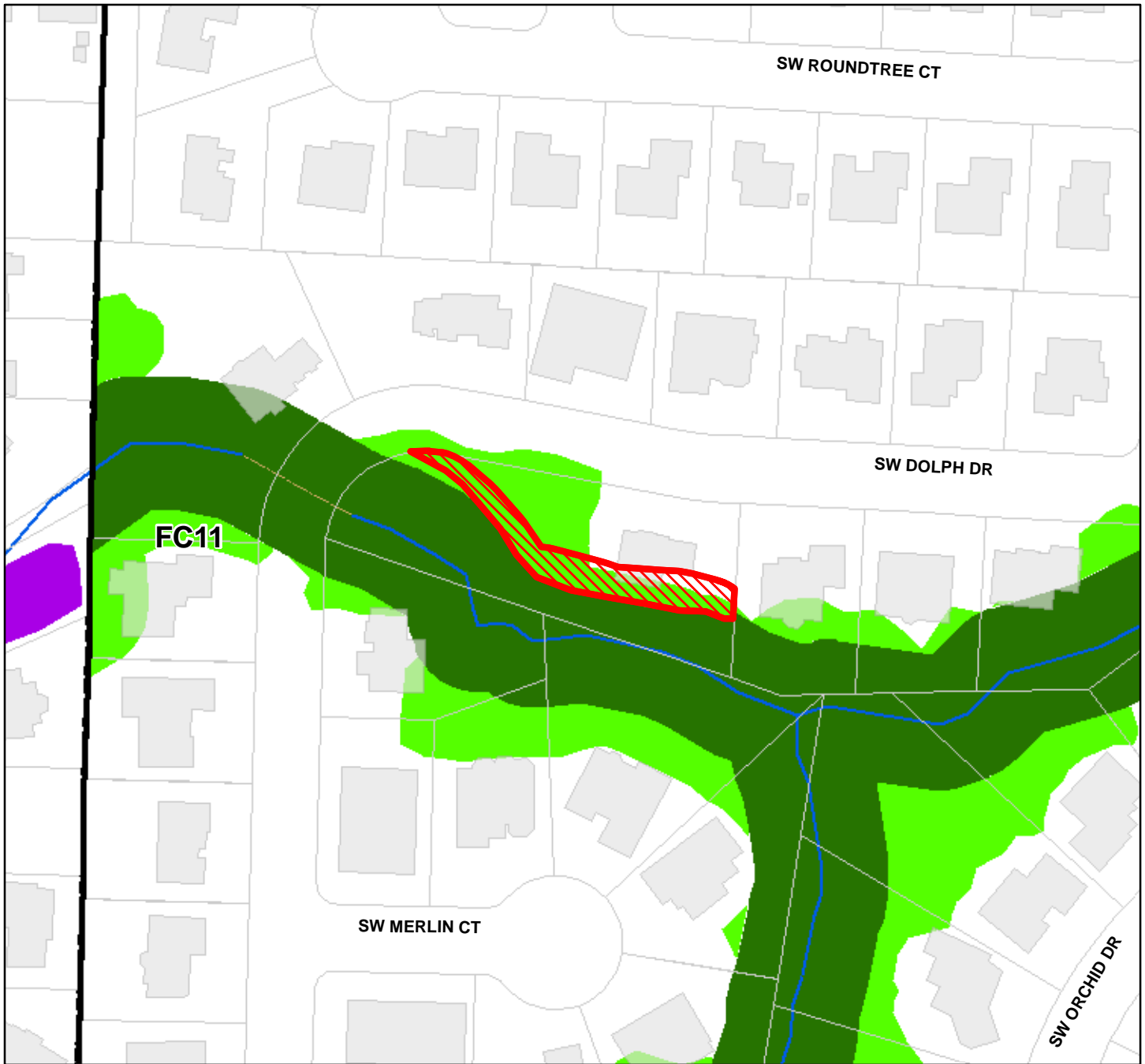


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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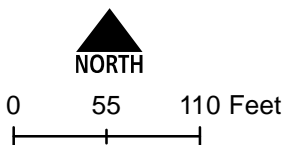













**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R10 lot.**

**State ID**  
**1S1E30BB 4500**

Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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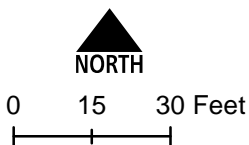


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R7 lot. Convert area >25' from stream.**

**State ID  
1S1E30AD 4200**

Updated: October 2021



Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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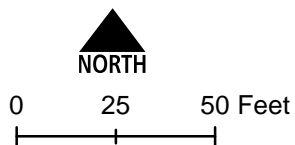













**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R7 lot. Convert area >25' from stream.**

**State ID  
1S1E30AC 12200**

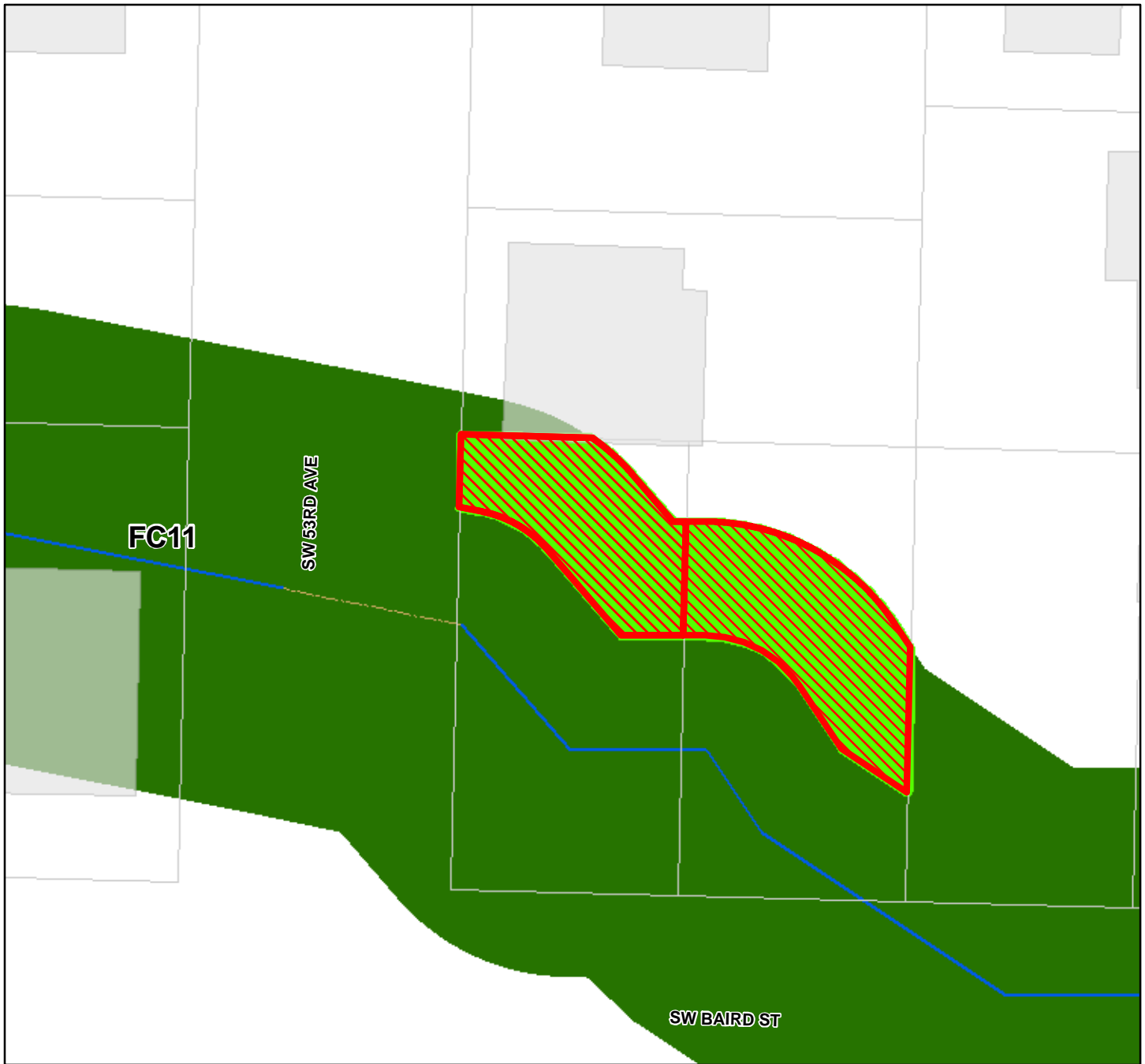
Updated: October 2021



- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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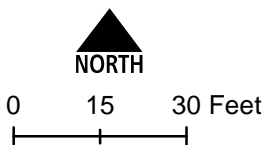


**'P' to 'C' Conversions**

**Conversion Description: Vacant R7 lots. Convert area >25' from stream.**

**State ID**  
1S1E30AC 2700  
1S1E30AC 2600

Updated: October 2021

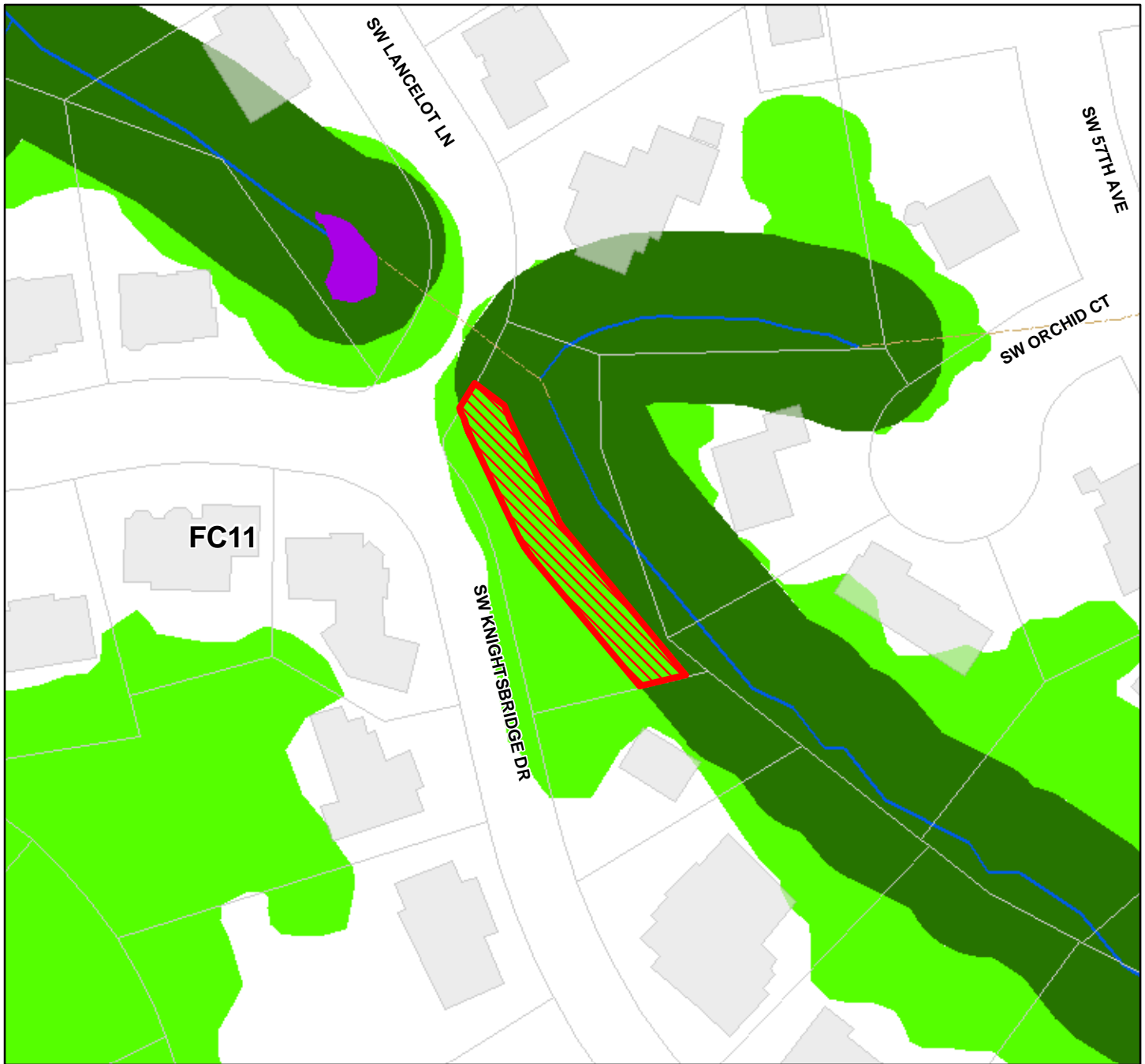


Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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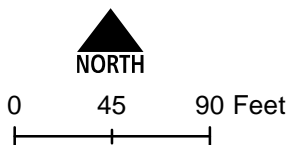


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID  
1S1E30BA 6401**

Updated: October 2021

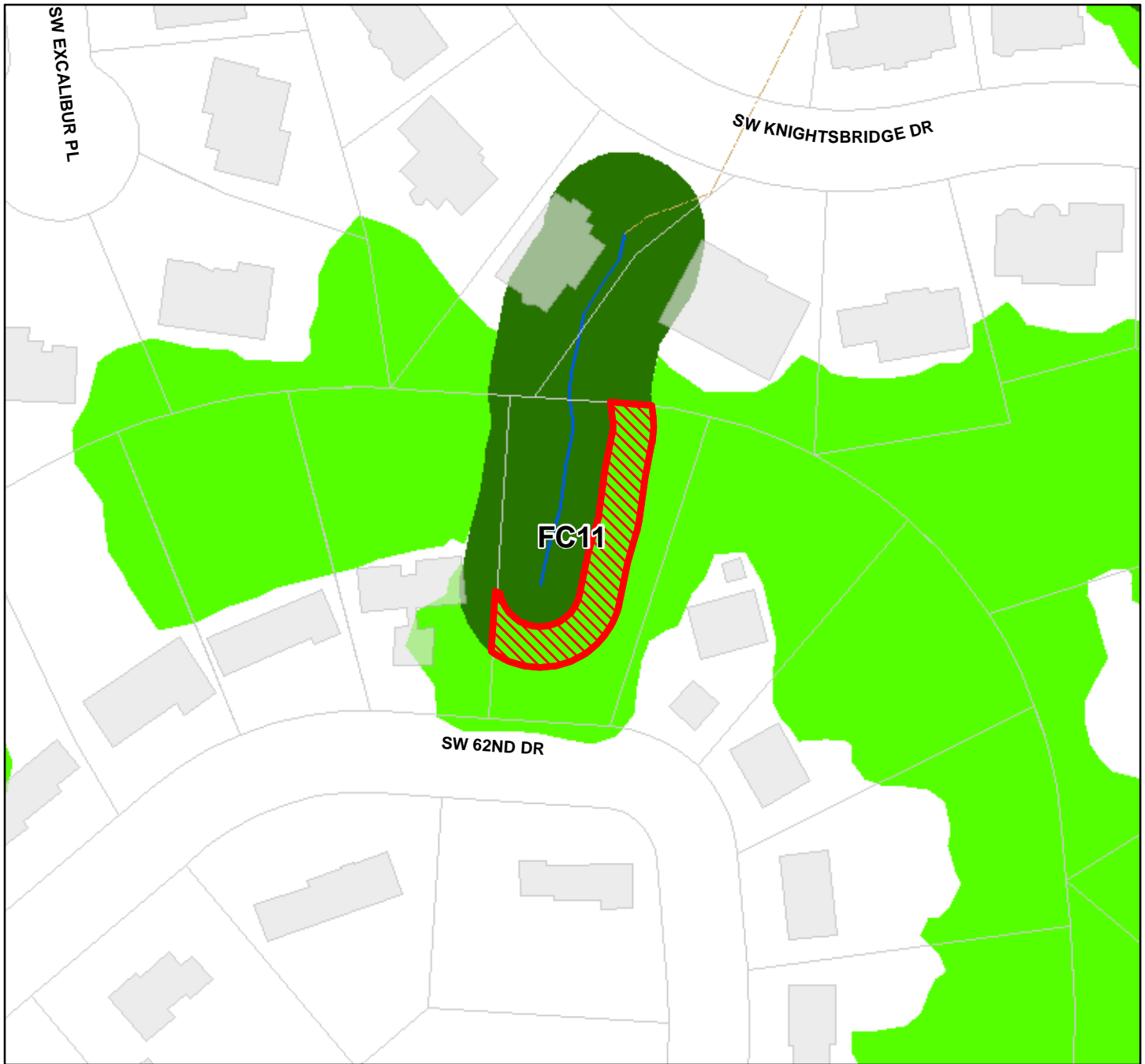


Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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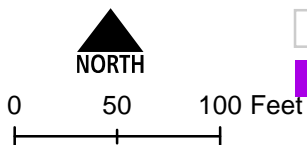


**'P' to 'C'  
Conversions**

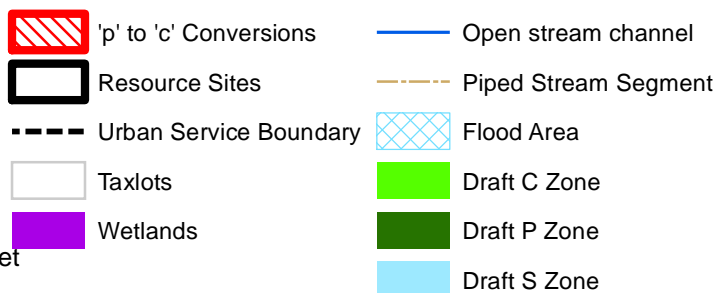
**Conversion Description: Vacant R20 lot. Convert area >25' from stream.**

**State ID**  
**1S1E30BA 5600**

Updated: October 2021

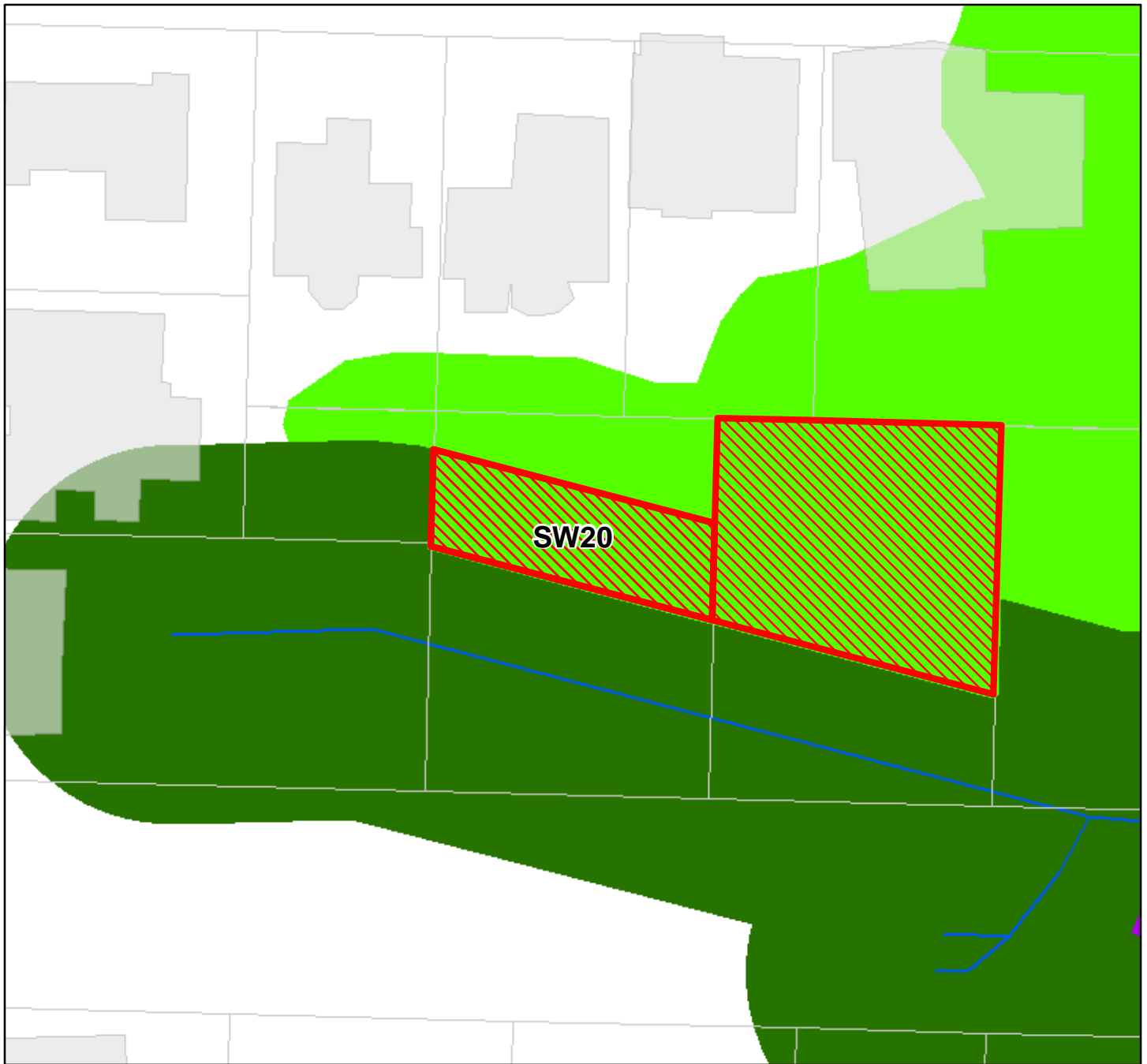


Recommended Draft



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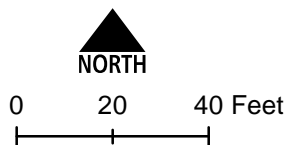


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R7 lots. Convert area >25' from stream.**

**State ID**  
1S1E32BC 7701  
1S1E32BC 7700

Updated: October 2021

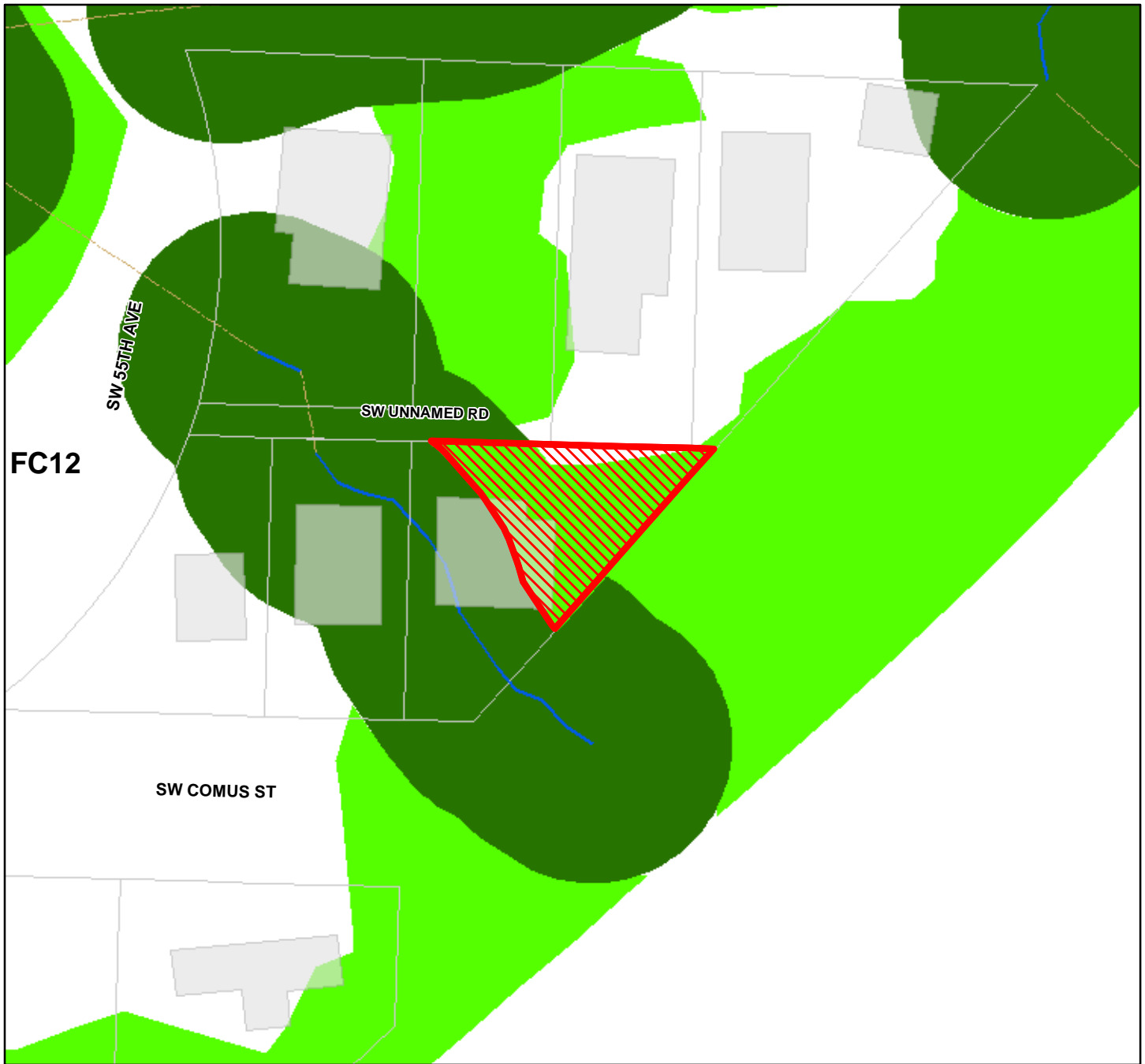


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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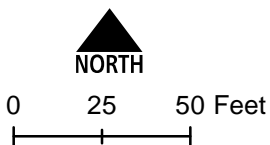


**'P' to 'C'  
Conversions**

**Conversion Description: R7 lot. Convert area >25' from stream.**

**State ID  
1S1E31AB 6900**

Updated: October 2021

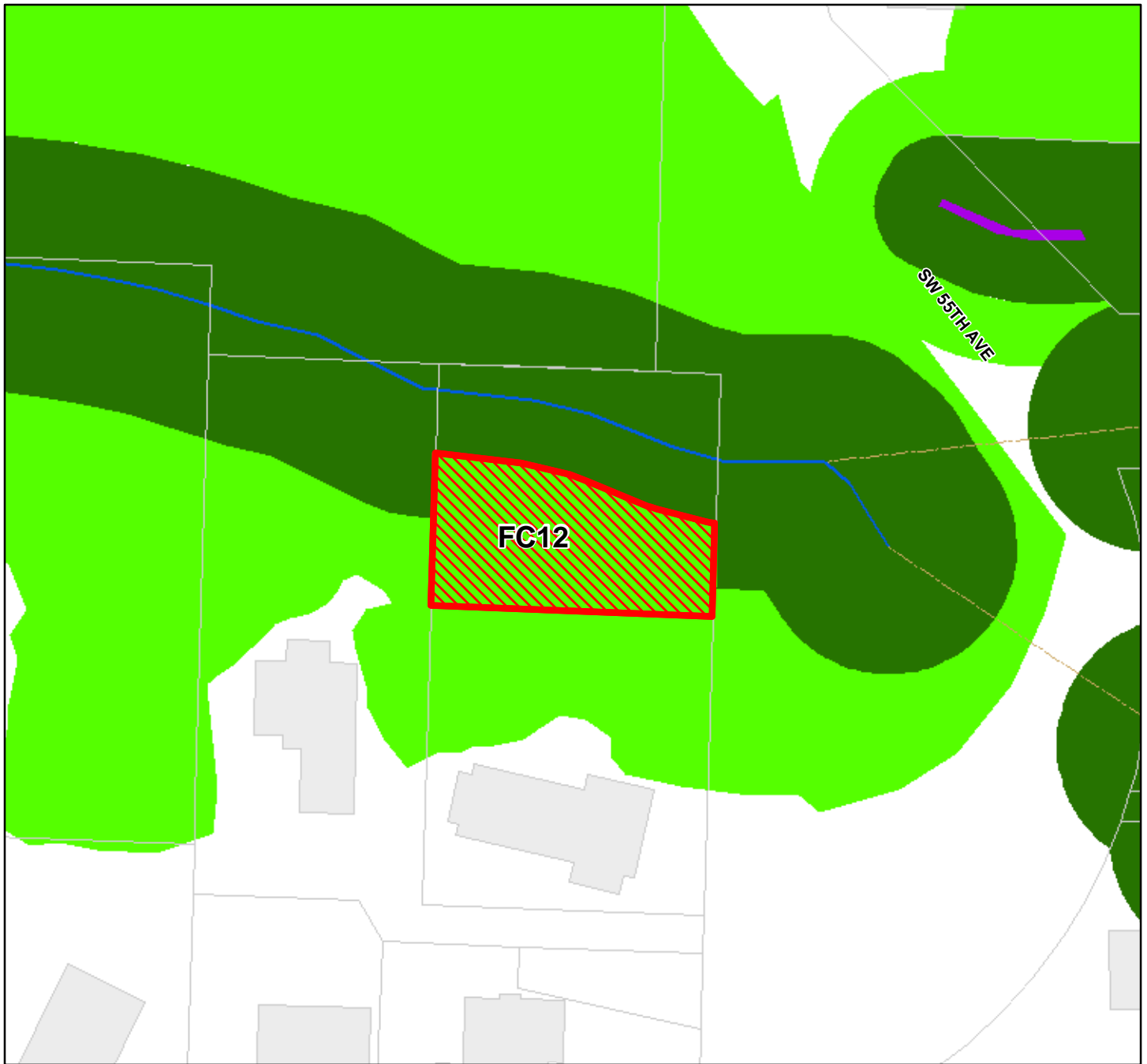


Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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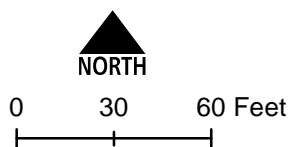


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID  
1S1E31BA 100**

Updated: October 2021

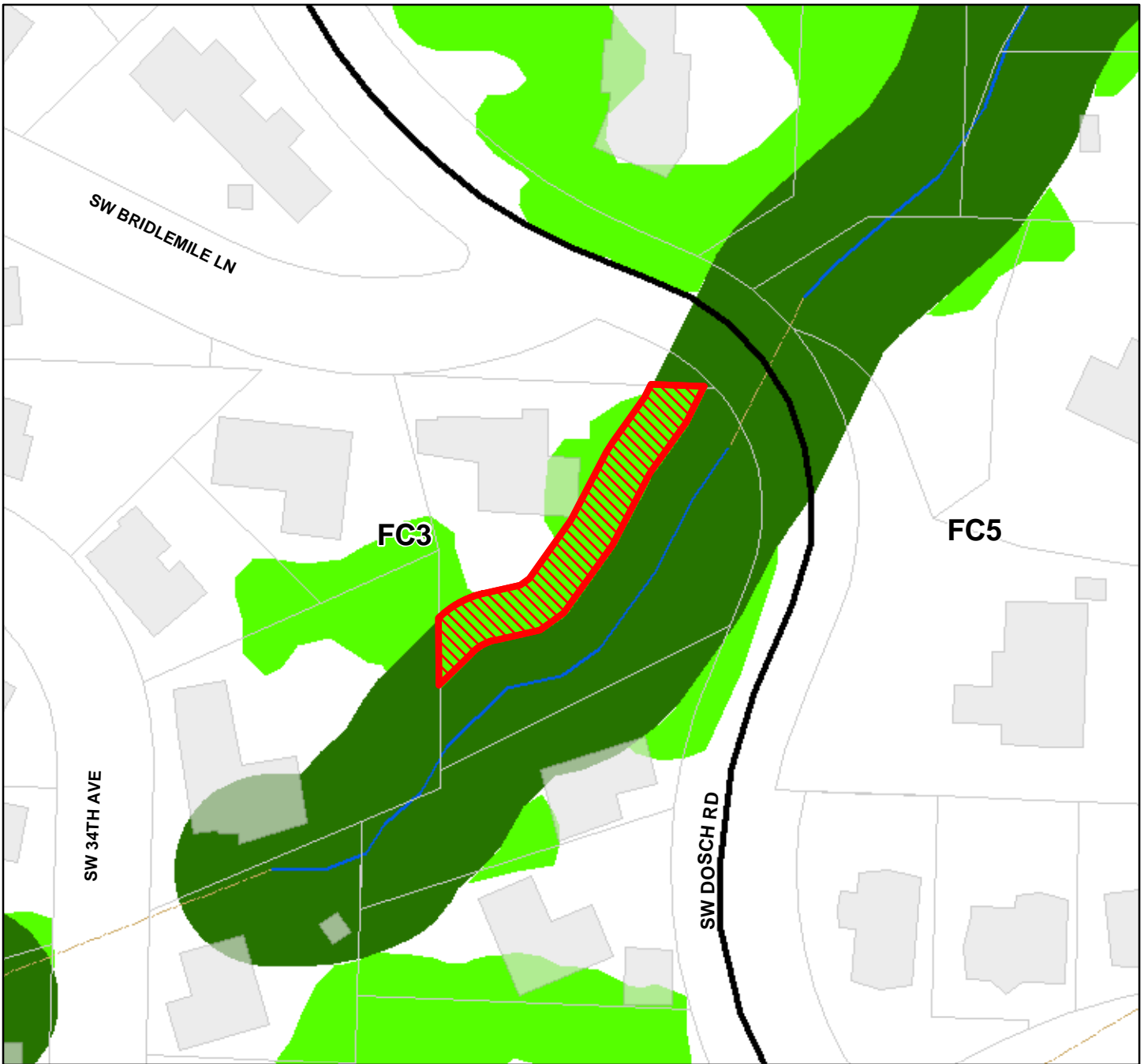


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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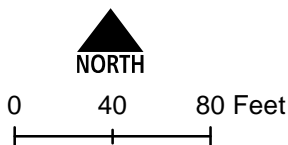


**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R10 lot. Convert area >25' from stream towards existing development.**

**State ID  
1S1E08DC 7000**

Updated: October 2021

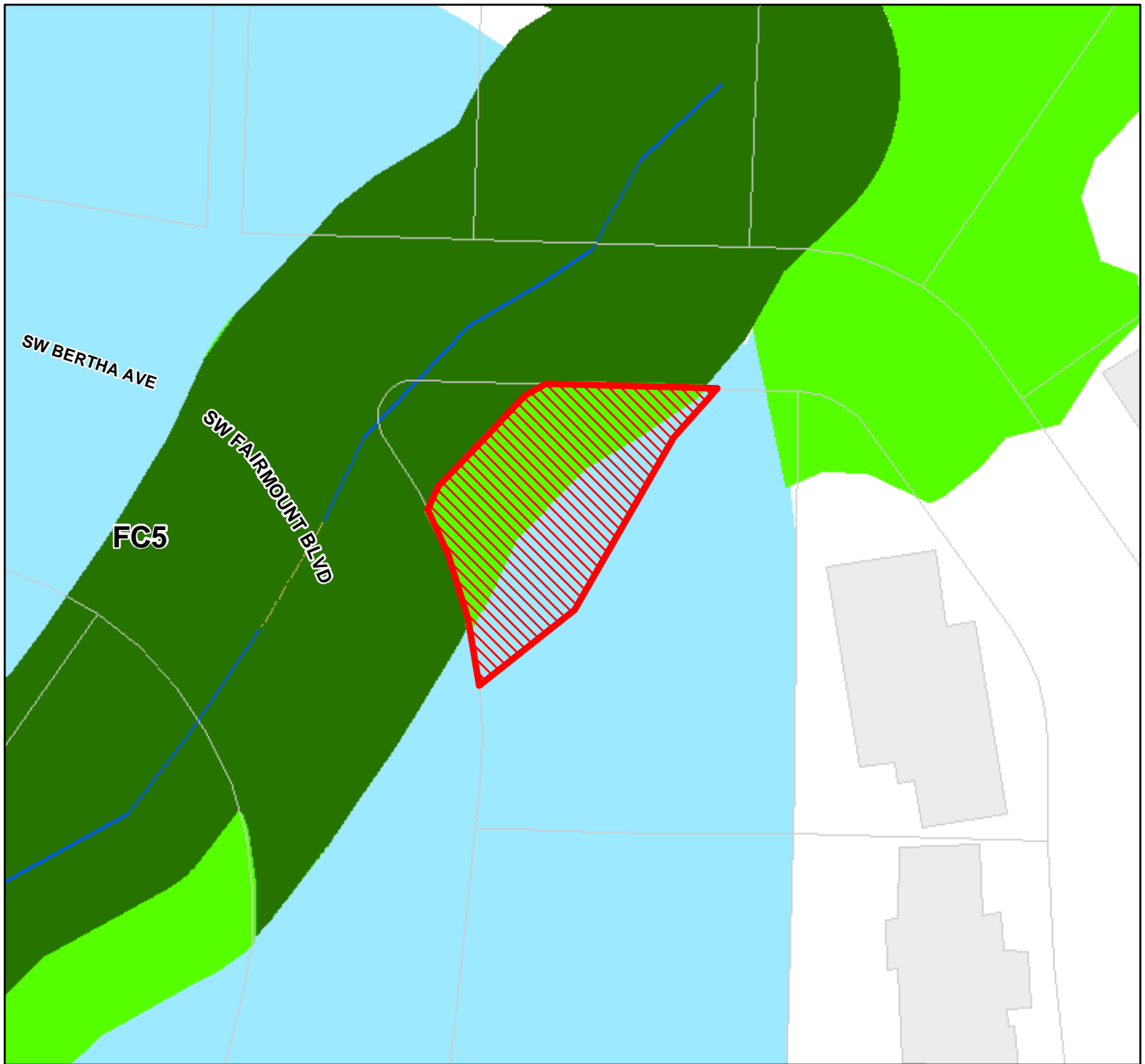


Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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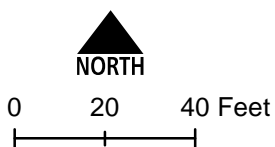


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R7 lot. Convert area >25' from stream.**

**State ID  
1S1E09CC 9300**

Updated: October 2021

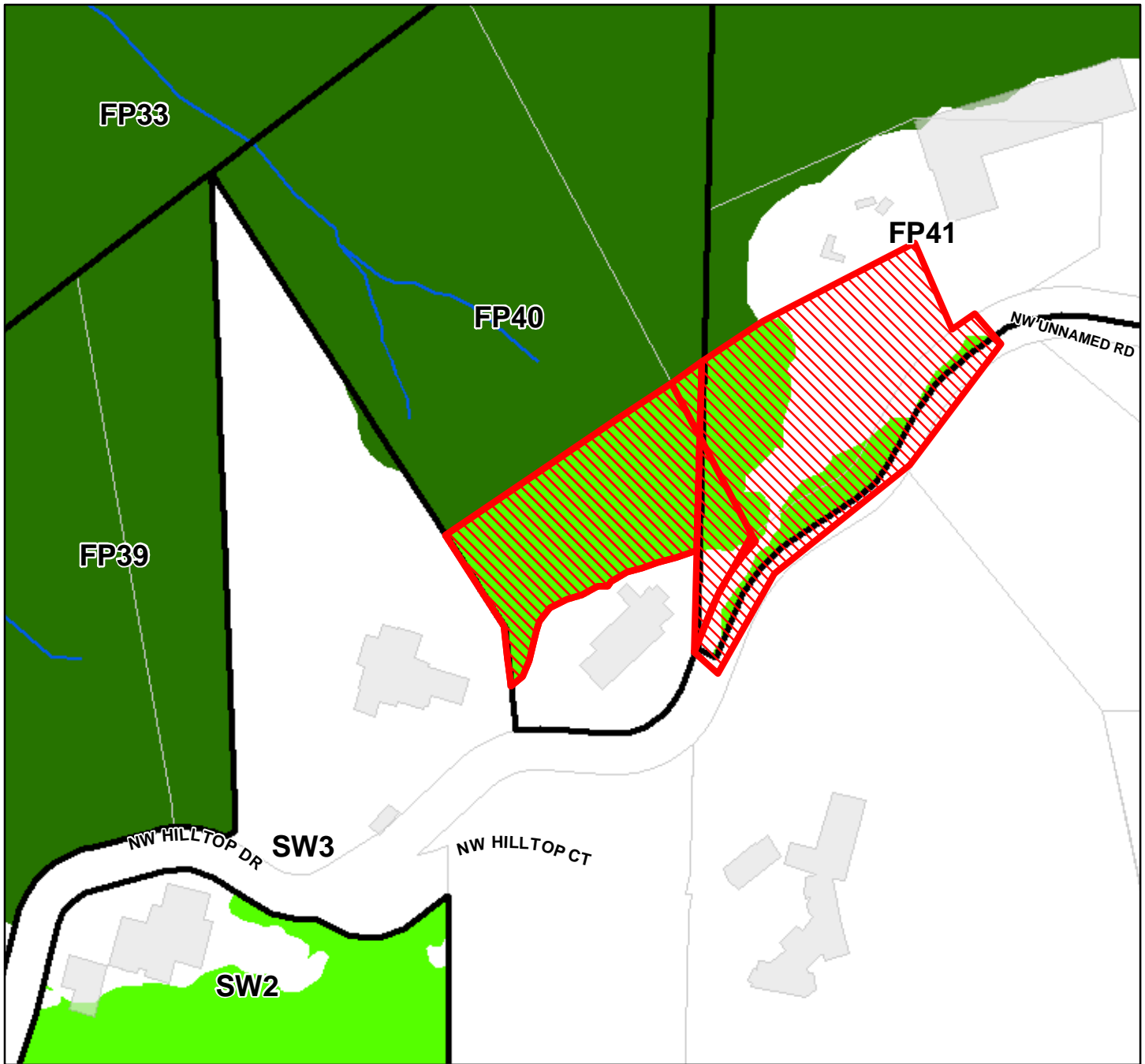


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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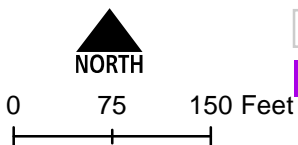
**'P' to 'C'  
Conversions**

**Conversion Description: Dividable RF lots. Convert area near existing development, consistent with existing policy.**

State ID  
1N1E31DA 1201  
1N1E31DA 1200  
1N1E32CB 502  
1N1E32CB 501

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone

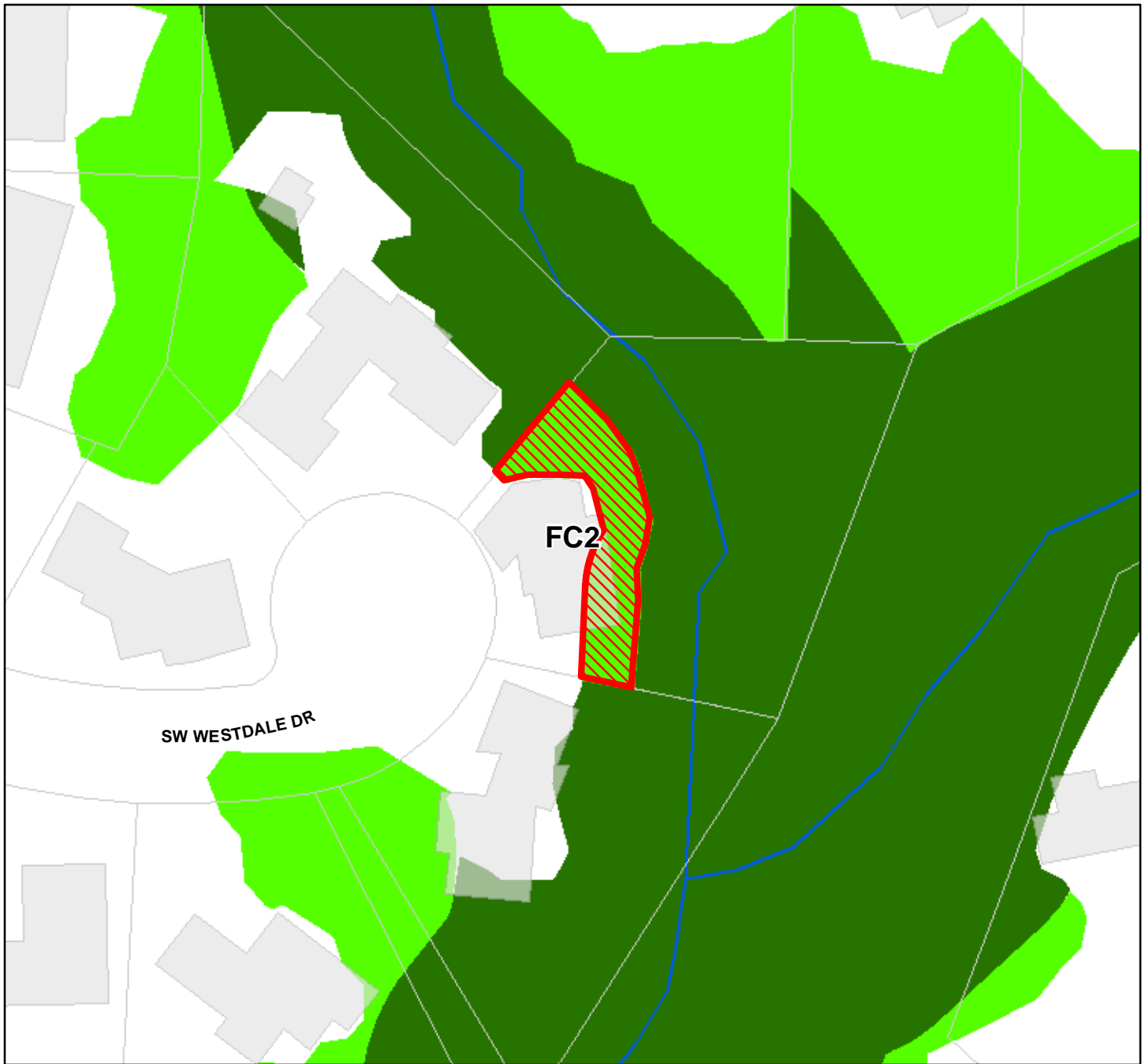
Updated: October 2021



Recommended Draft














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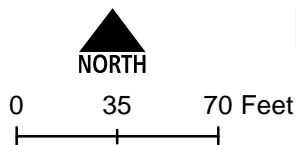
**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R10 lot. Convert area >25' from stream.**

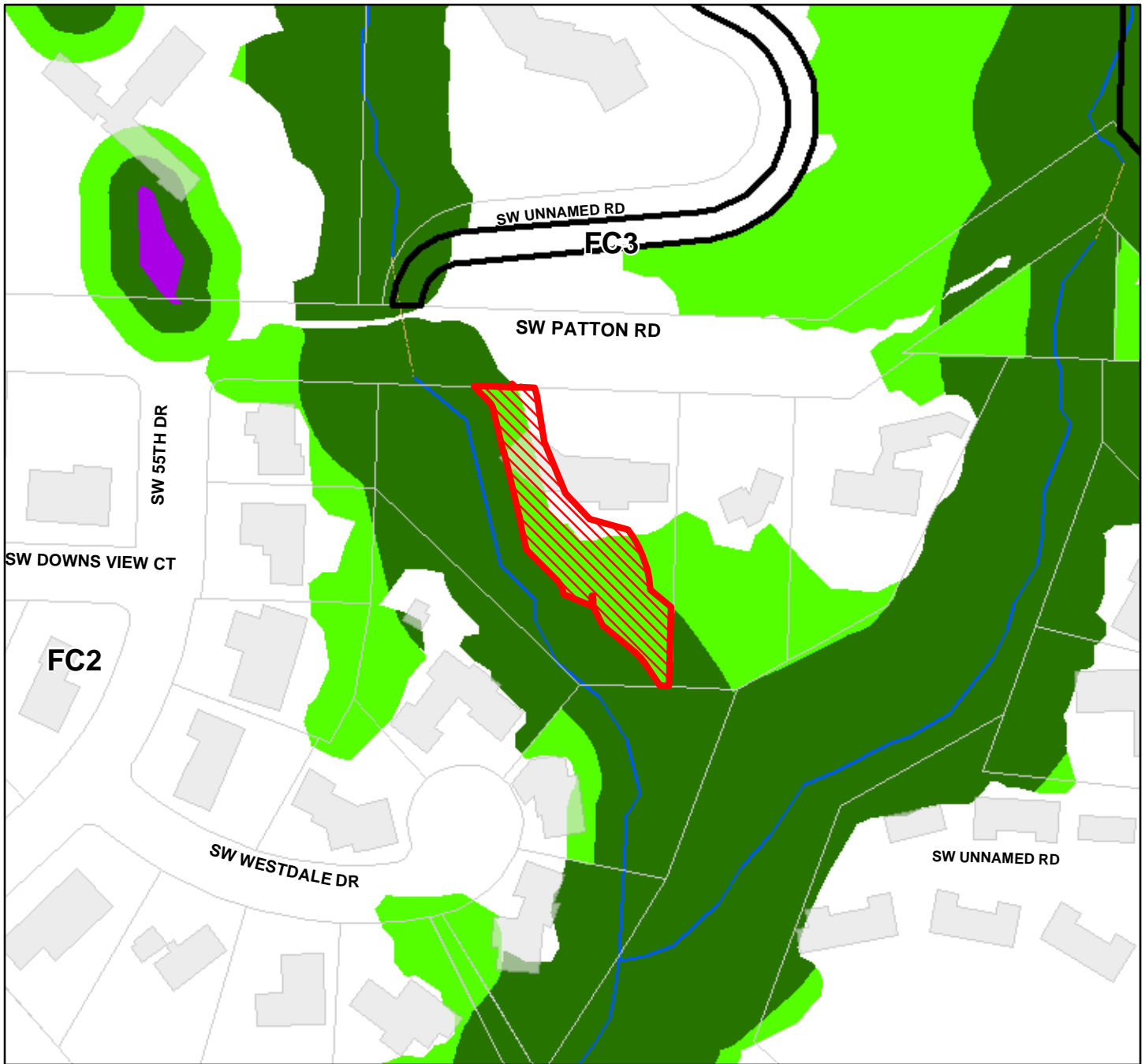
**State ID  
1S1E07DB 5000**

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

Updated: October 2021



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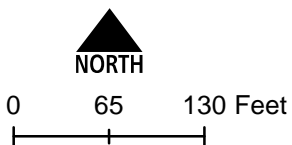


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable residential lot. Convert relatively flat portions of lot and area >25' from stream.**

**State ID  
1S1E07DB 4200**

Updated: October 2021



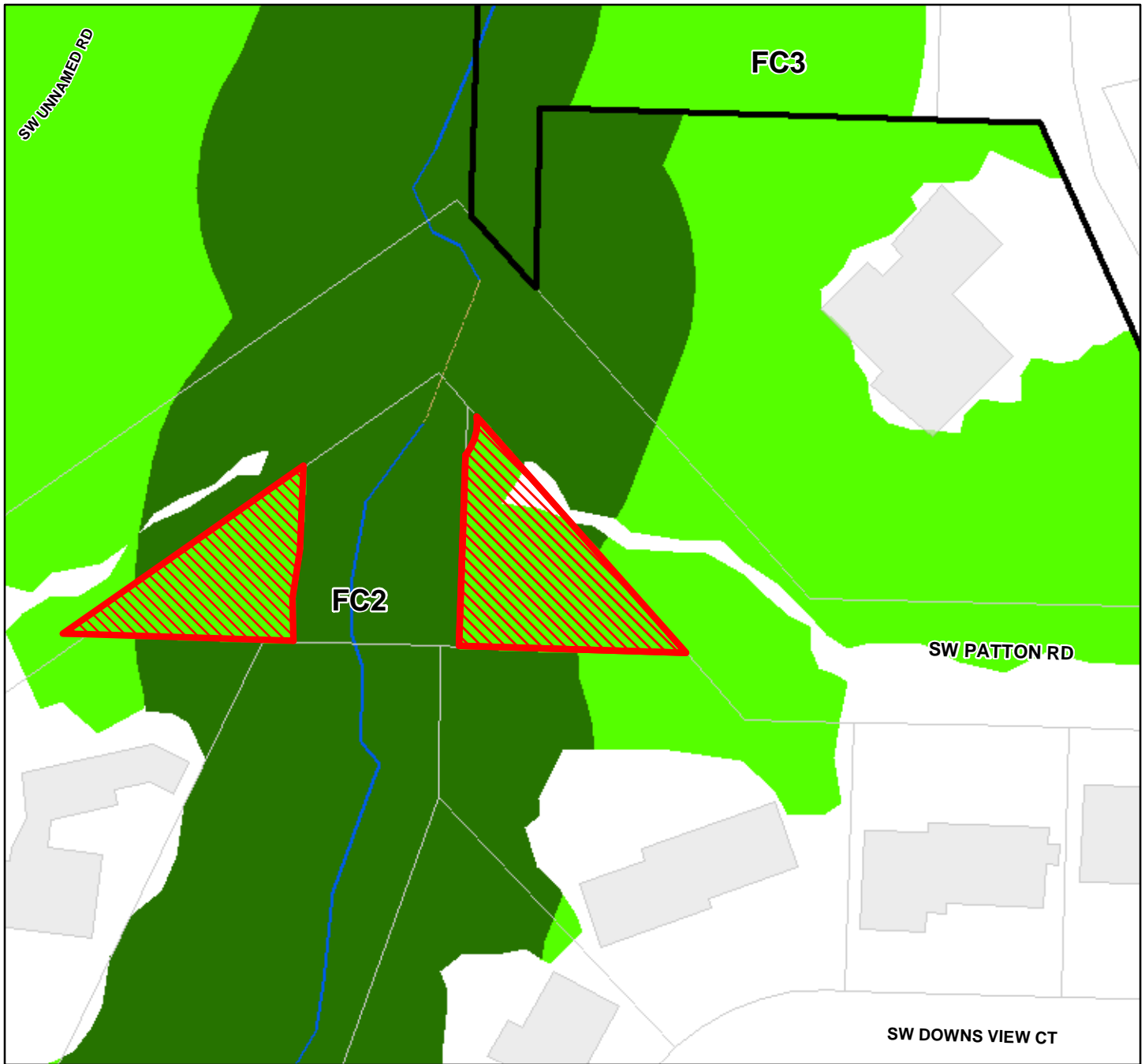
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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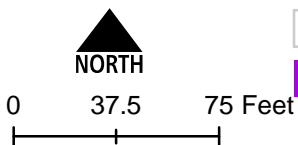


**'P' to 'C'  
Conversions**












**Conversion Description: Portion of undeveloped lot >25' from stream**

**State ID**  
1S1E07AC 2200  
1S1E07AC 2300

Updated: October 2021

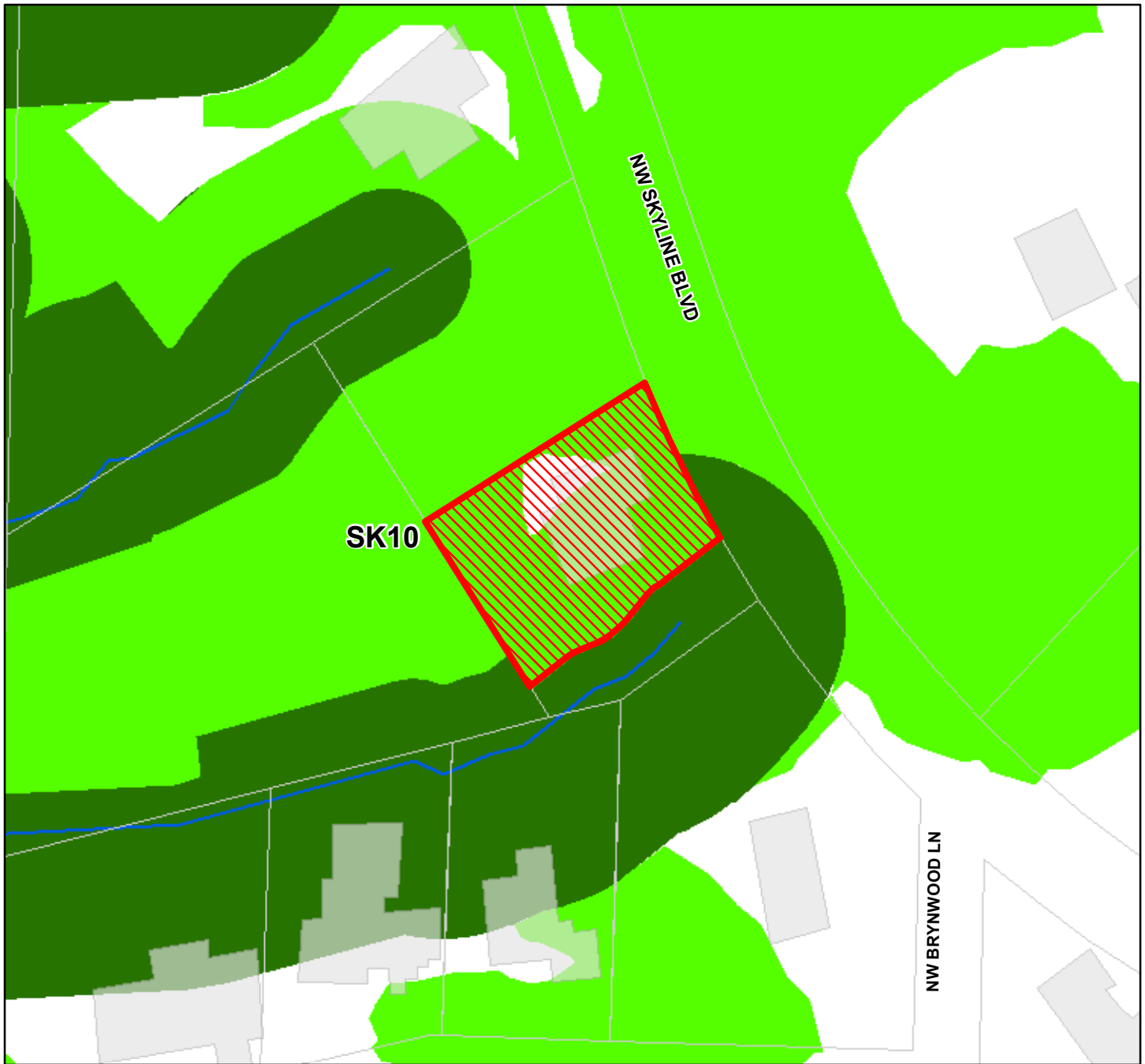


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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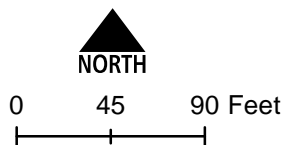


**'P' to 'C'  
Conversions**

**Conversion Description: Constrained, dividable residential lot.  
Convert area near existing development >25' from stream**

**State ID  
1N1W36CA 1300**

Updated: October 2021

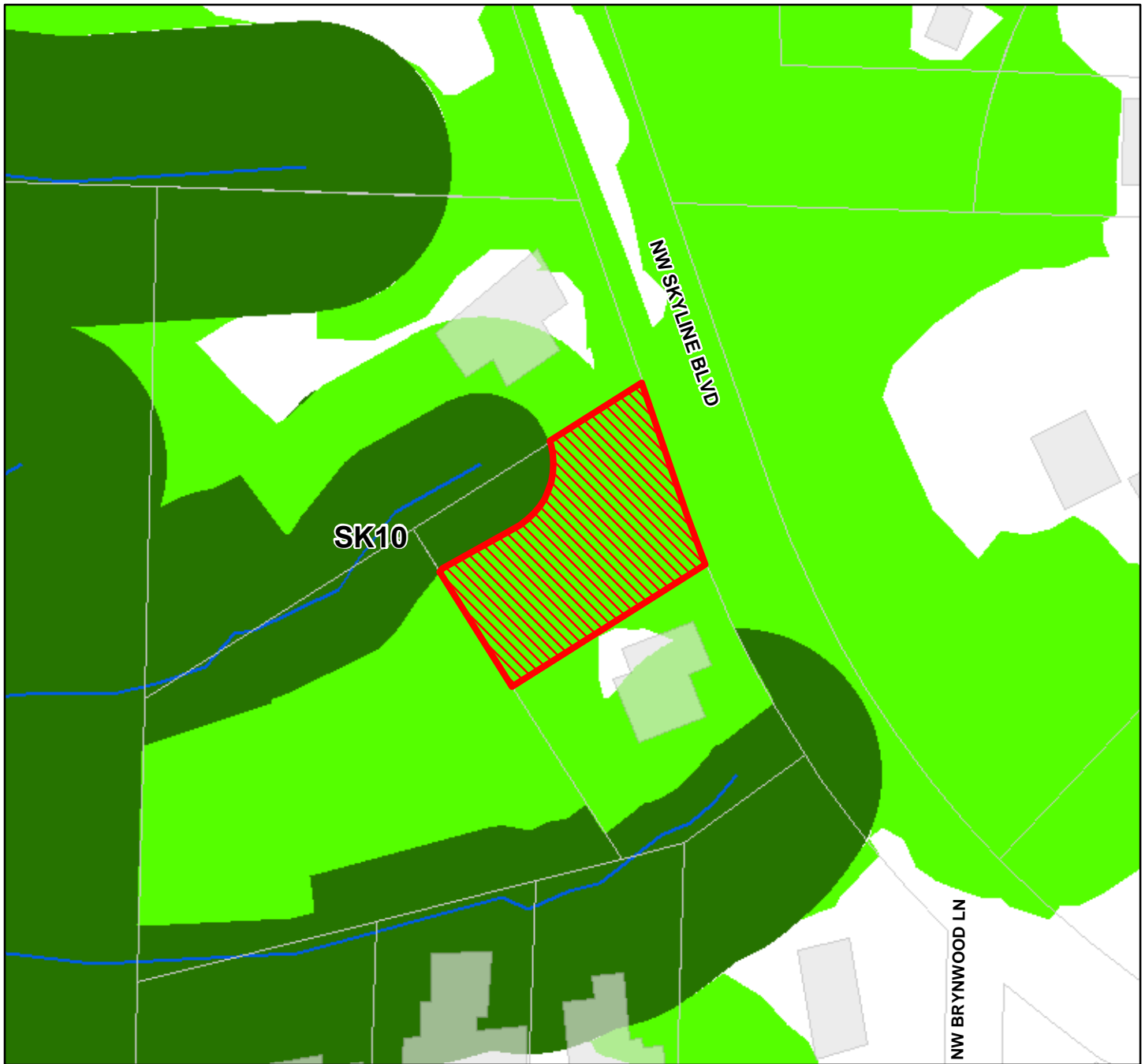


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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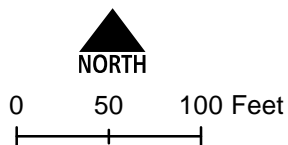


**'P' to 'C'  
Conversions**

**Conversion Description: Dividable residential lot. Convert area >50' from stream.**

**State ID  
1N1W36CA 1200**

Updated: October 2021

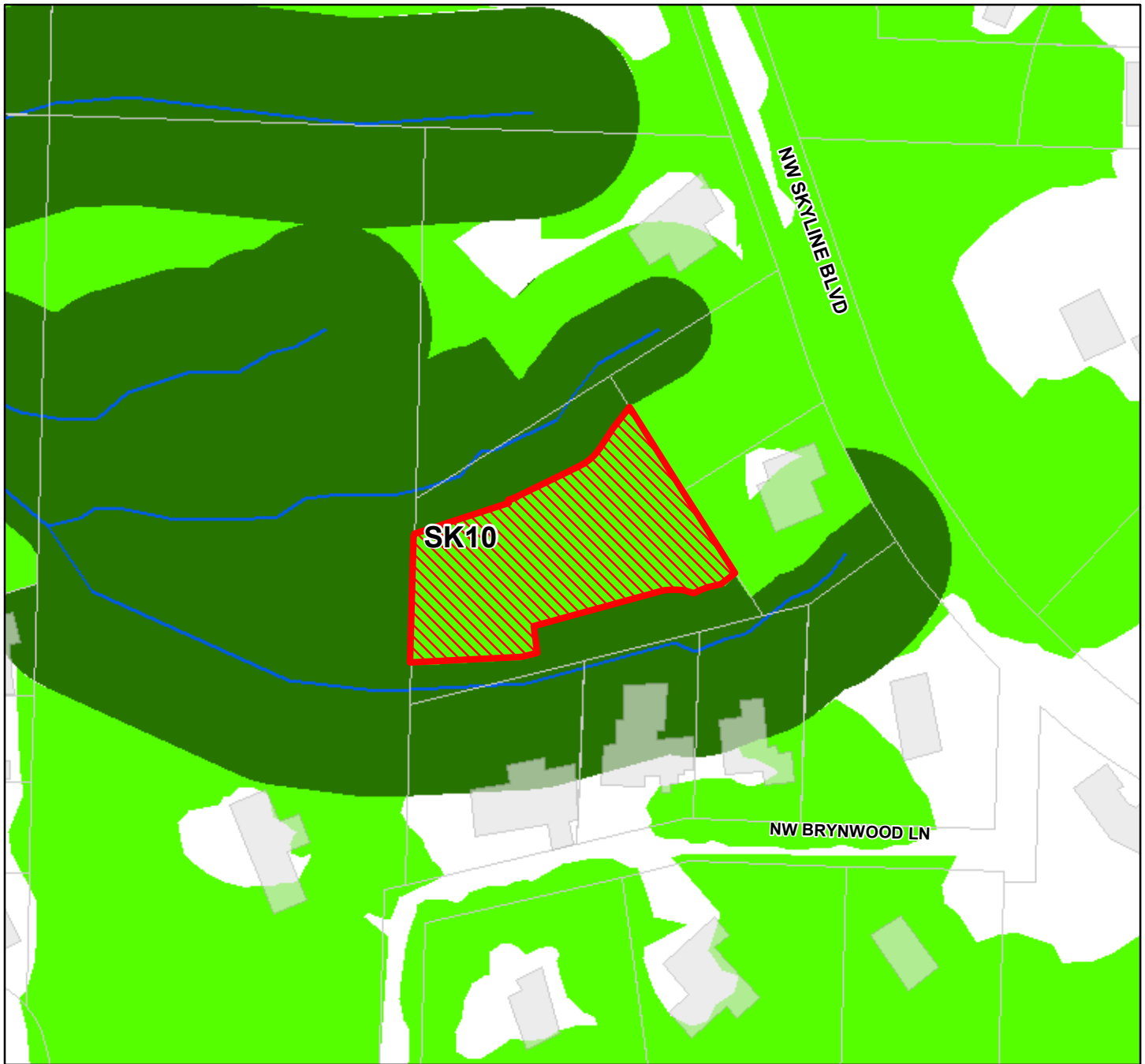


Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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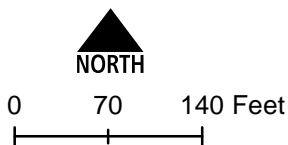


**'P' to 'C'  
Conversions**

**Conversion Description: Dividable residential lot. Owner has access easement to the southwest, therefore converted southwestern area >25' from stream to facilitate potential future crossing. The remainder was converted >50' from stream.**

**State ID  
1N1W36CA 1100**

Updated: October 2021

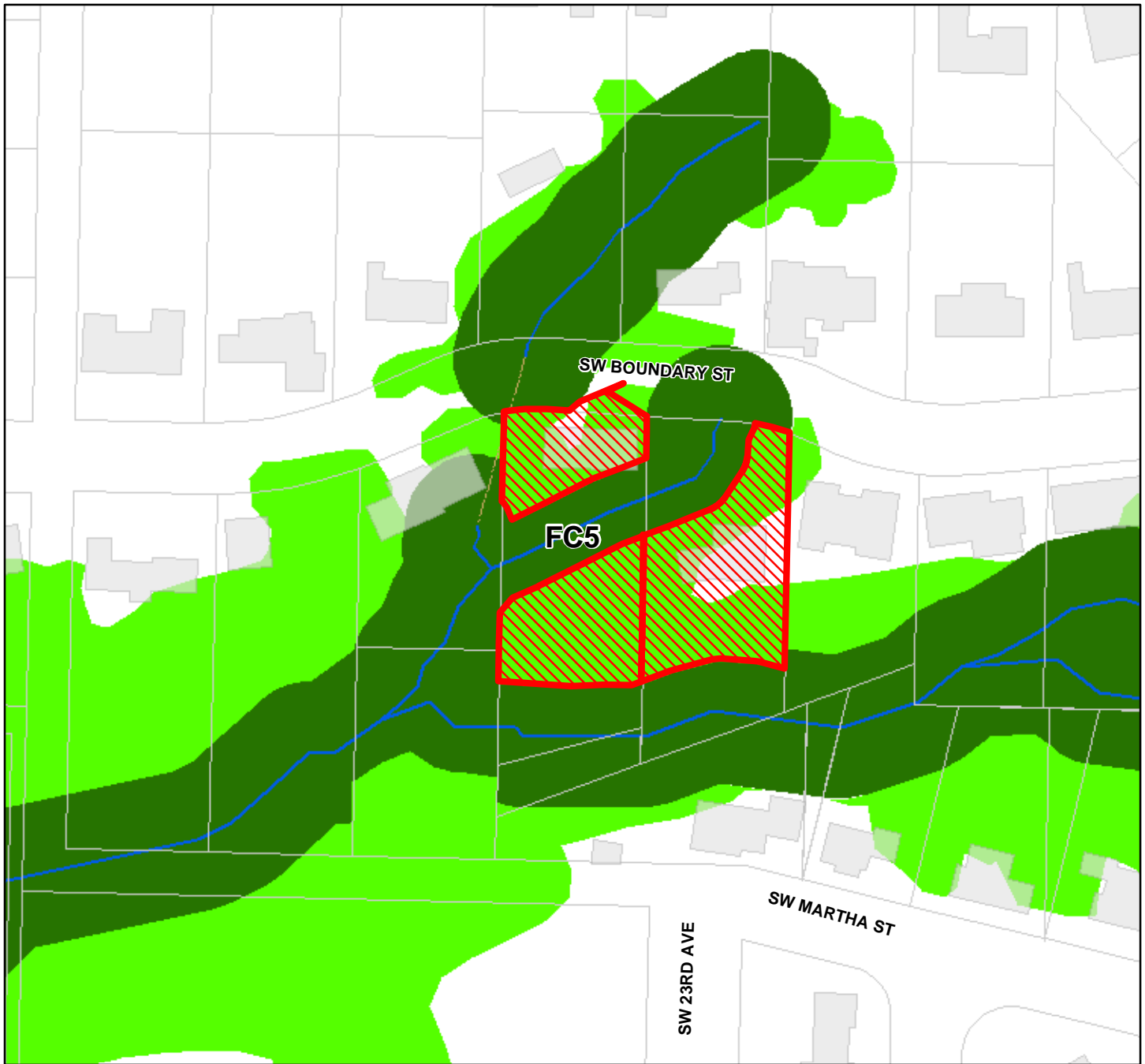


Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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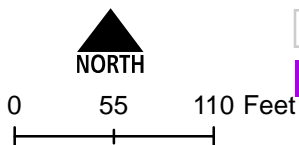


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable residential lot. Covert area outside riparian area.**

**State ID**  
1S1E16BC 7100  
1S1E16BC 7000

Updated: October 2021

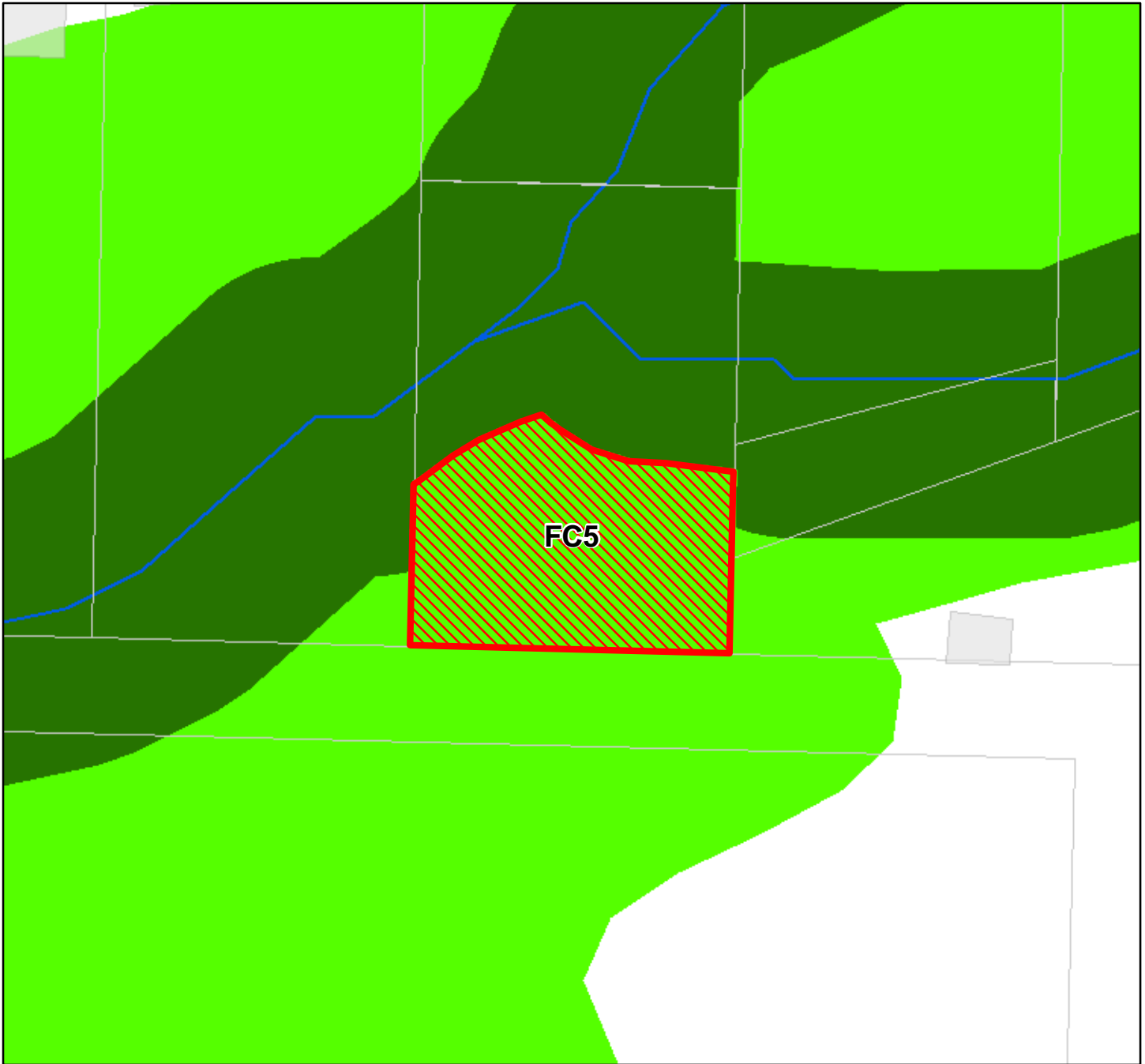


Recommended Draft

- |  |  |
|--|--|
|  'p' to 'c' Conversions |  Open stream channel  |
|  Resource Sites         |  Piped Stream Segment |
|  Urban Service Boundary |  Flood Area           |
|  Taxlots                |  Draft C Zone         |
|  Wetlands               |  Draft P Zone         |
|  |  Draft S Zone         |



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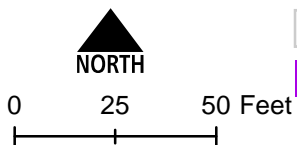


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant residential lot. Covert area outside riparian area.**

**State ID  
1S1E16BC 6700**

Updated: October 2021

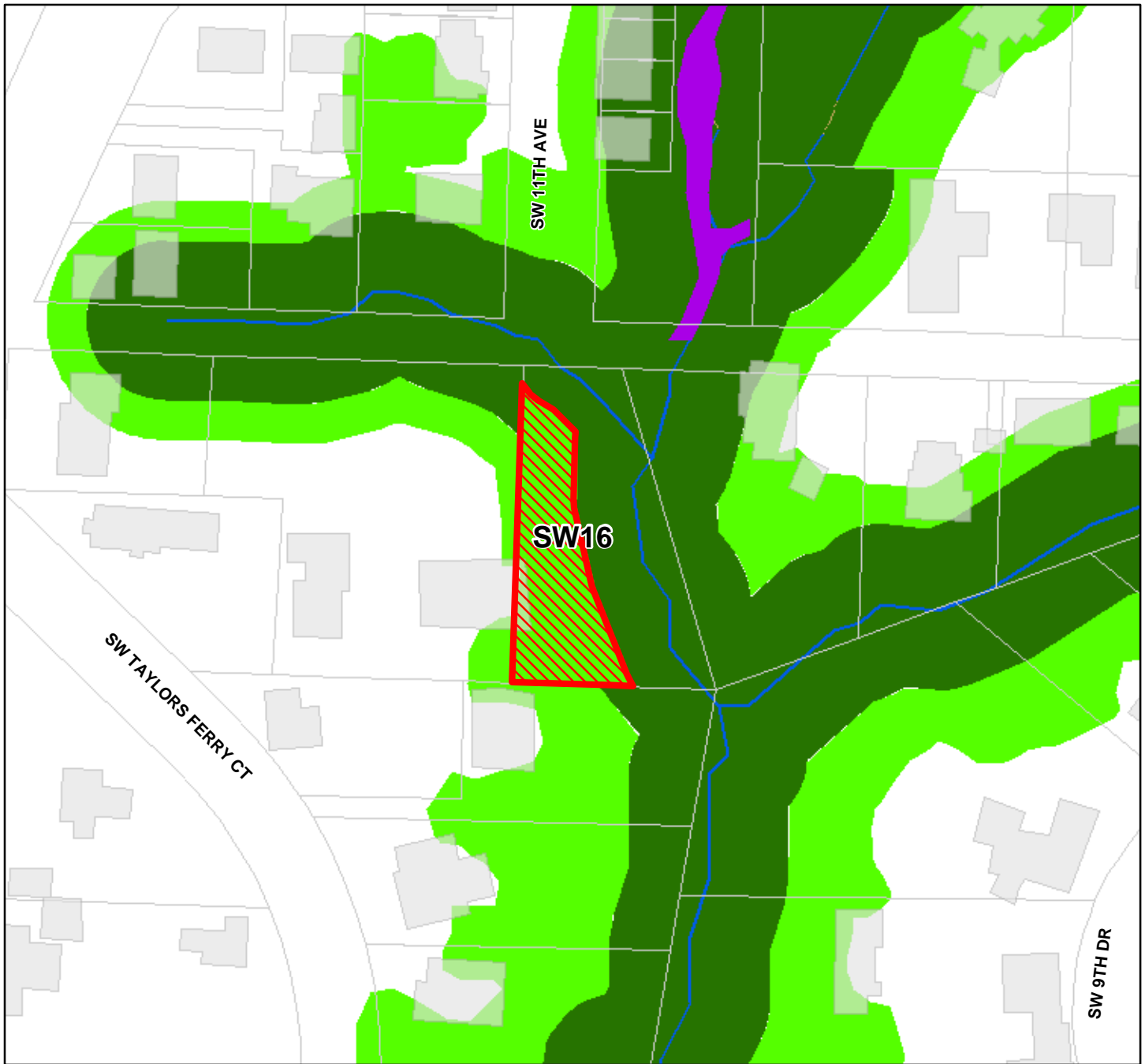


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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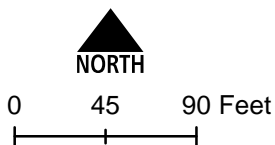













**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R10 lot. Convert area outside of riparian zone.**

**State ID  
1S1E28AB 6600**

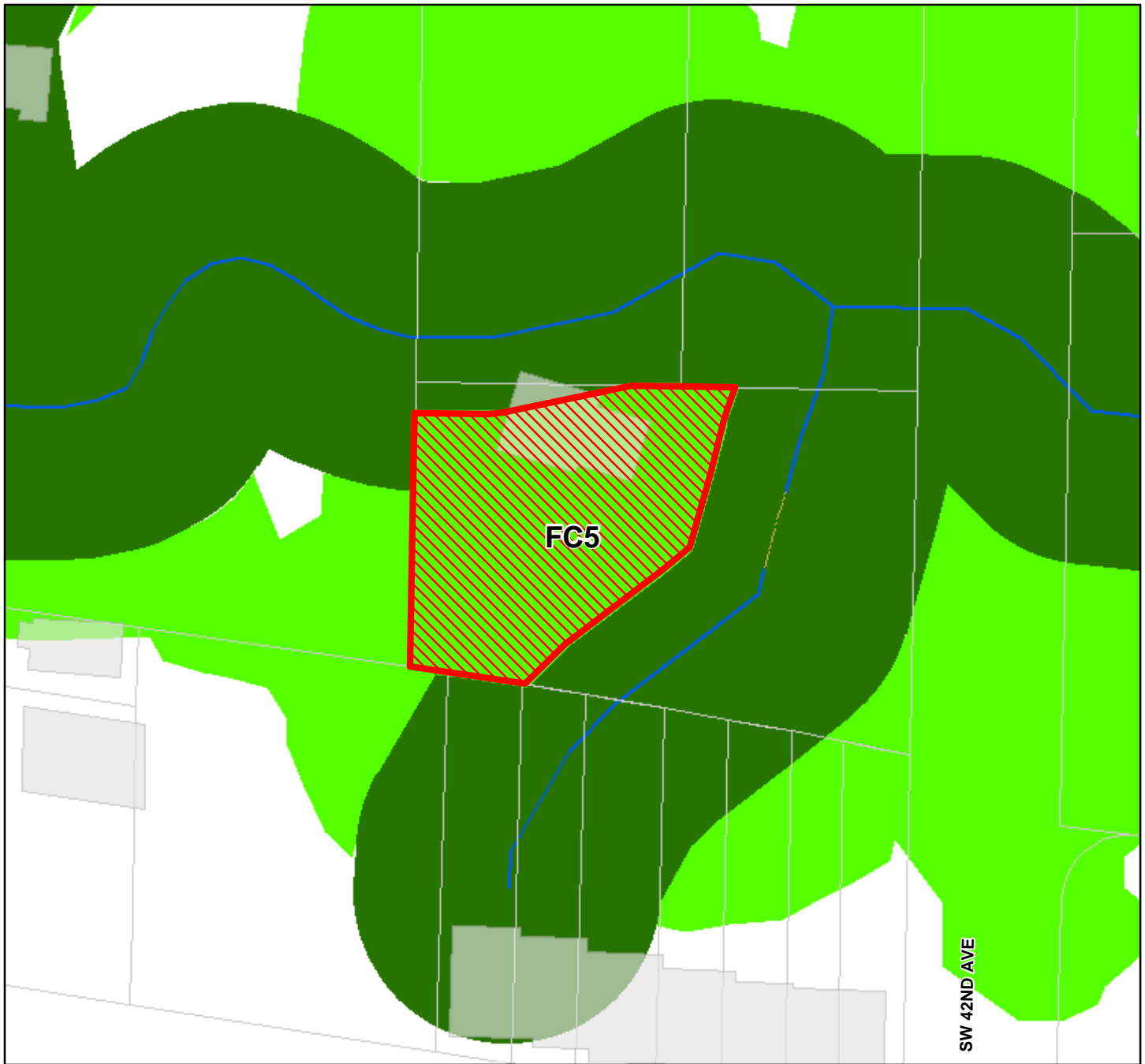
Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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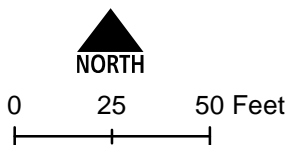


**'P' to 'C'  
Conversions**












**Conversion Description: R10 lot. Convert area >25' from streams.**

**State ID  
1S1E17BC 2000**

Updated: October 2021



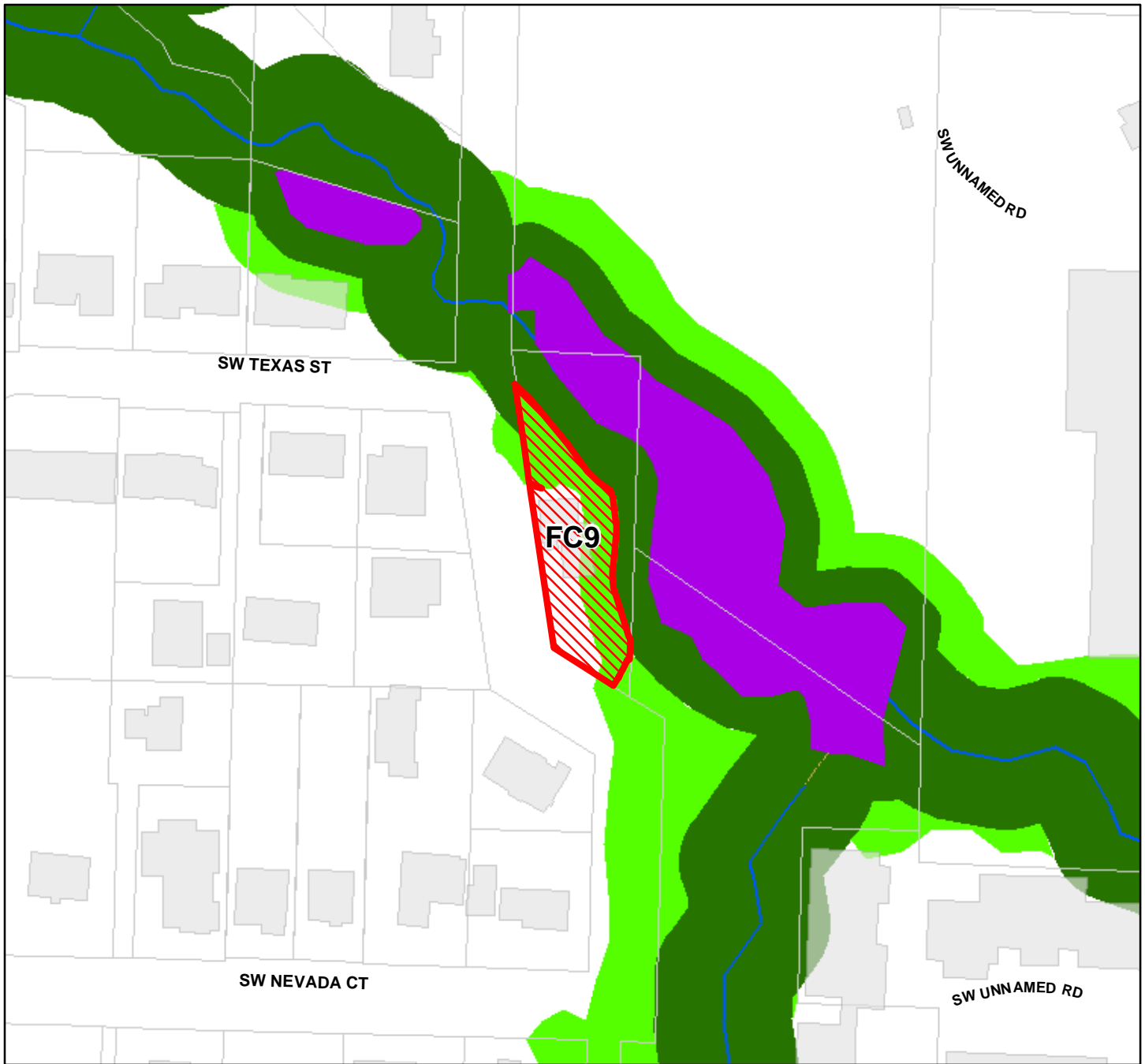
Recommended Draft

- |  |  |
|--|--|
|  'p' to 'c' Conversions |  Open stream channel  |
|  Resource Sites         |  Piped Stream Segment |
|  Urban Service Boundary |  Flood Area           |
|  Taxlots                |  Draft C Zone         |
|  Wetlands               |  Draft P Zone         |
|  |  Draft S Zone         |



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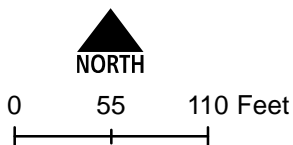


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R7 lot. Convert area away from stream/wetland and towards right-of-way.**

**State ID  
1S1E19AA 4100**

Updated: October 2021

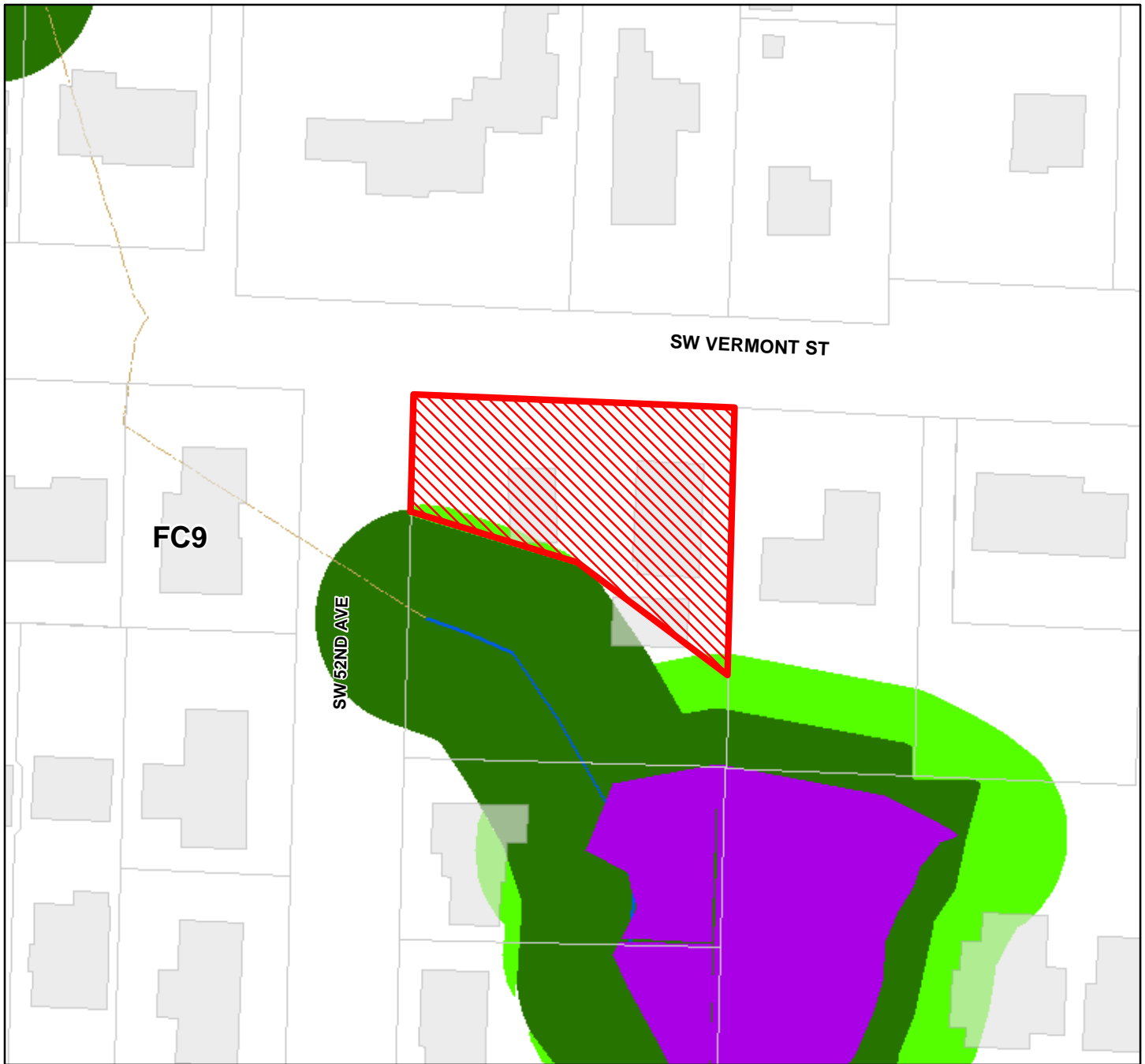


Recommended Draft

- |  |  |
|--|--|
|  'p' to 'c' Conversions |  Open stream channel  |
|  Resource Sites         |  Piped Stream Segment |
|  Urban Service Boundary |  Flood Area           |
|  Taxlots                |  Draft C Zone         |
|  Wetlands               |  Draft P Zone         |
|  |  Draft S Zone         |



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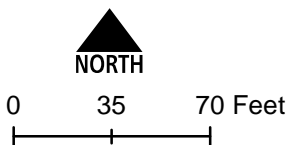


**'P' to 'C'  
Conversions**

**Conversion Description: Dividable lot. Convert area near existing development that is outside wetland and stream riparian area.**

**State ID  
1S1E19AB 700**

Updated: October 2021



- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone














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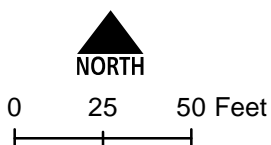
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant RM1 parcel and adjacent R7 parcels. Convert area >25' from stream.**

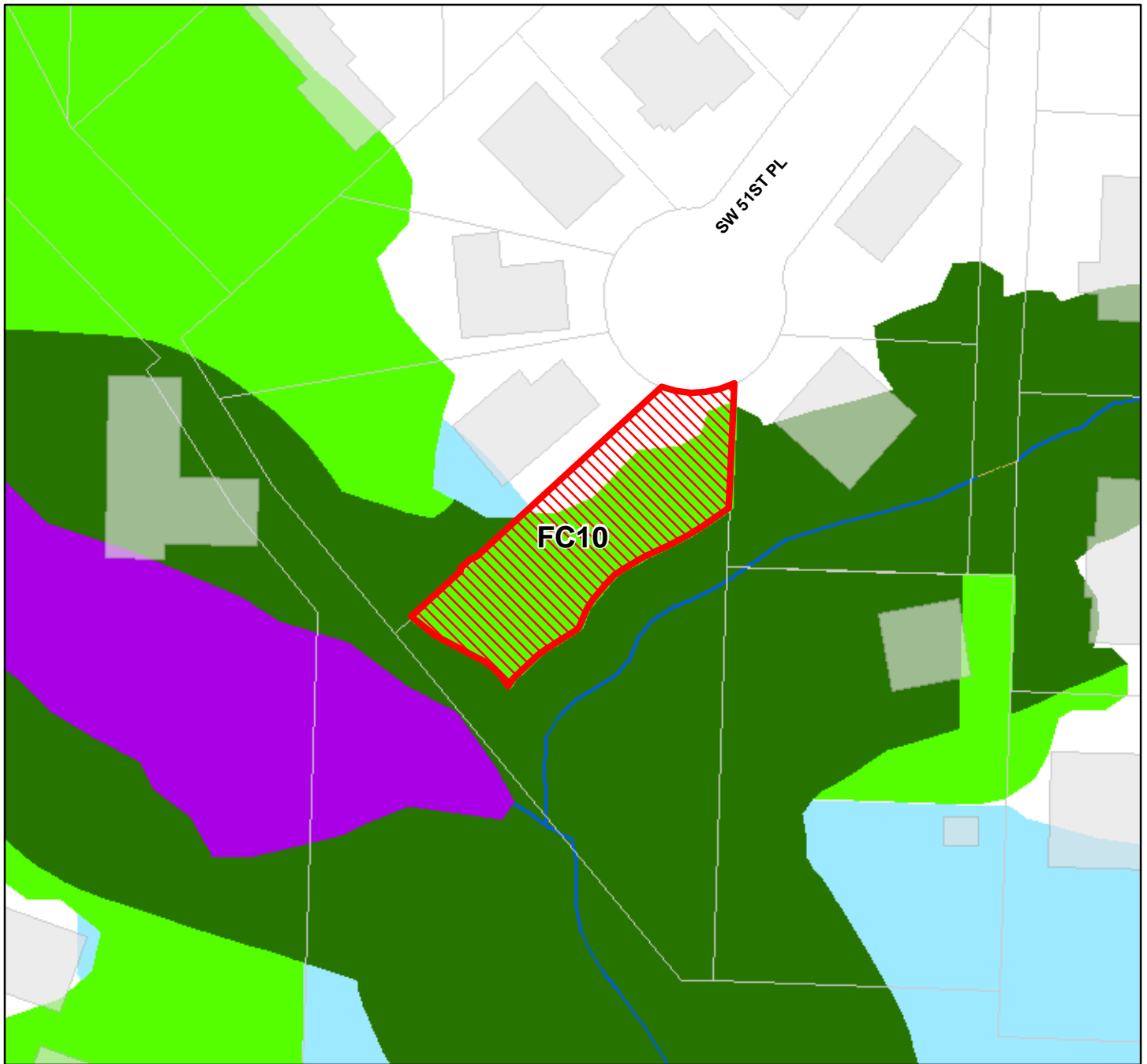
**State ID**  
1S1E17DA 4900  
1S1E17DA 4700  
1S1E17DA 5000

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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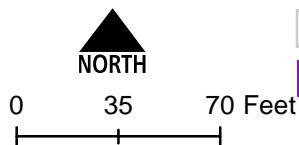


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant residential lot. Covert area outside stream/wetland riparian zone.**

**State ID  
1S1E19DB 1508**

Updated: October 2021

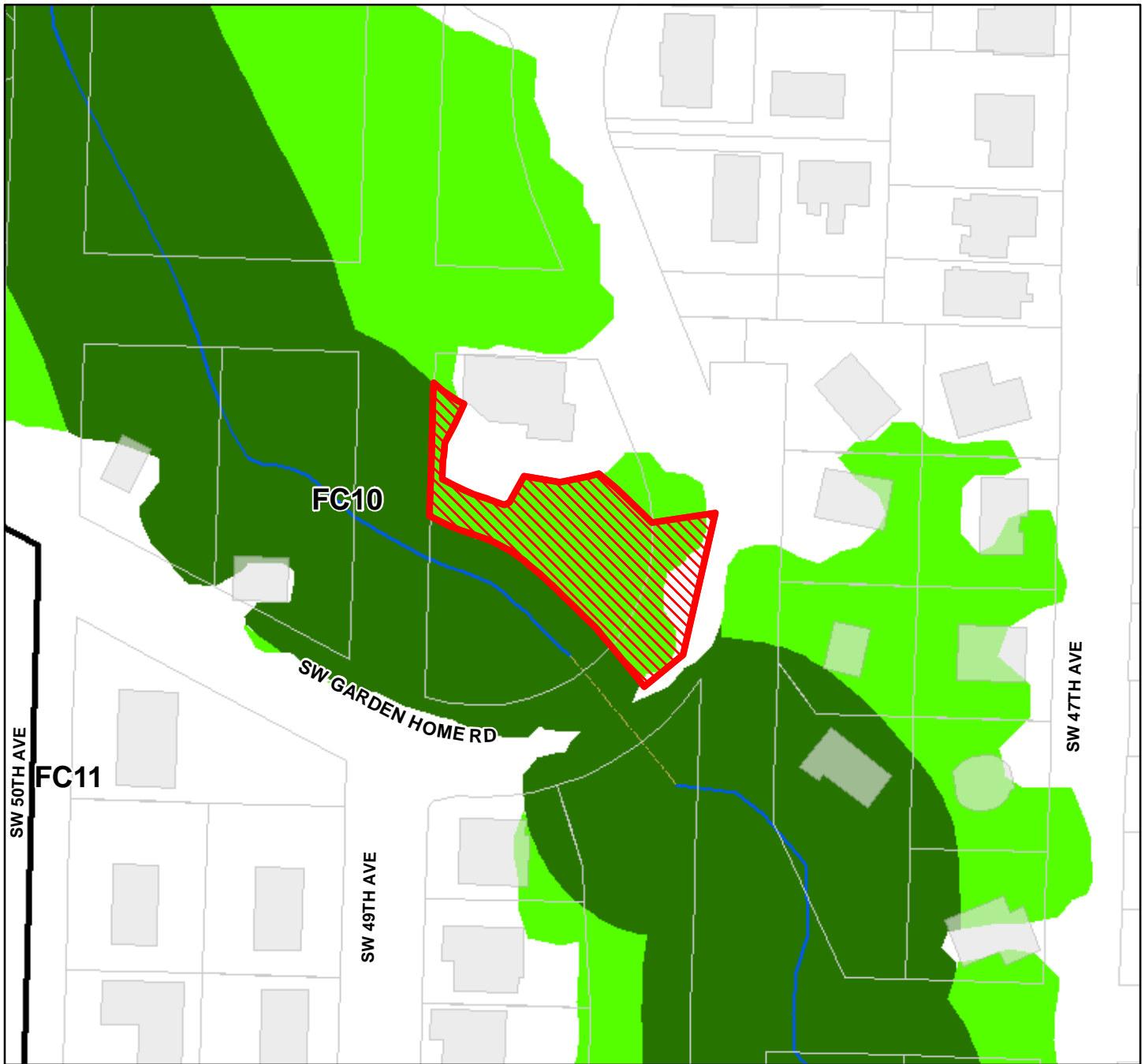


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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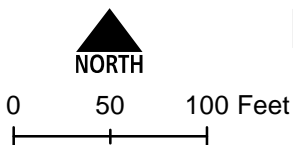













**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R10 lot. Convert area >25' from stream.**

**State ID  
1S1E19DD 8800**

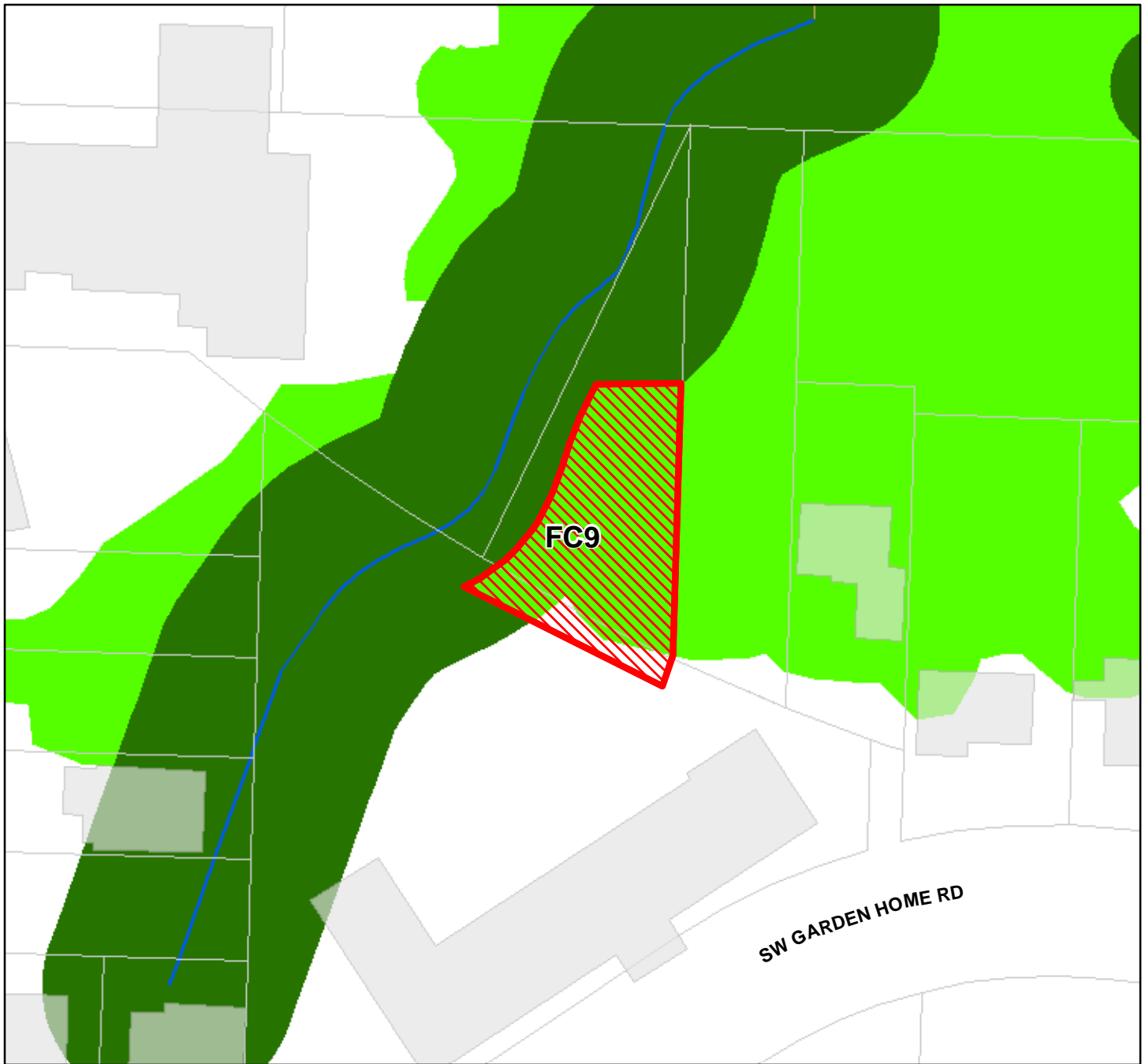
Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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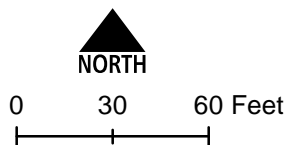


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant RM1 lot. Convert area close to right-of-way and >25' from stream.**

**State ID  
1S1E20CB 3600**

Updated: October 2021

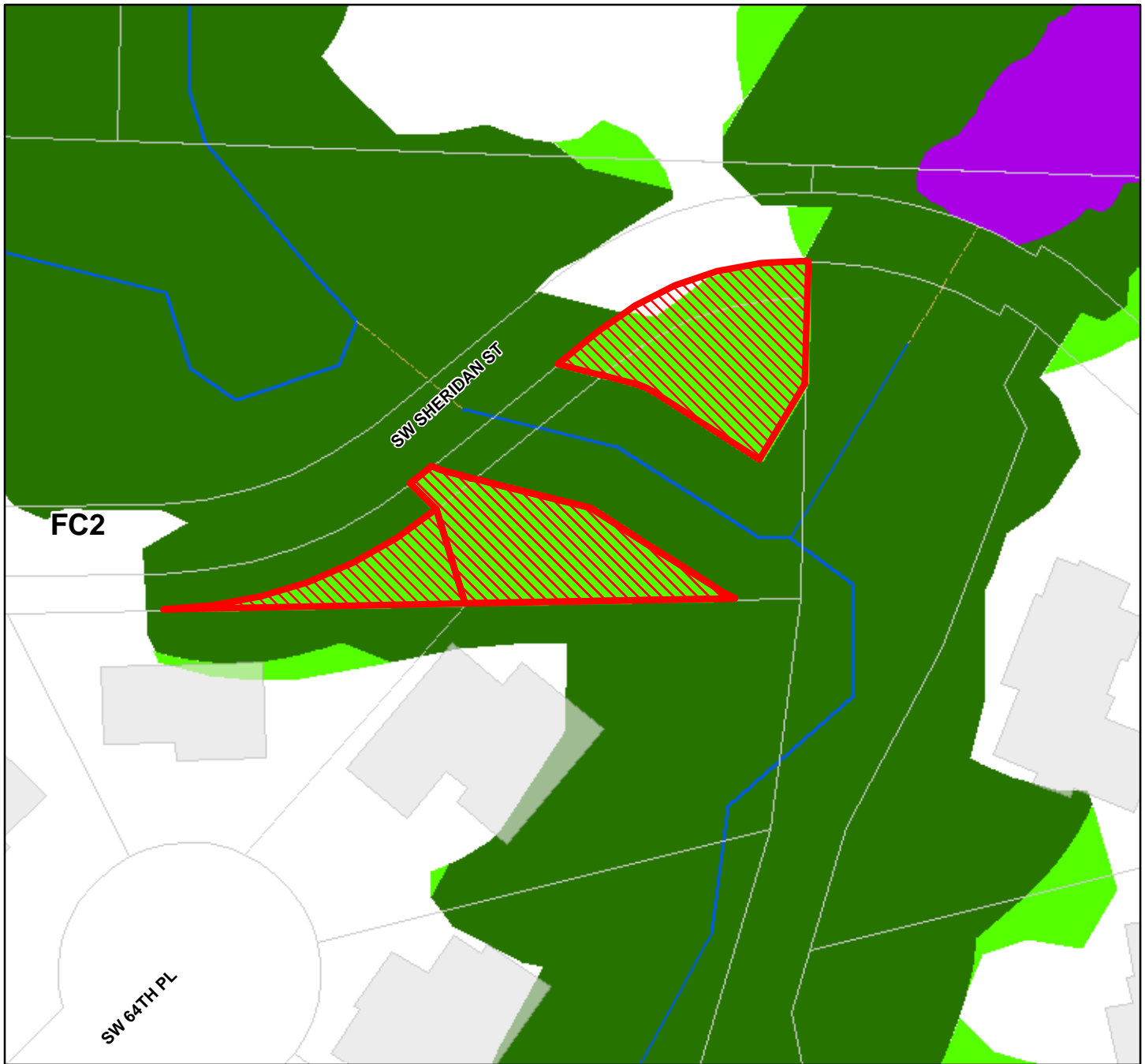


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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








**'P' to 'C'  
Conversions**

State ID  
1S1E07BB 123  
1S1E07BB 901  
1S1E07BB 801

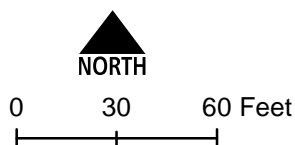
**Conversion Description:**

Vacant residential lot with 100% p zone coverage. Covert areas >25' from streams.

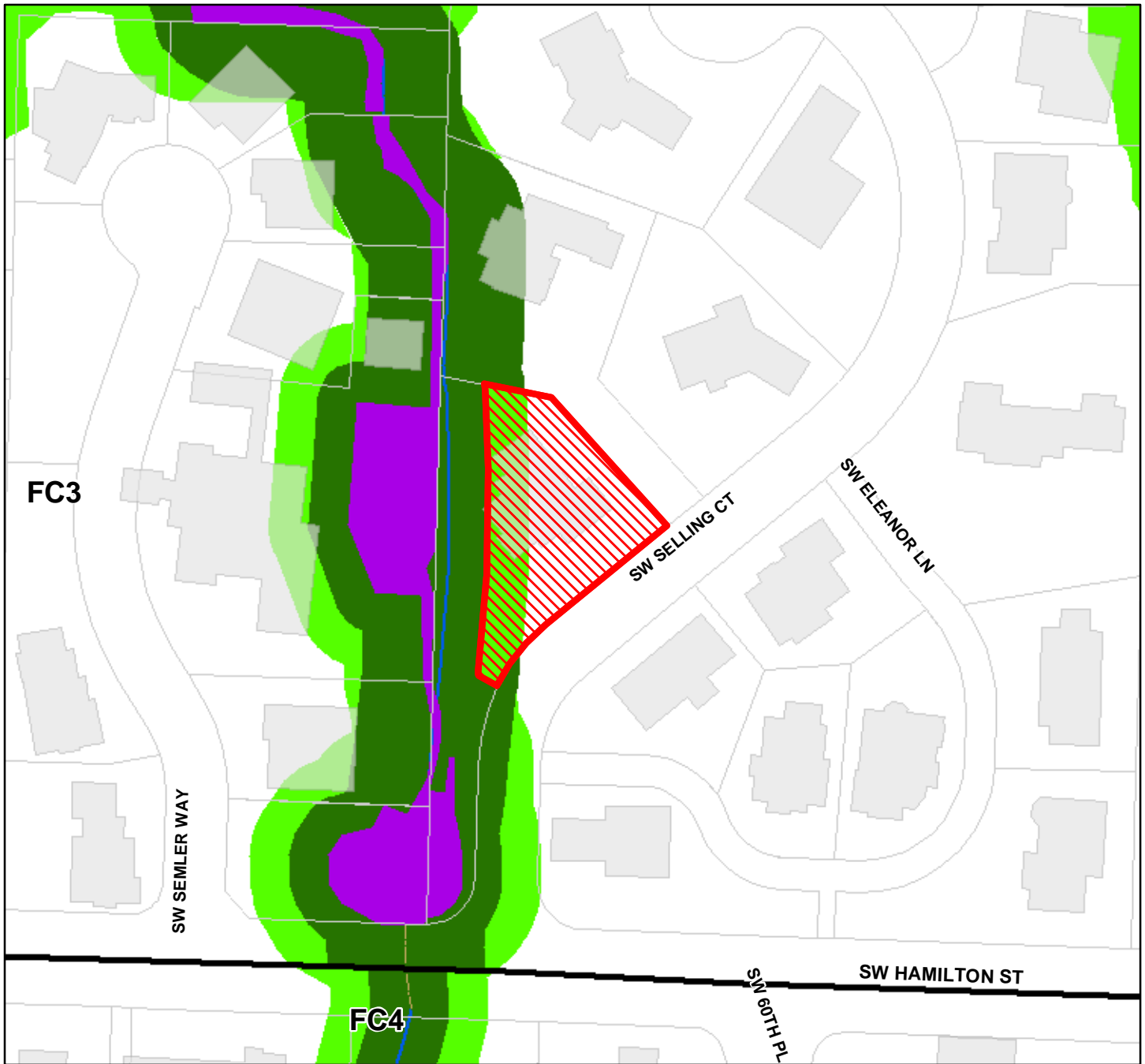
Western lot is narrow sliver that is too small to develop by itself. But it is a vacant residential lot. Carve out to stay consistent with protocols.

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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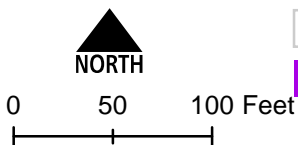


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert portion of lot that is >25' from streams and wetlands.**

**State ID  
1S1E07CC 1600**

Updated: October 2021



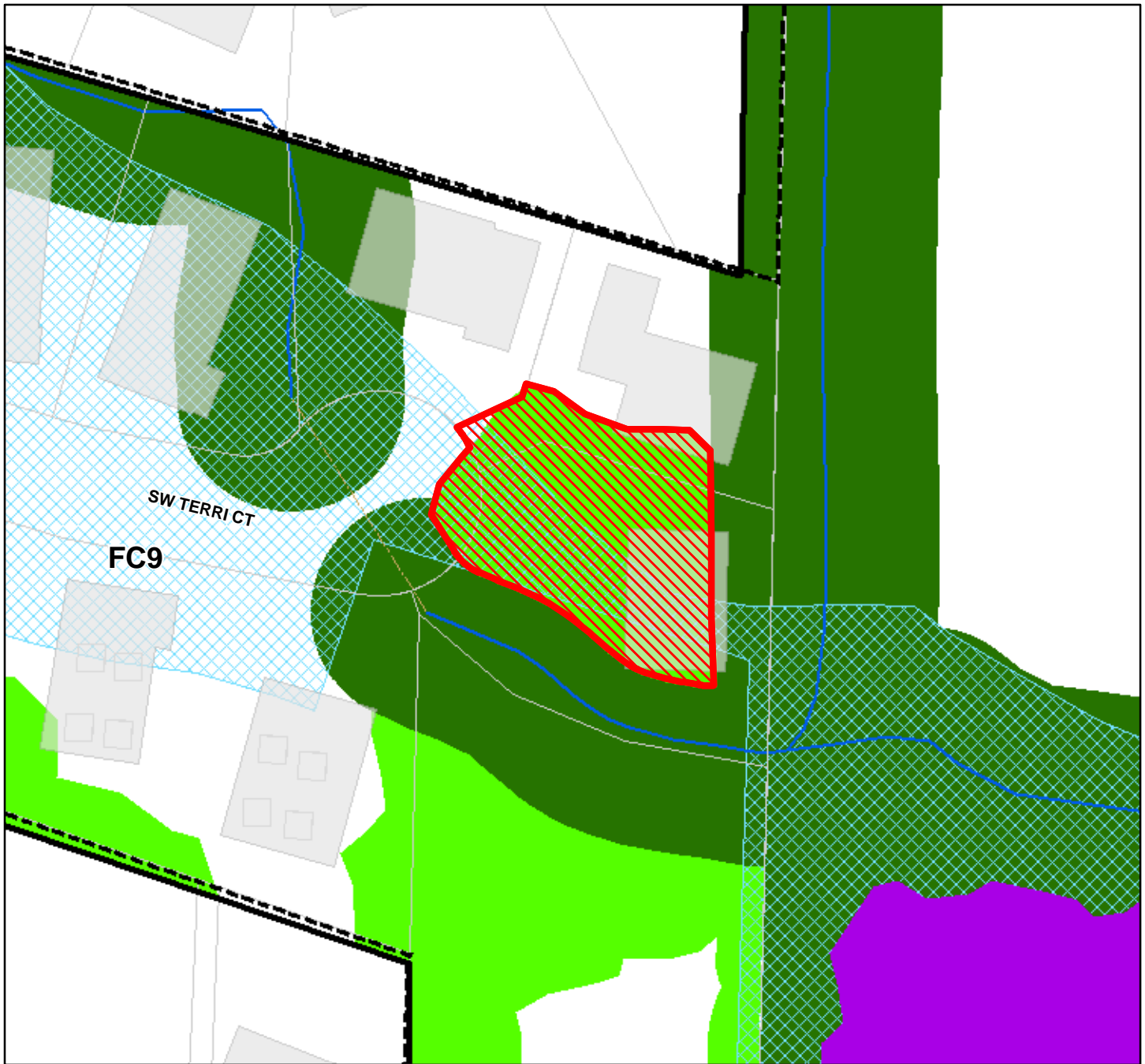
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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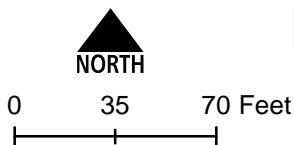


**'P' to 'C'  
Conversions**












**Conversion Description: Underutilized RM1 lot. Covert area >25'  
from streams to allow for potential redevelopment.**

State ID  
1S113DD04008  
1S113DD04007

Updated: October 2021

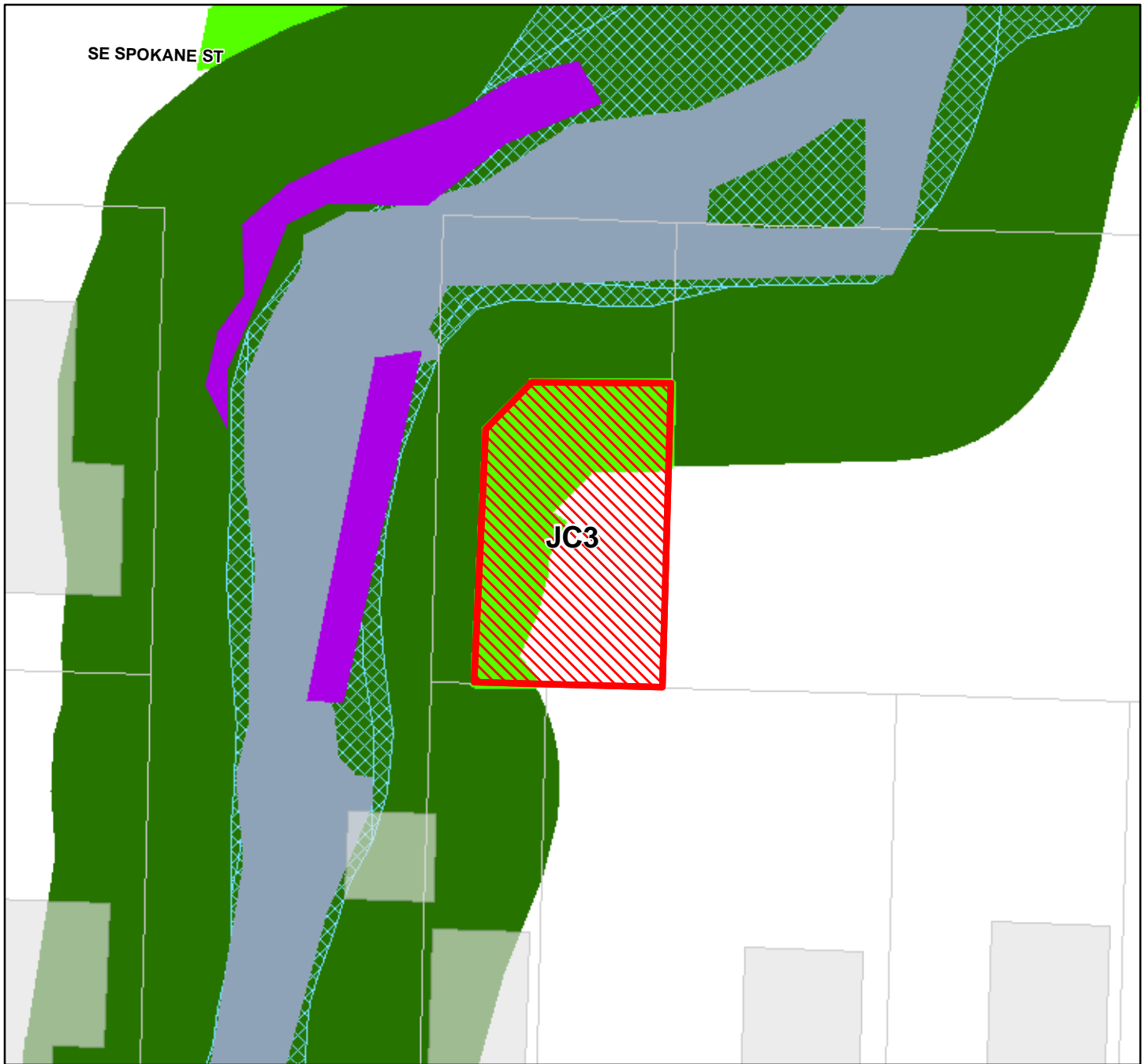


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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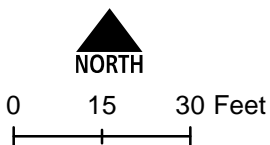


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant RM1 lot. Convert area away from riparian zone and flood area.**

**State ID  
1S1E23DD 600**

Updated: October 2021

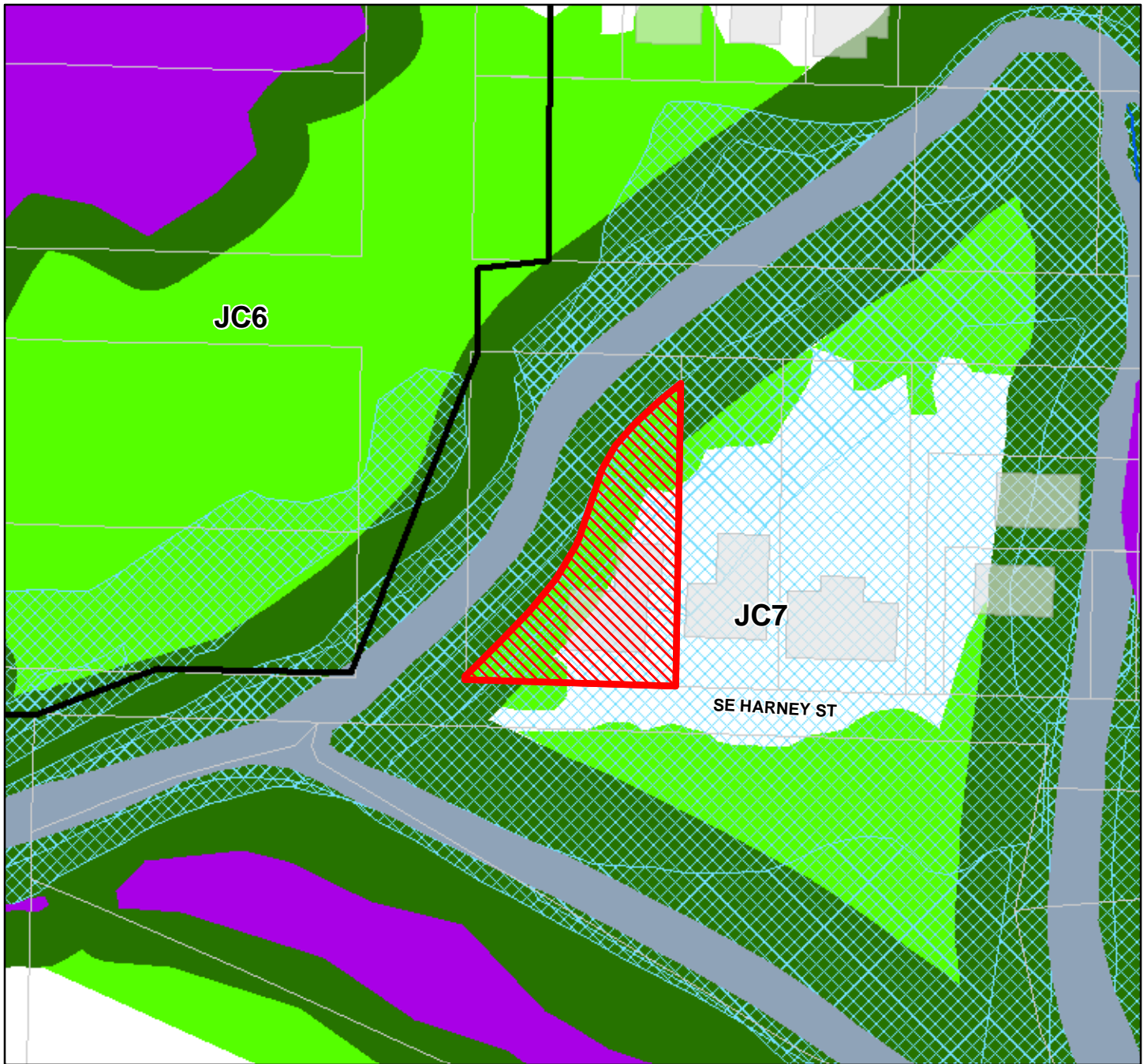


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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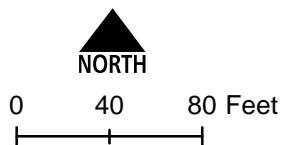


**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R5 lot. Convert area >25' from creek.**

**State ID  
1S2E19CC 6300**

Updated: October 2021



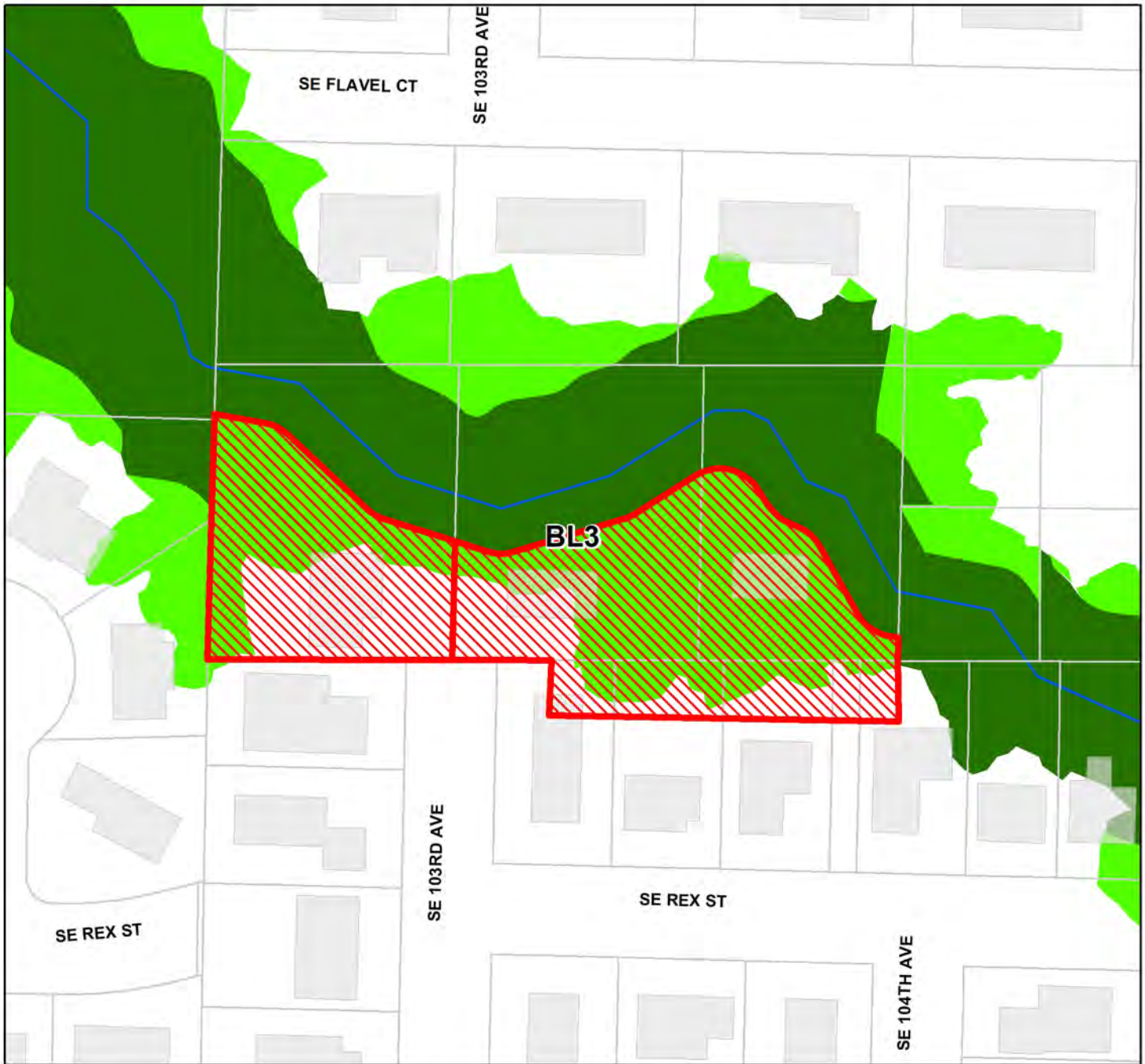
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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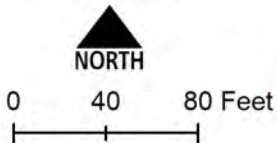
**'P' to 'C'  
Conversions**

**Conversion Description: Adjacent to existing development and accessible from the street.**

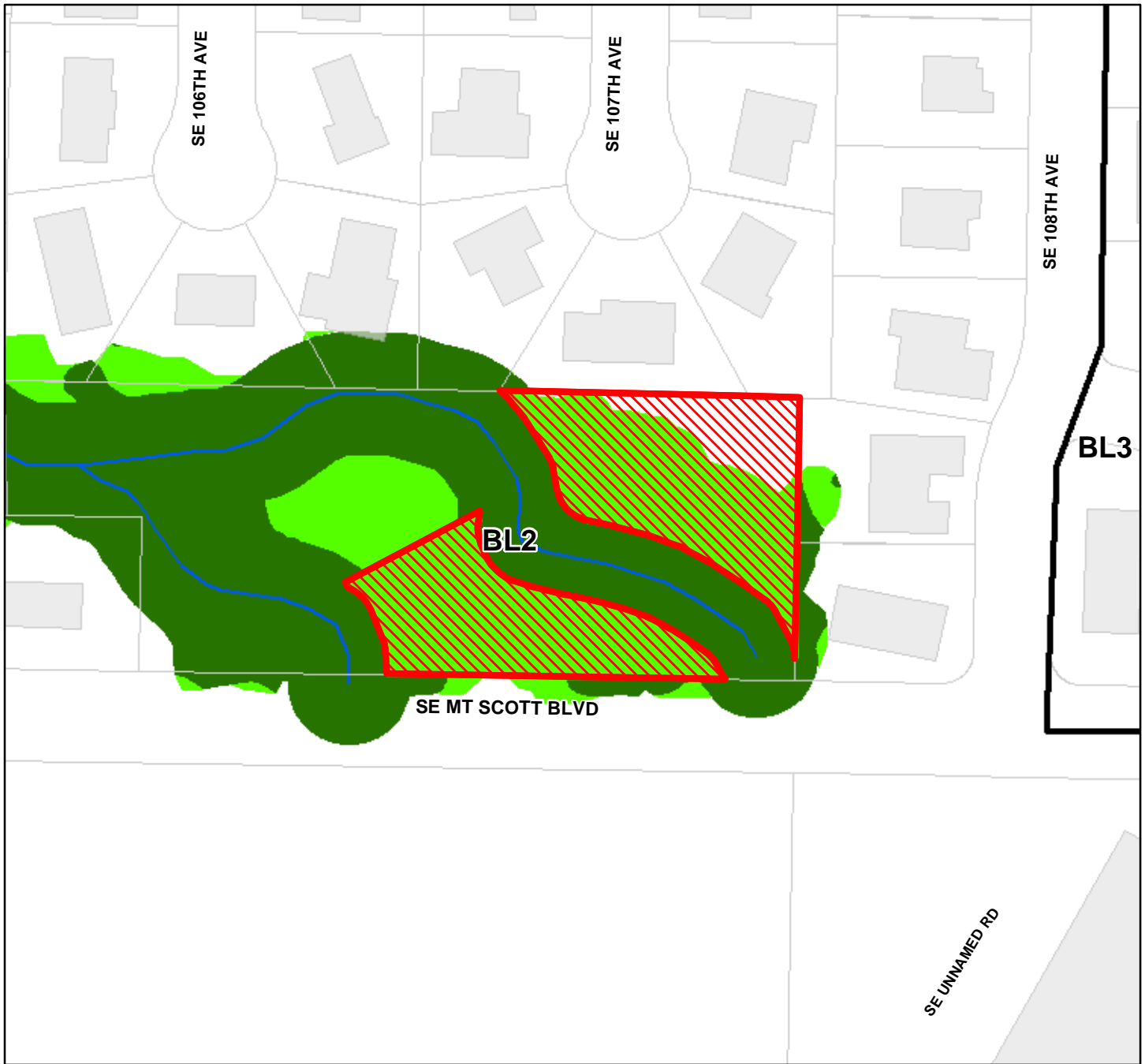
- State ID  
 1S2E22BC 2400  
 1S2E22BC 2500  
 1S2E22BC 2600  
 1S2E22CB 11500  
 1S2E22CB 11400  
 1S2E22CB 11300  
 1S2E22CB 11200  
 1S2E22CB 11100

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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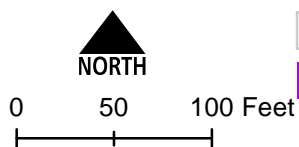


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant dividable R7 lot. Convert areas >25' from streams towards right-of-way.**

**State ID  
1S2E22CB 5603**

Updated: October 2021

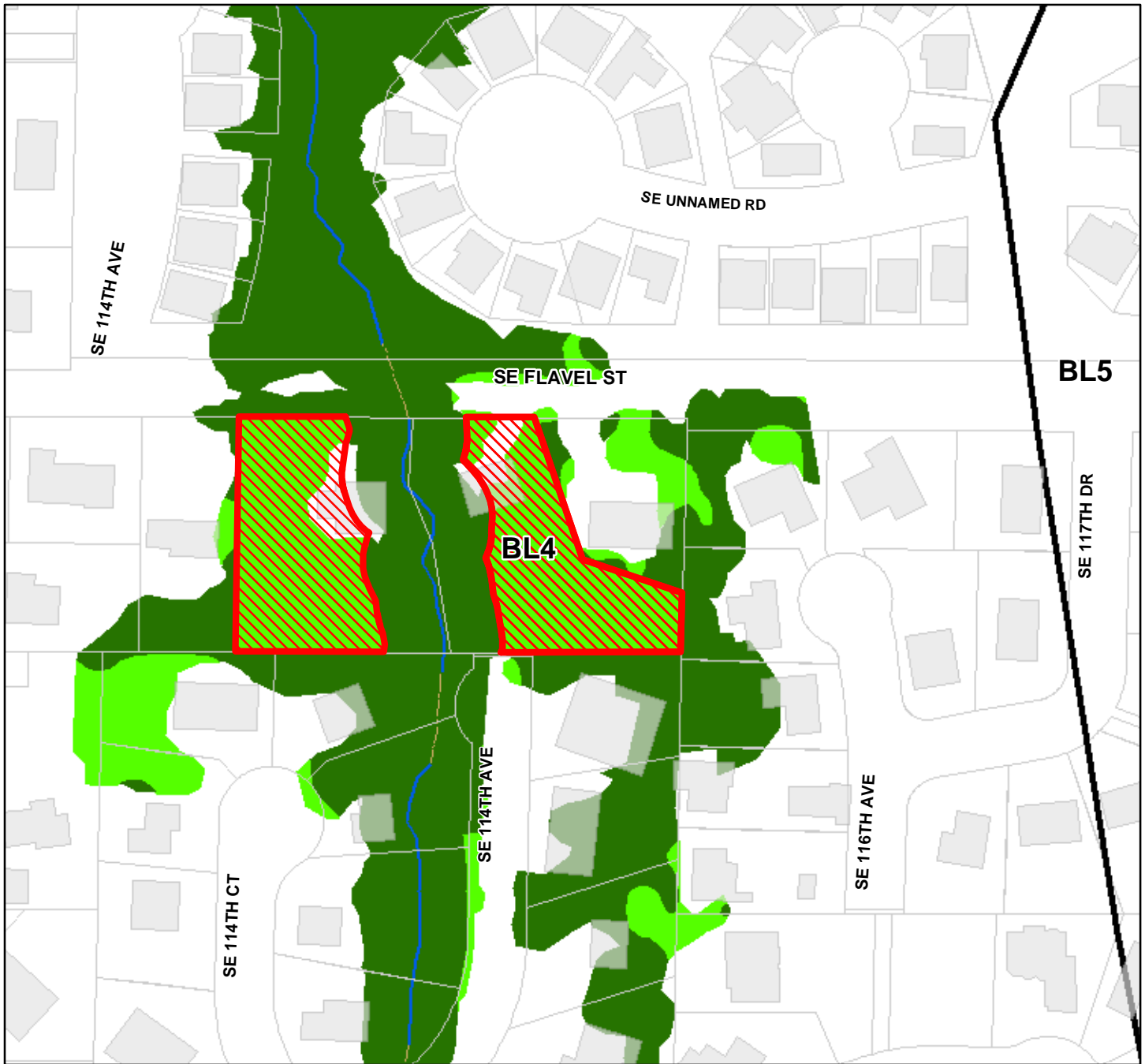


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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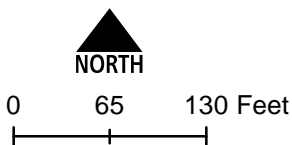













**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R10 lots. Convert area >50' from stream.**

**State ID**  
1S2E22DB 1802  
1S2E22DB 1803

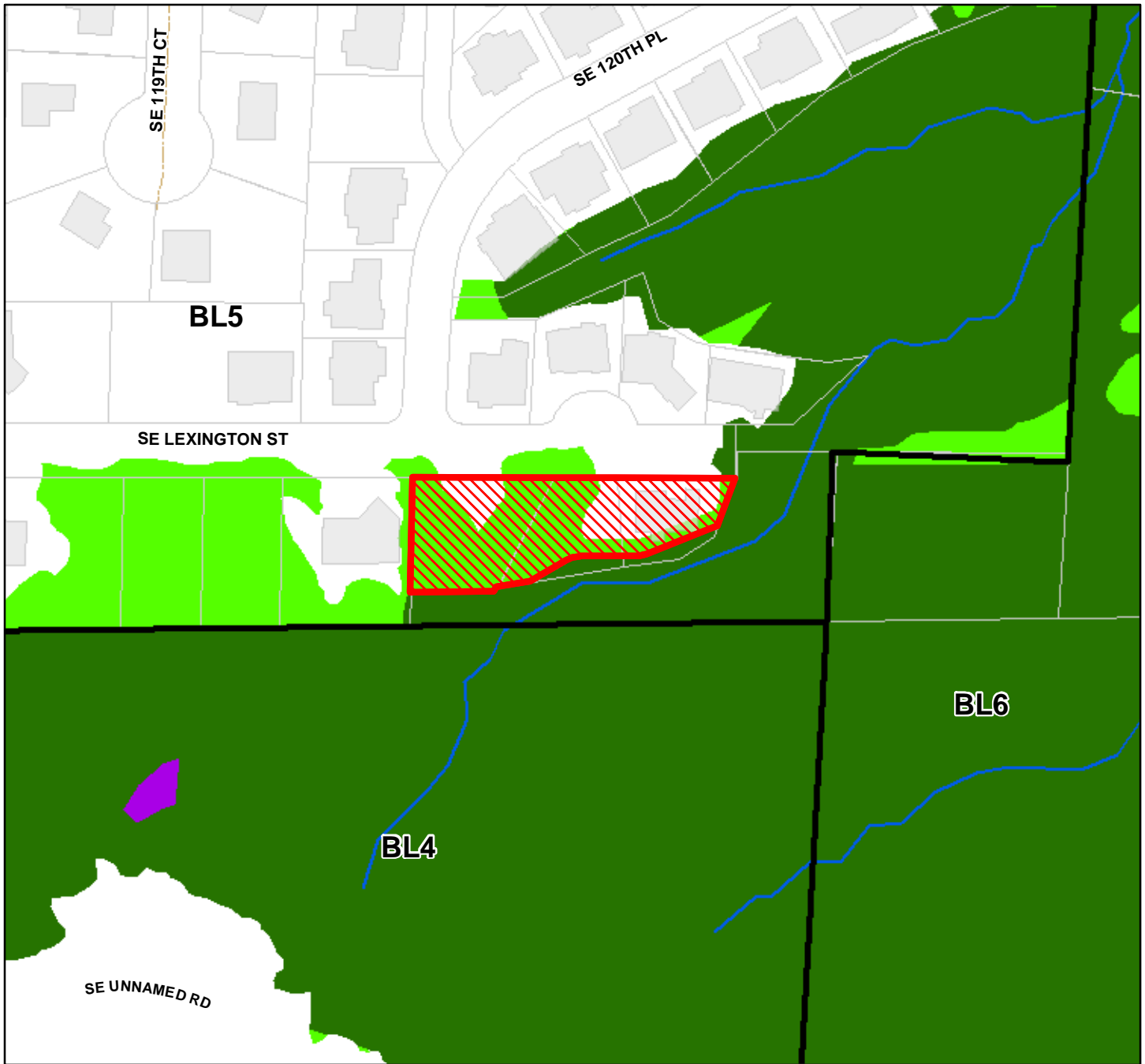
Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone














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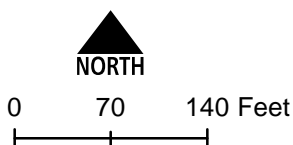
**'P' to 'C'  
Conversions**

**Conversion Description: Two vacant R10 lots. Convert area >25' from stream.**

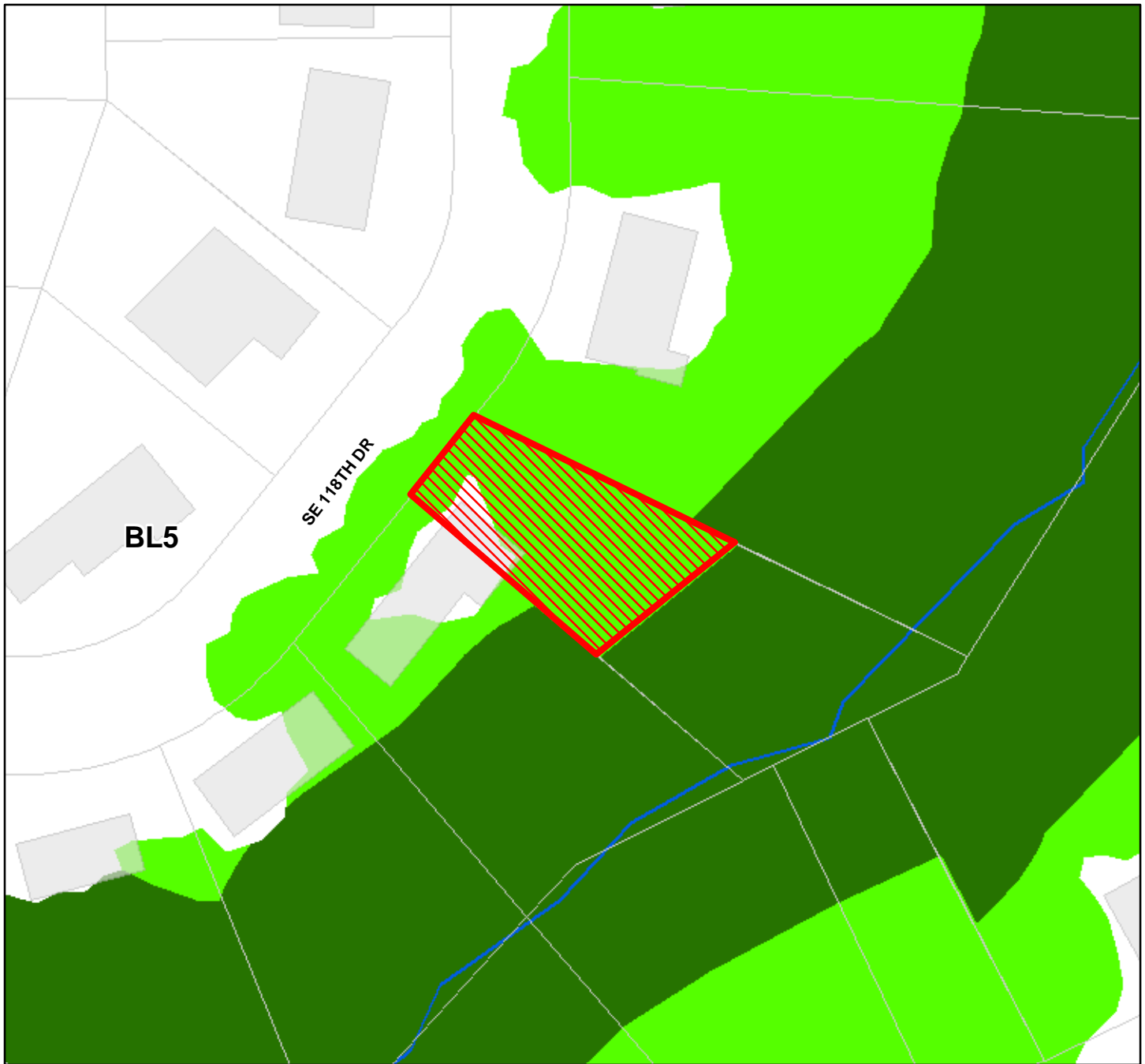
**State ID**  
1S2E22DA 5102  
1S2E22DA 5103  
1S2E22DA 5101

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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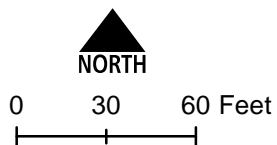


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant residential lot. Convert adequate development space near right of way.**

**State ID  
1S2E22AD 4500**

Updated: October 2021



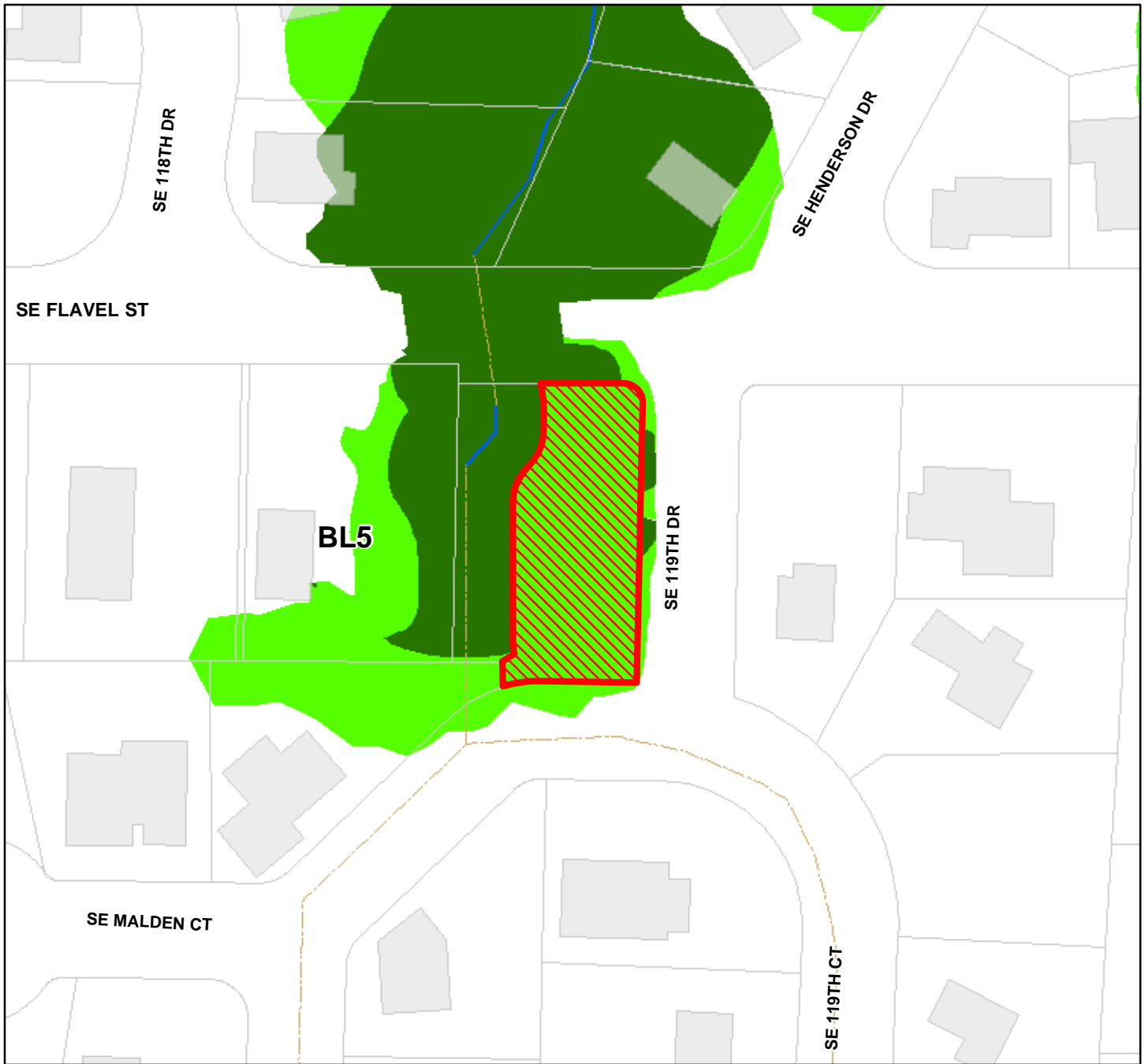
Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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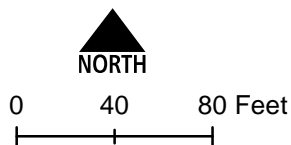


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R10 lot. Convert area >25' from stream.**

**State ID  
1S2E22DA 500**

Updated: October 2021

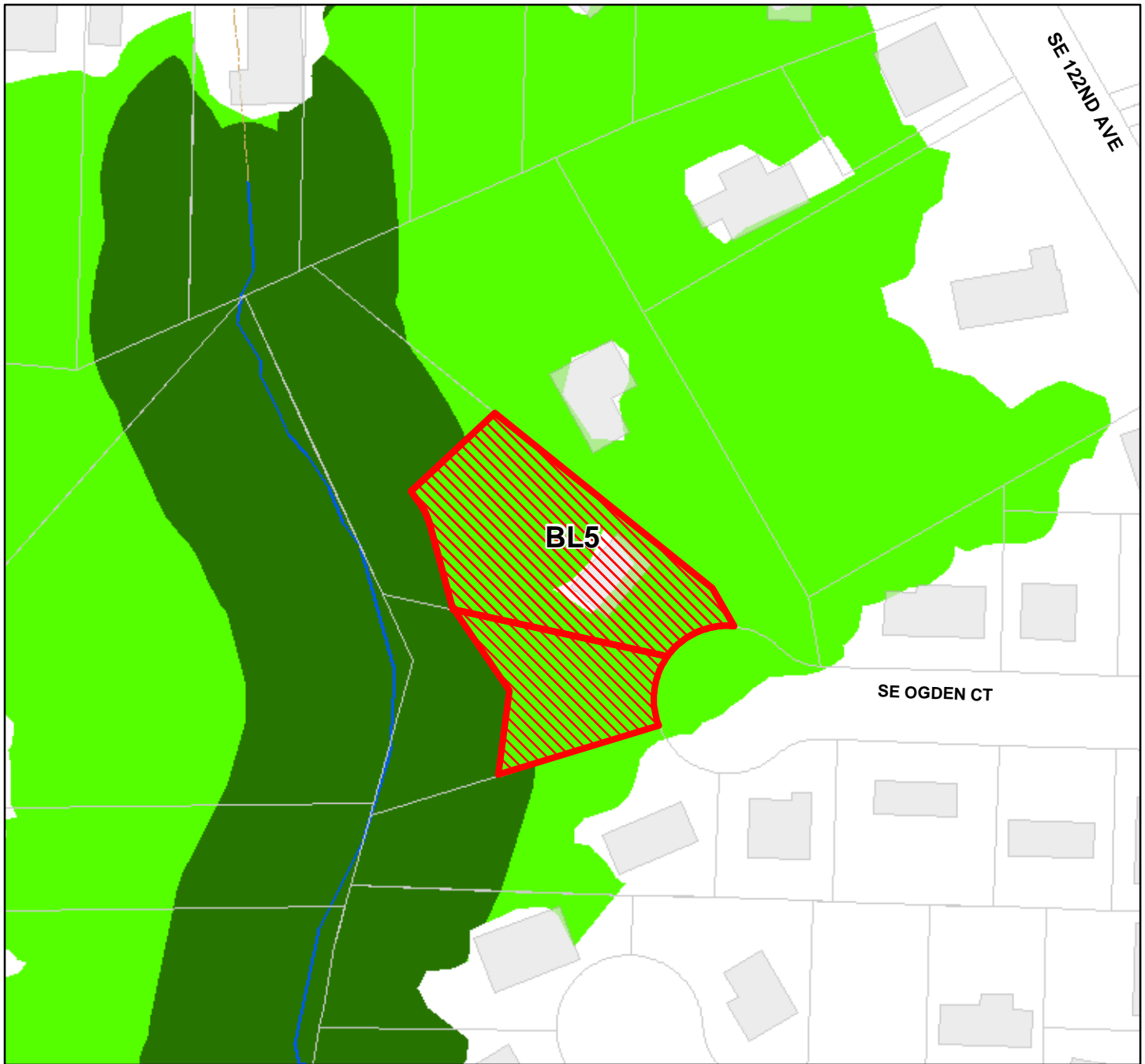


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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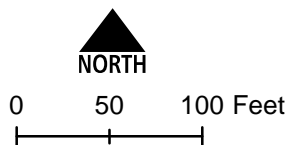


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant (southern lot)/dividable (northern lot) R10 lots. Convert area away from stream and towards right-of-way.**

State ID  
1S2E22AD 200  
1S2E22AD 300

Updated: October 2021

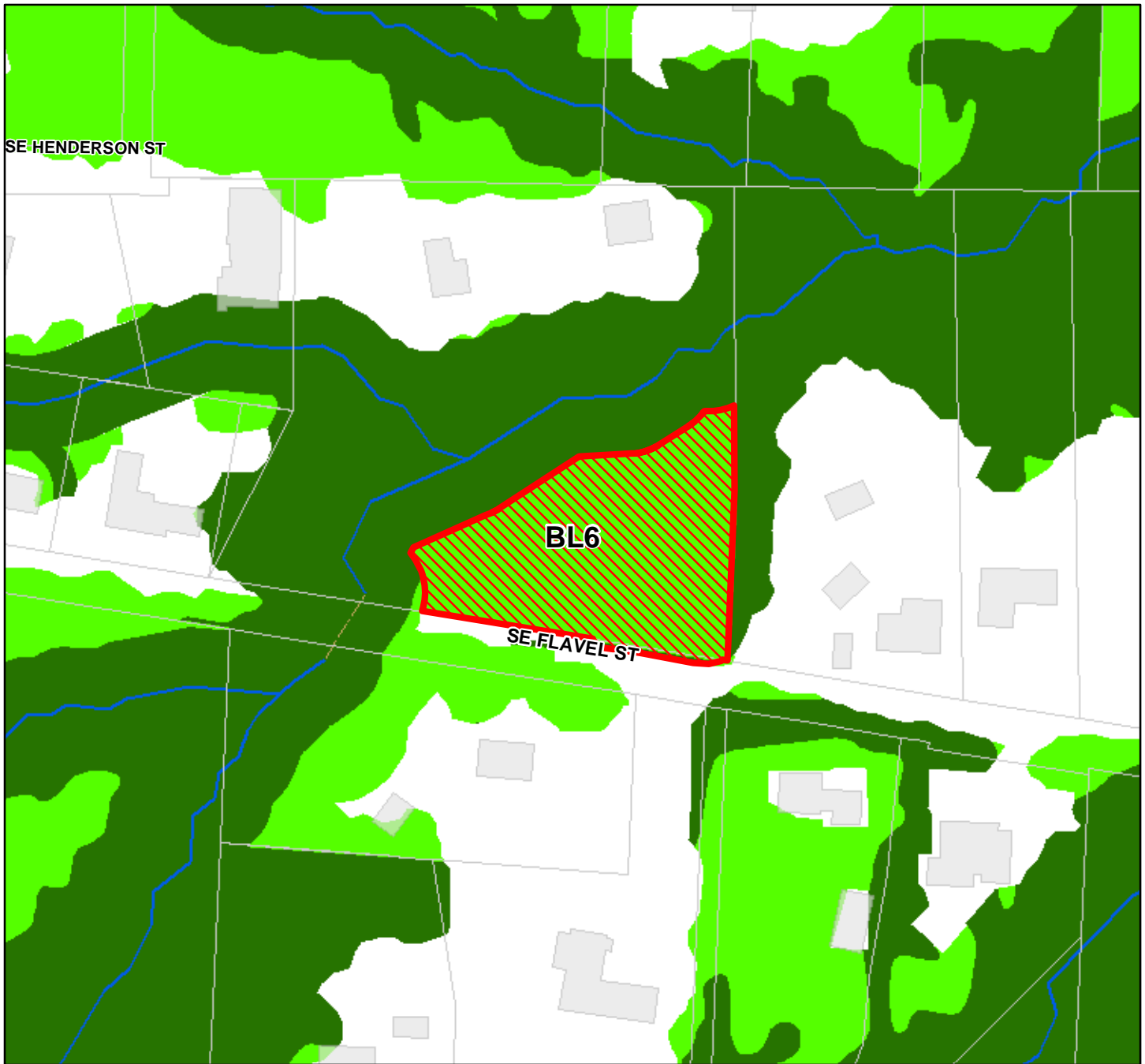


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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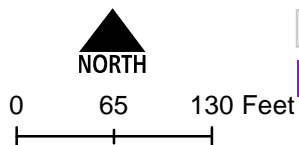


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area outside of riparian area and adjacent to right-of-way.**

**State ID  
1S2E23BC 1000**

Updated: October 2021

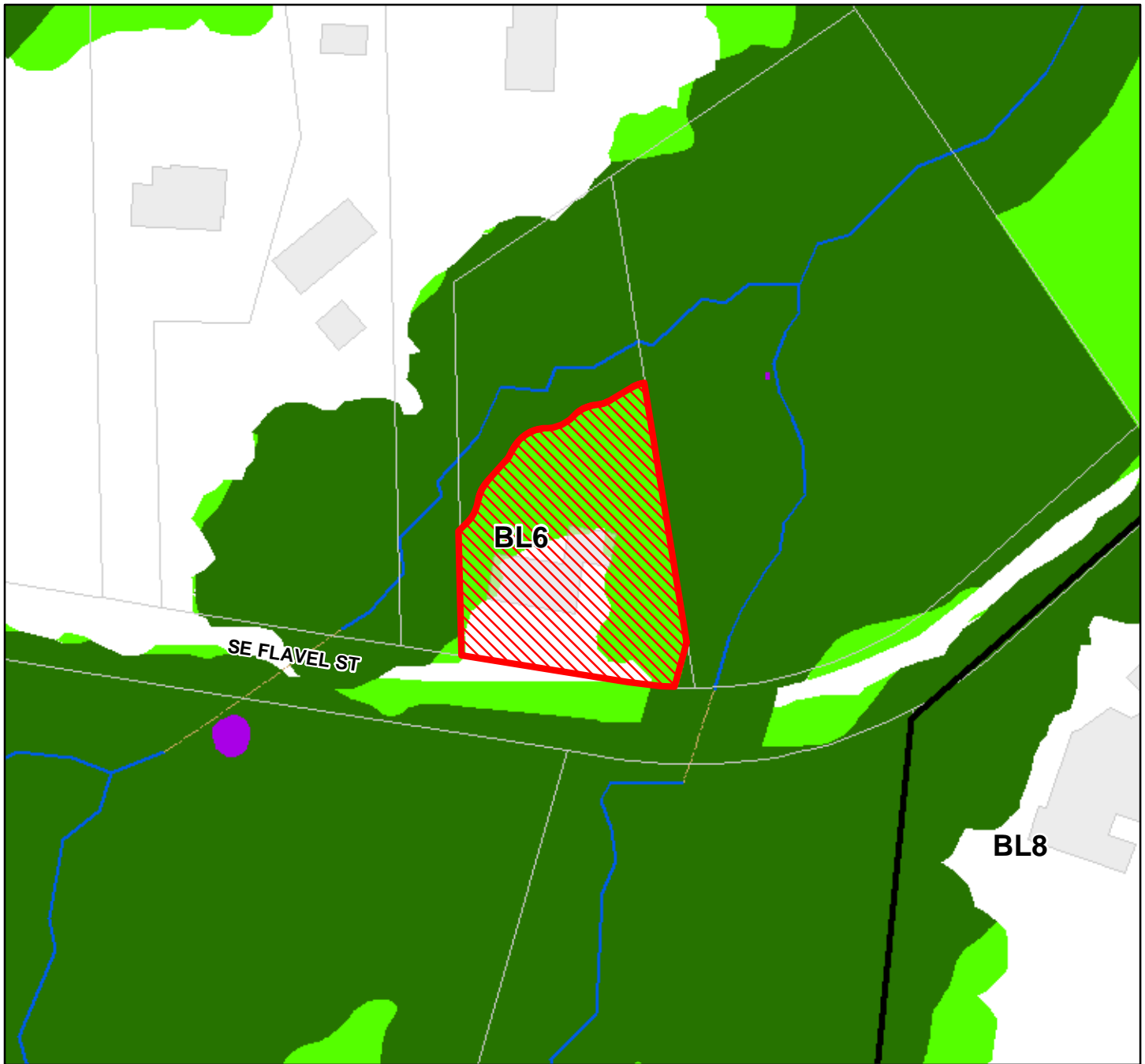


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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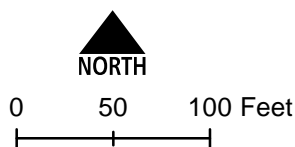


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area outside of riparian zone and close to existing development and right-of-way.**

**State ID  
1S2E23CA 201**

Updated: October 2021

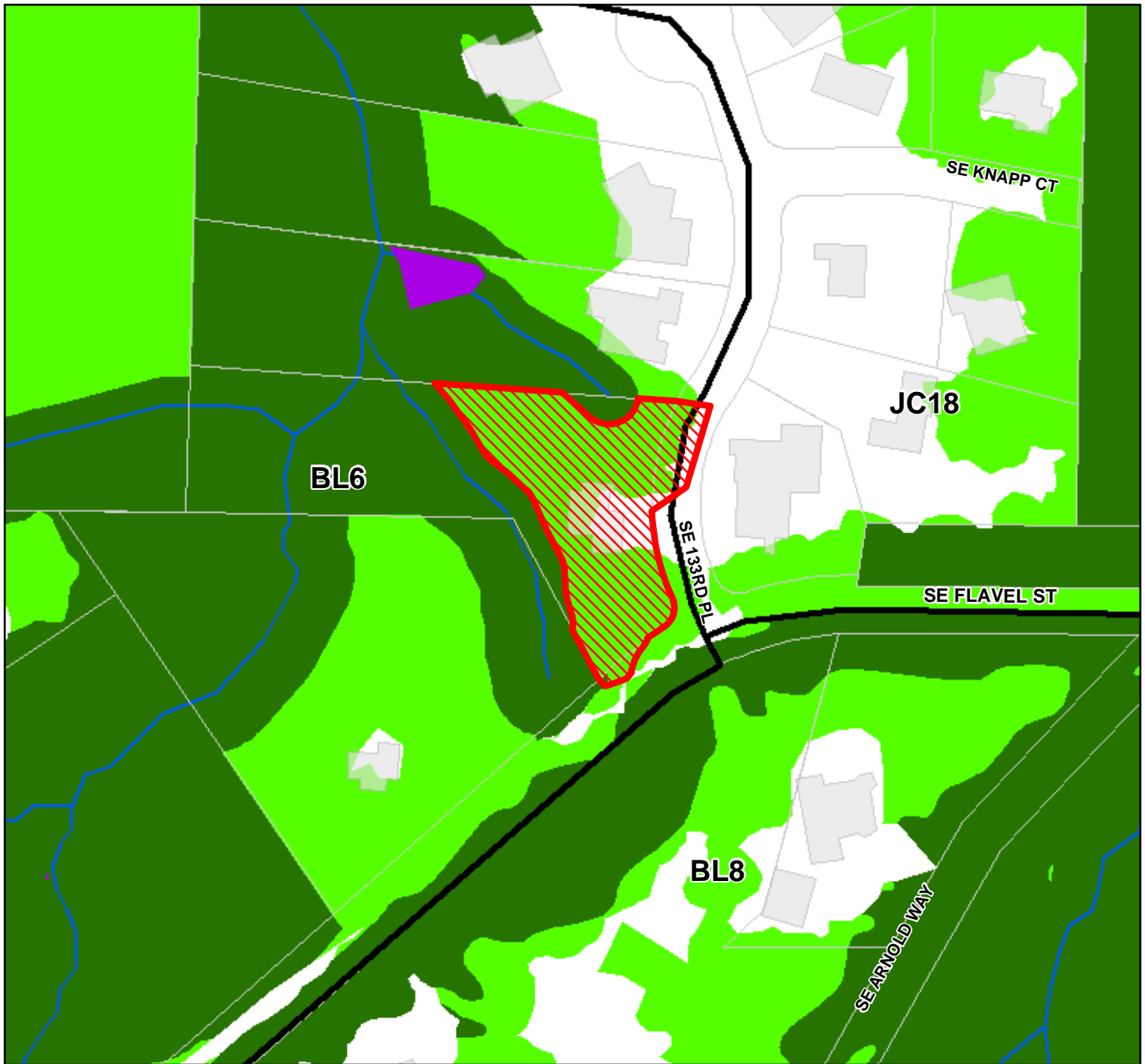


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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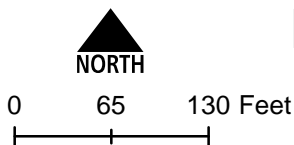


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable residential lot. Conversion area is adjacent to the street and existing development.**

**State ID  
1S2E23BD 900**

Updated: October 2021

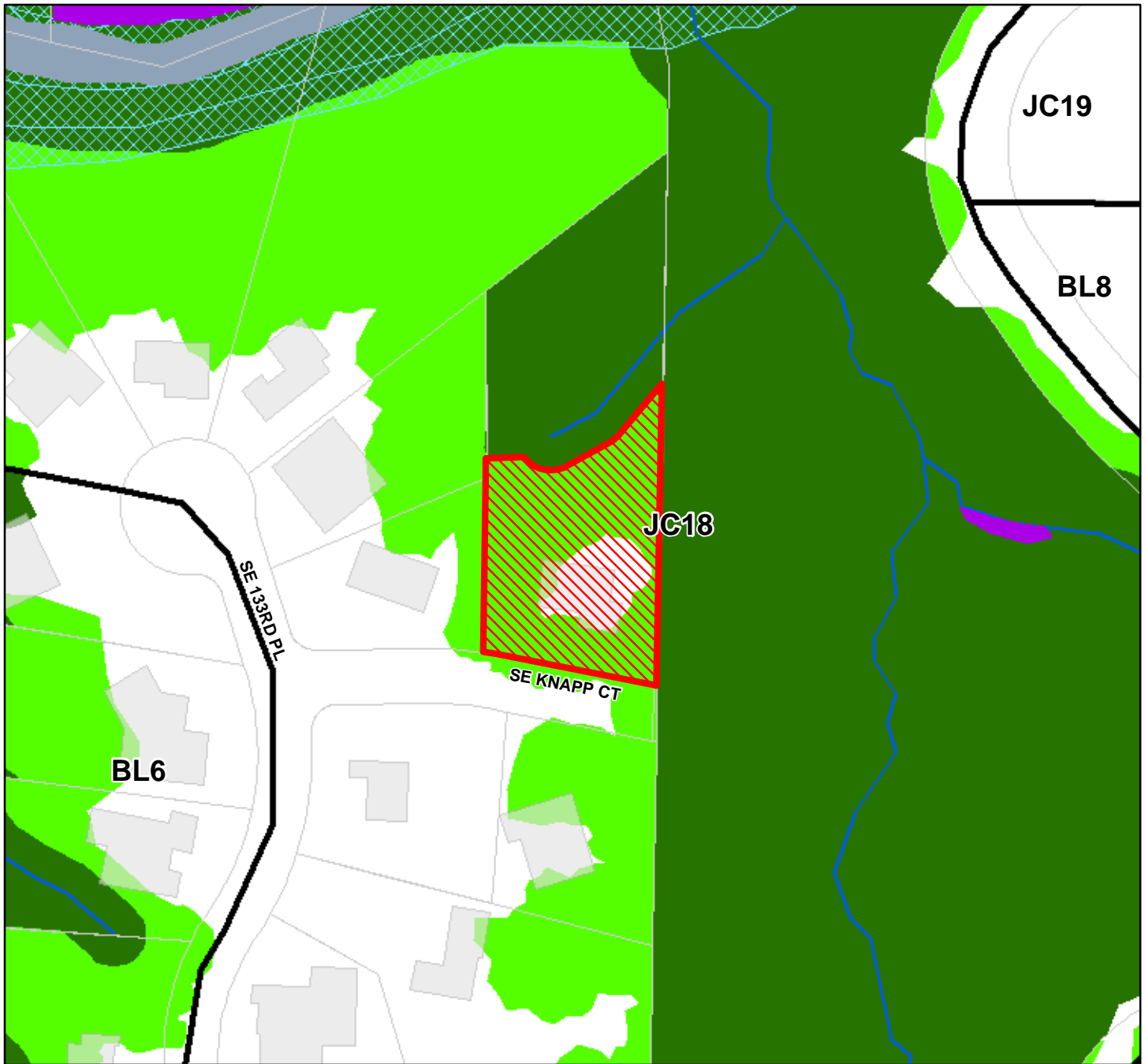


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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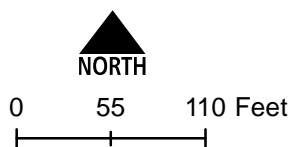


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area outside of riparian zone and near existing development and right-of-way.**

**State ID  
1S2E23AC 600**

Updated: October 2021

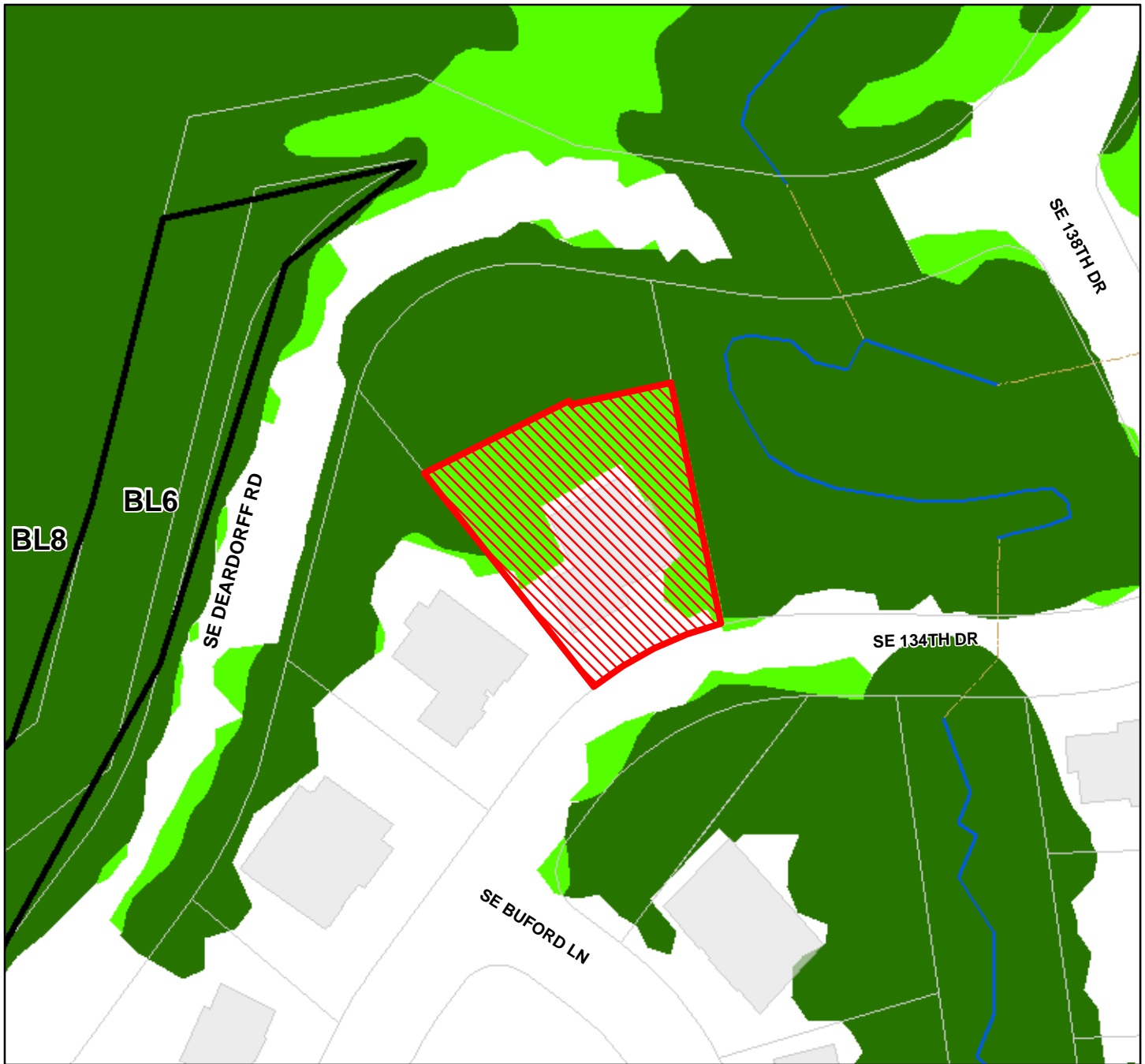


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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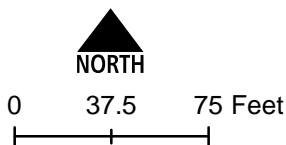


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area near existing development.**

**State ID  
1S2E23DC 8300**

Updated: October 2021



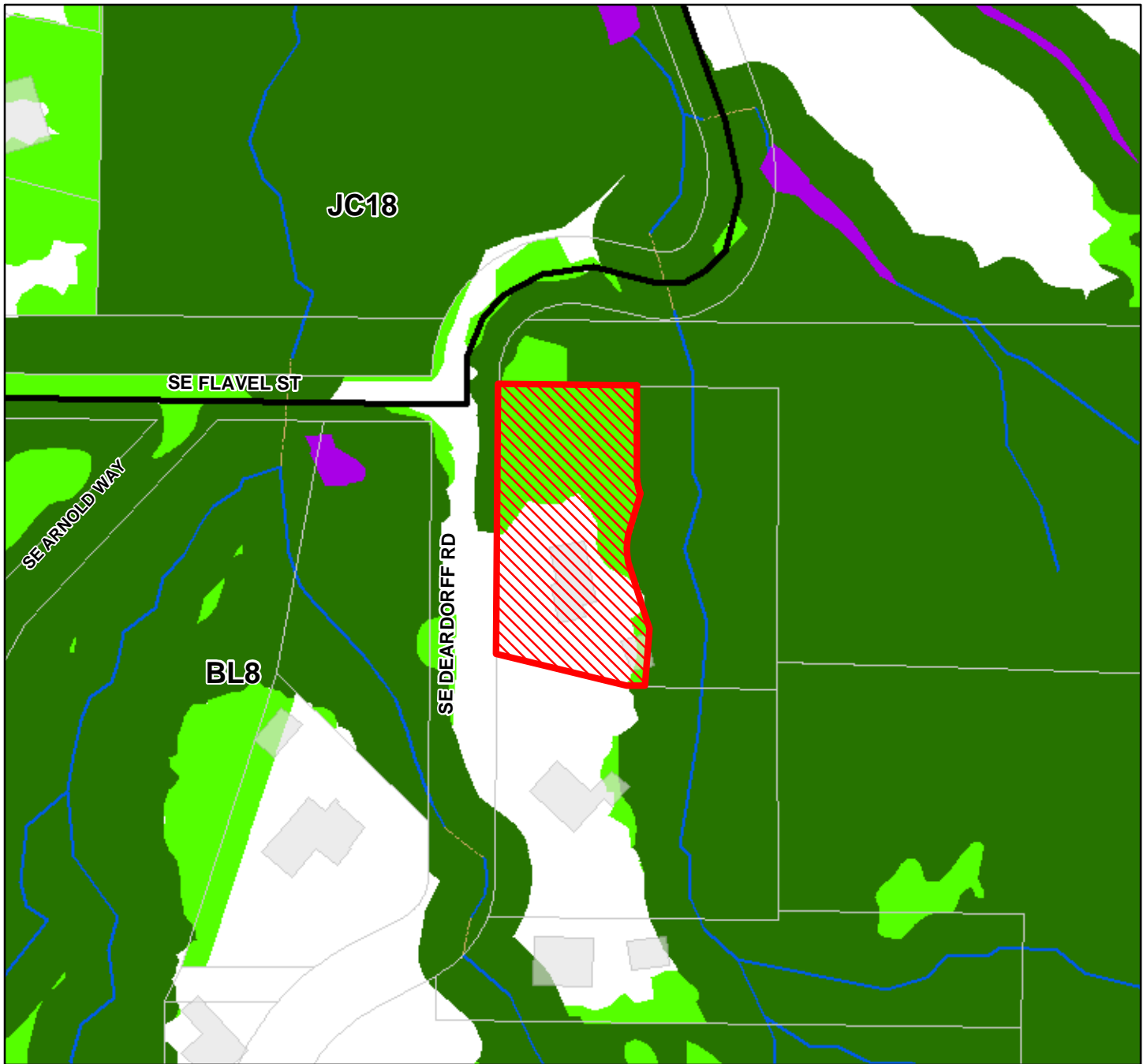
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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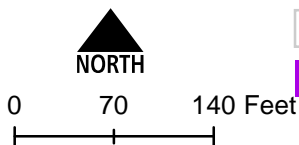


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R20 lot. Convert area outside of riparian zone and adjacent to right-of-way.**

**State ID  
1S2E23AC 1700**

Updated: October 2021



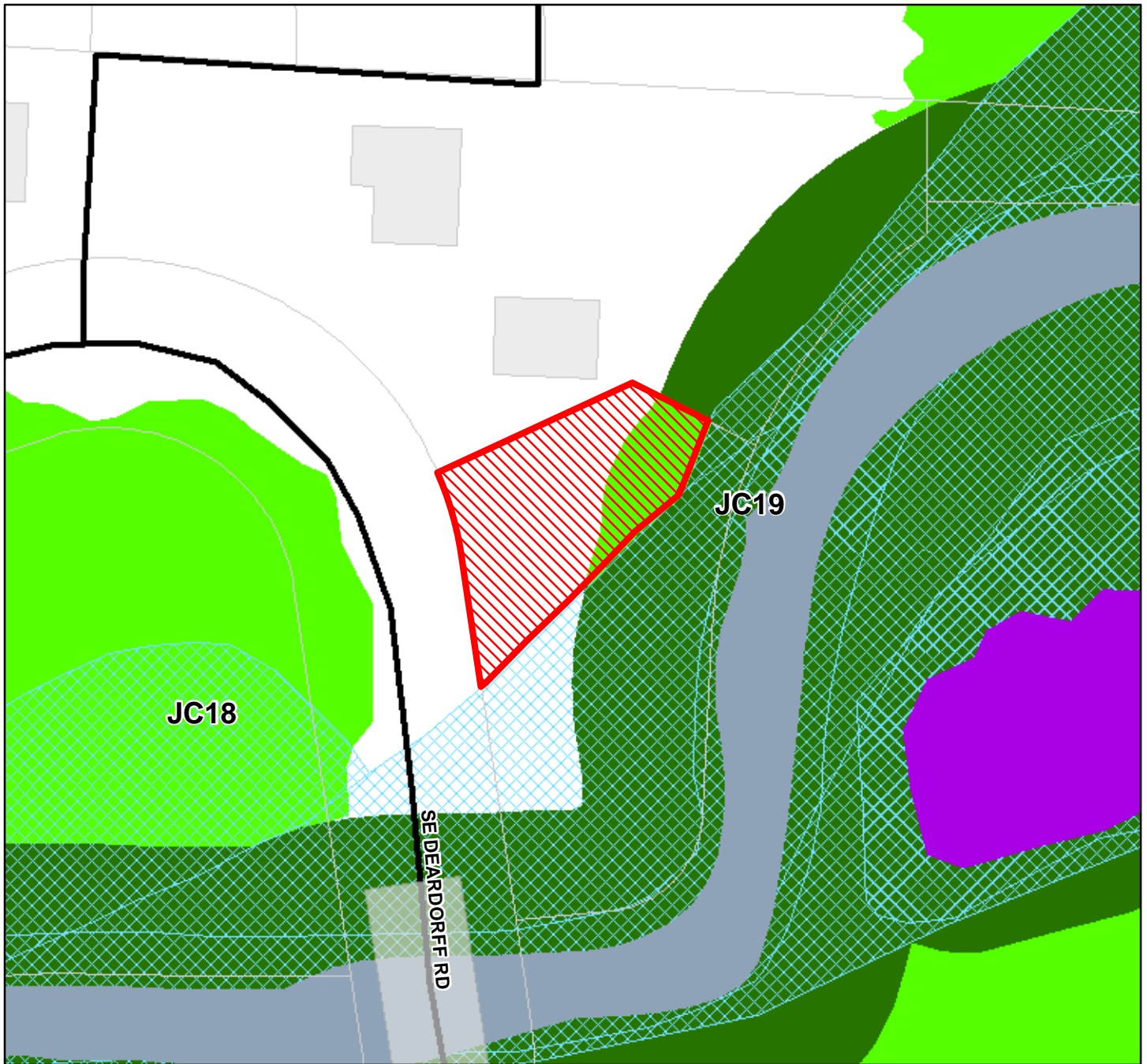
Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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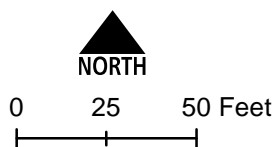


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R10 lot. Convert area outside of flood area.**

**State ID  
1S2E23AB 8500**

Updated: October 2021

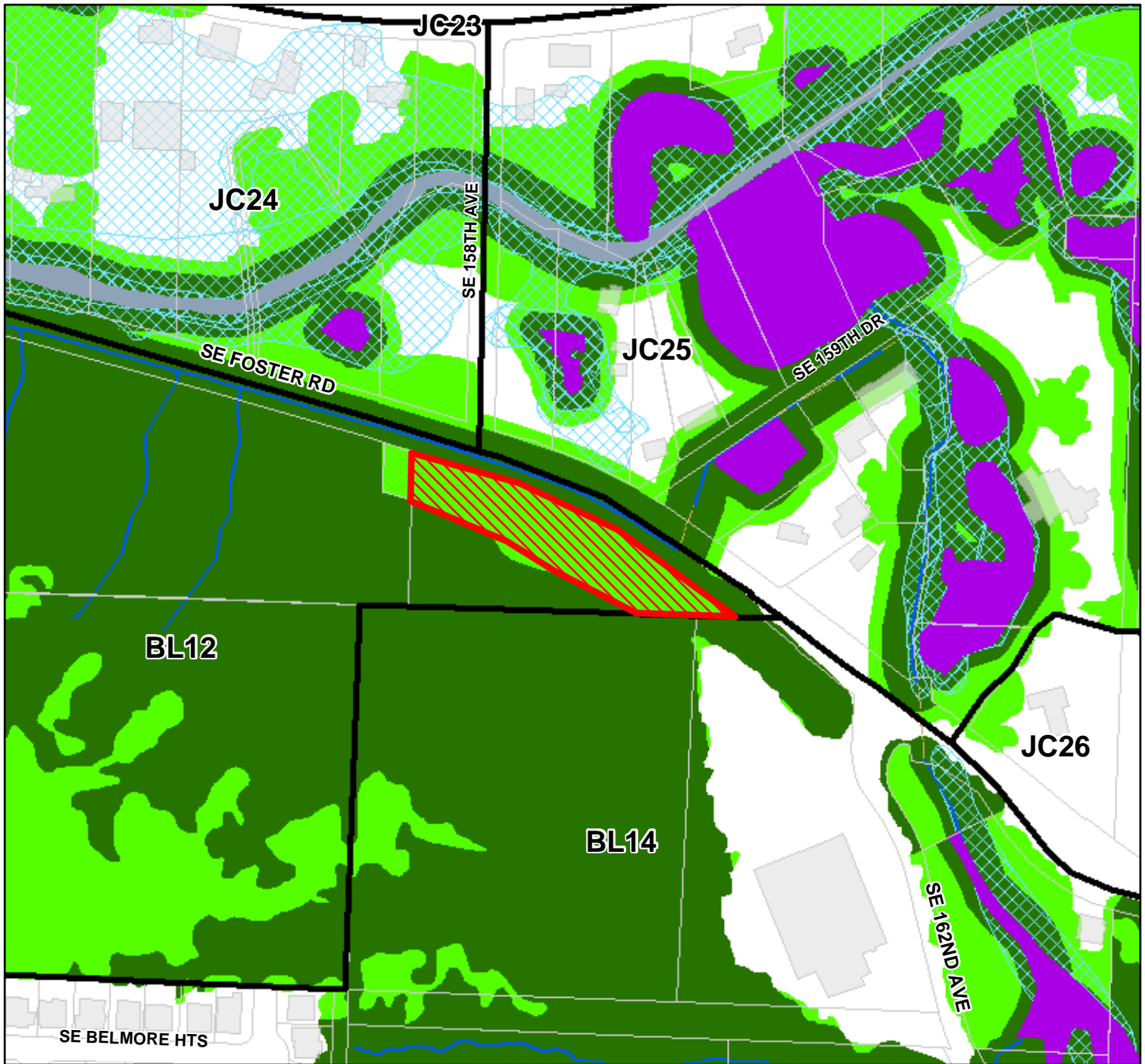


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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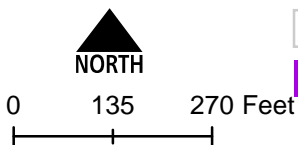


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant dividable R10 lot. Convert area closest to right-of-way.**

**State ID  
1S2E13DD 2700**

Updated: October 2021

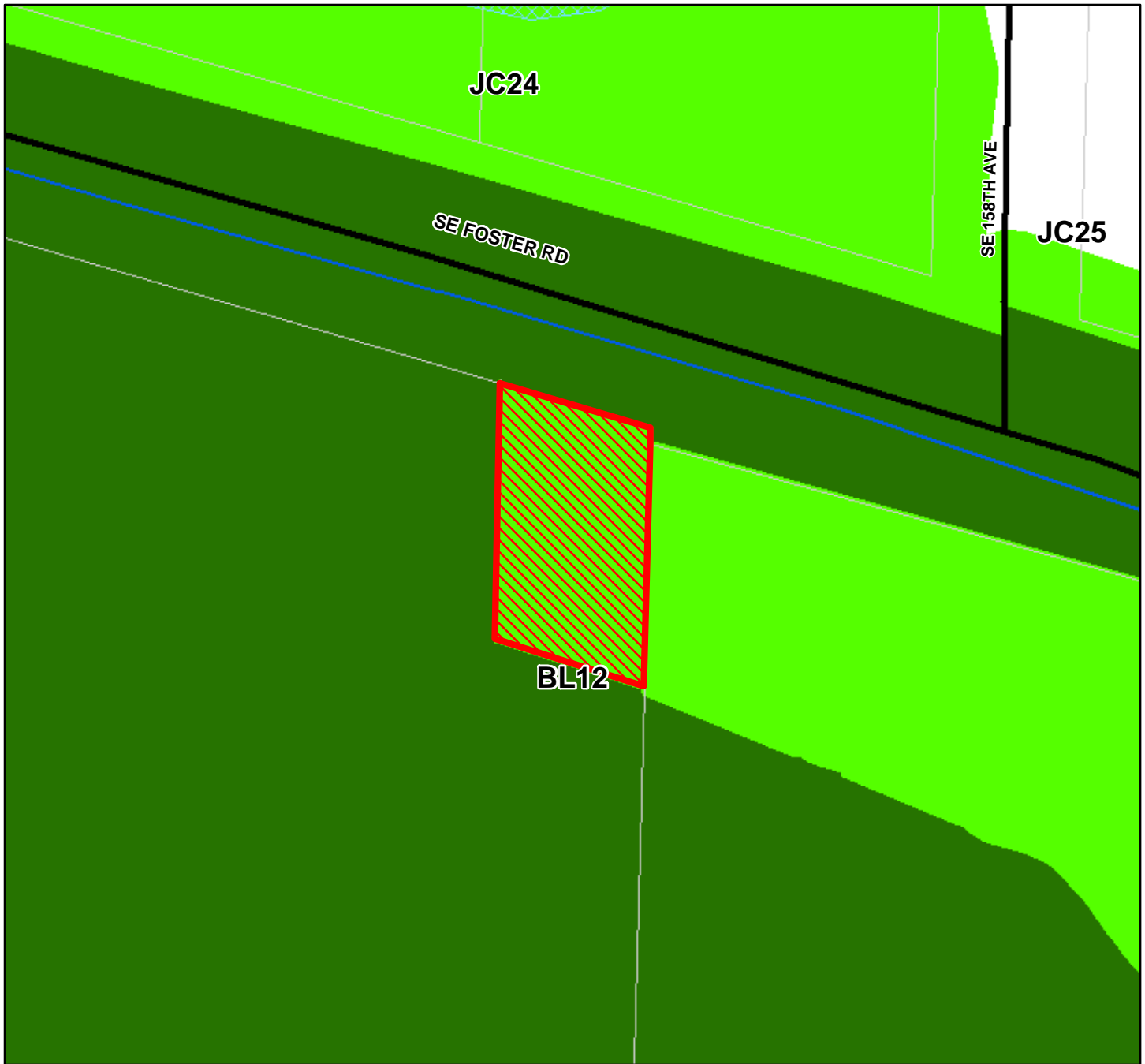


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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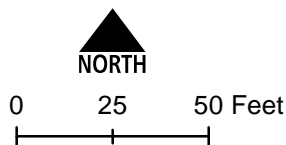


**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R10 lot.**

**State ID  
1S2E13DC 1500**

Updated: October 2021

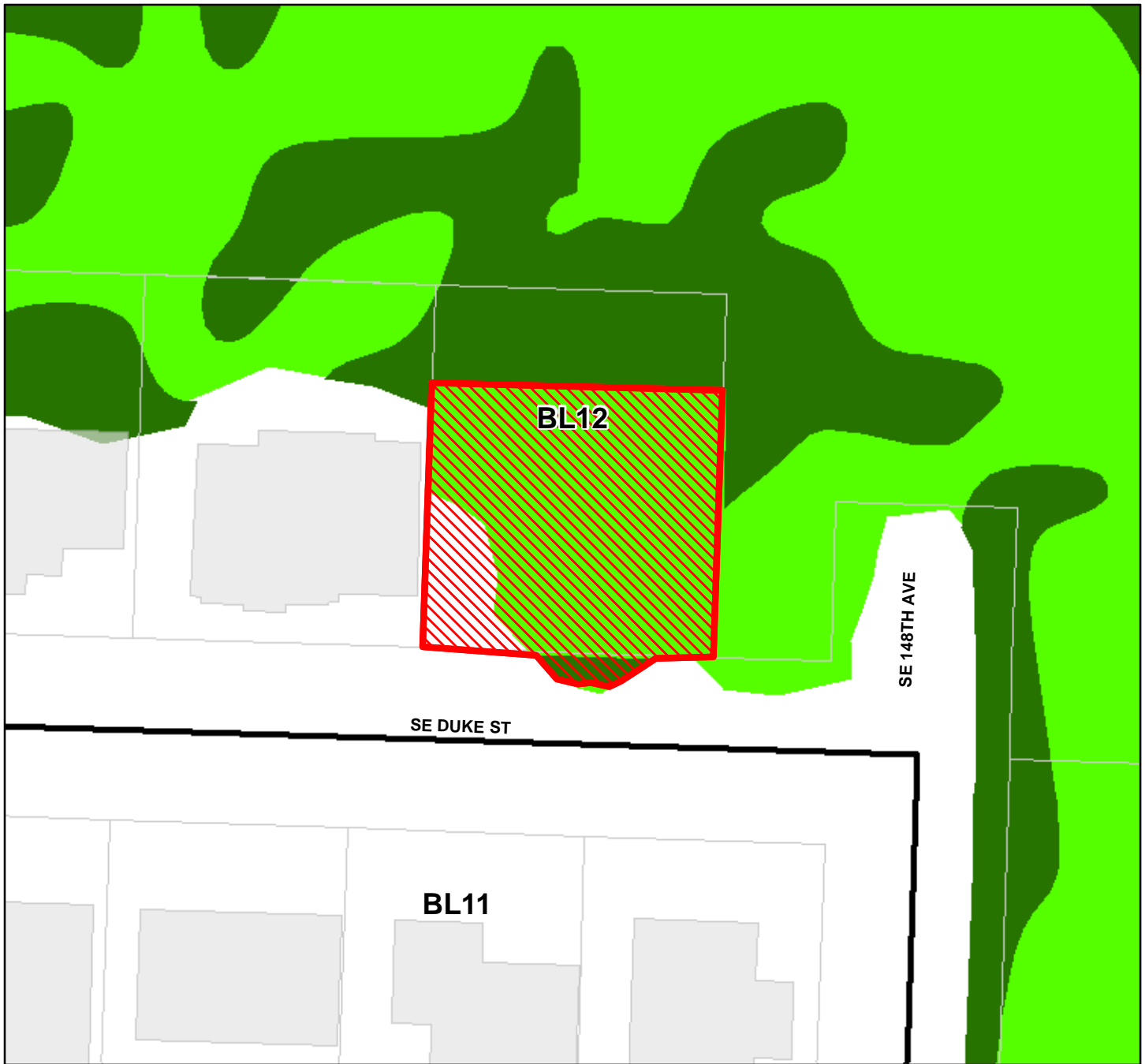


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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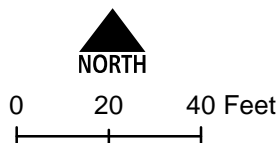


**'P' to 'C' Conversions**












**Conversion Description: Vacant R10 lot. Convert area close to right-of-way.**

**State ID**  
**1S2E13CD 1300**

Updated: October 2021

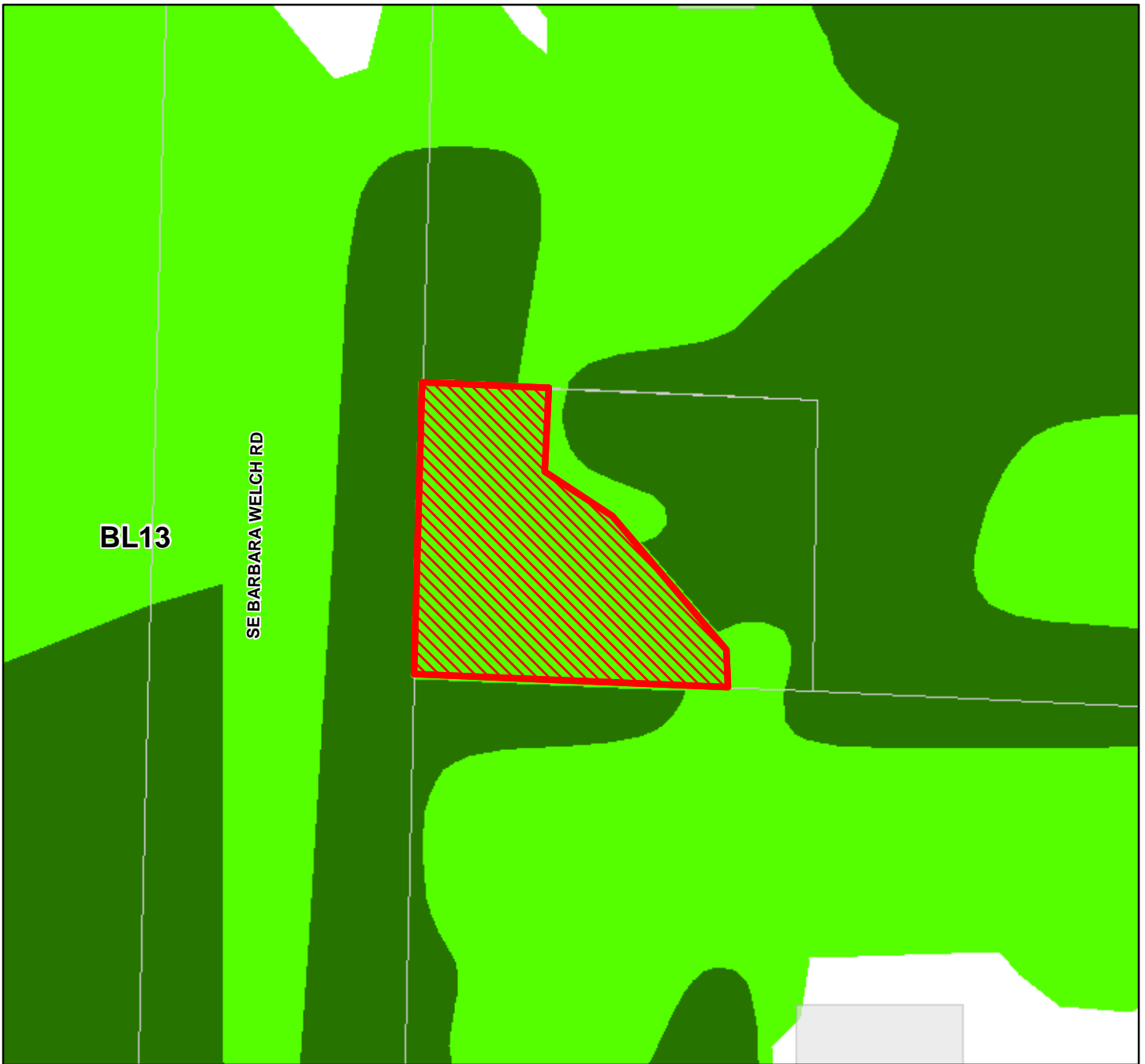


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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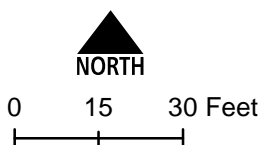













**'P' to 'C'  
Conversions**

**Conversion Description: Vacant RF lot. Convert area close to right-of-way.**

**State ID  
1S2E24DC 200**

Updated: October 2021

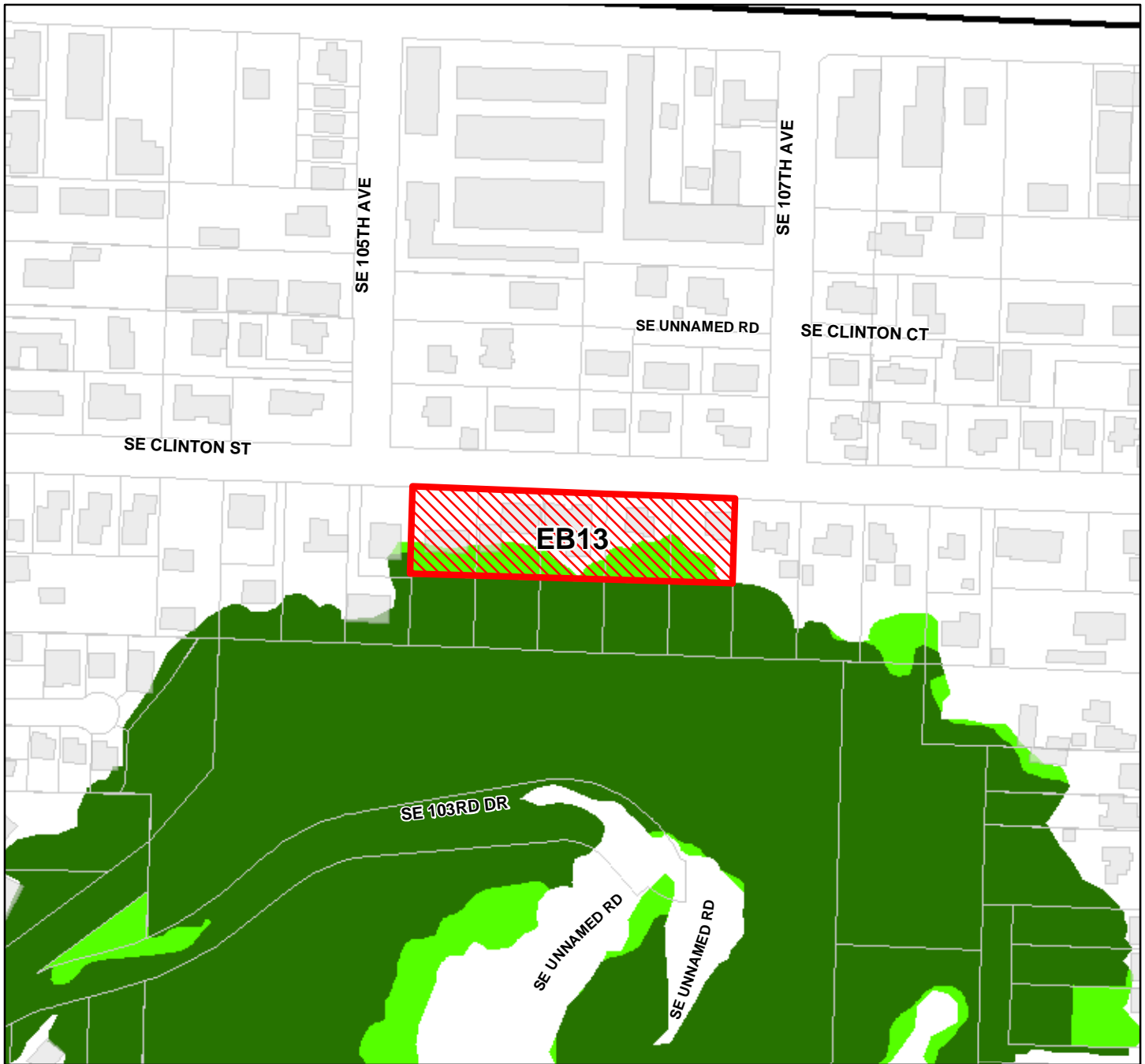


- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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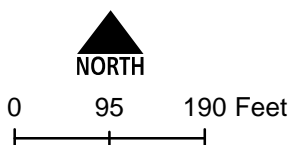
**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R7 lots. Convert area near existing development.**

**State ID**

- 1S2E10BB 7000
- 1S2E10BB 7100
- 1S2E10BB 7200
- 1S2E10BB 7300
- 1S2E10BB 7400

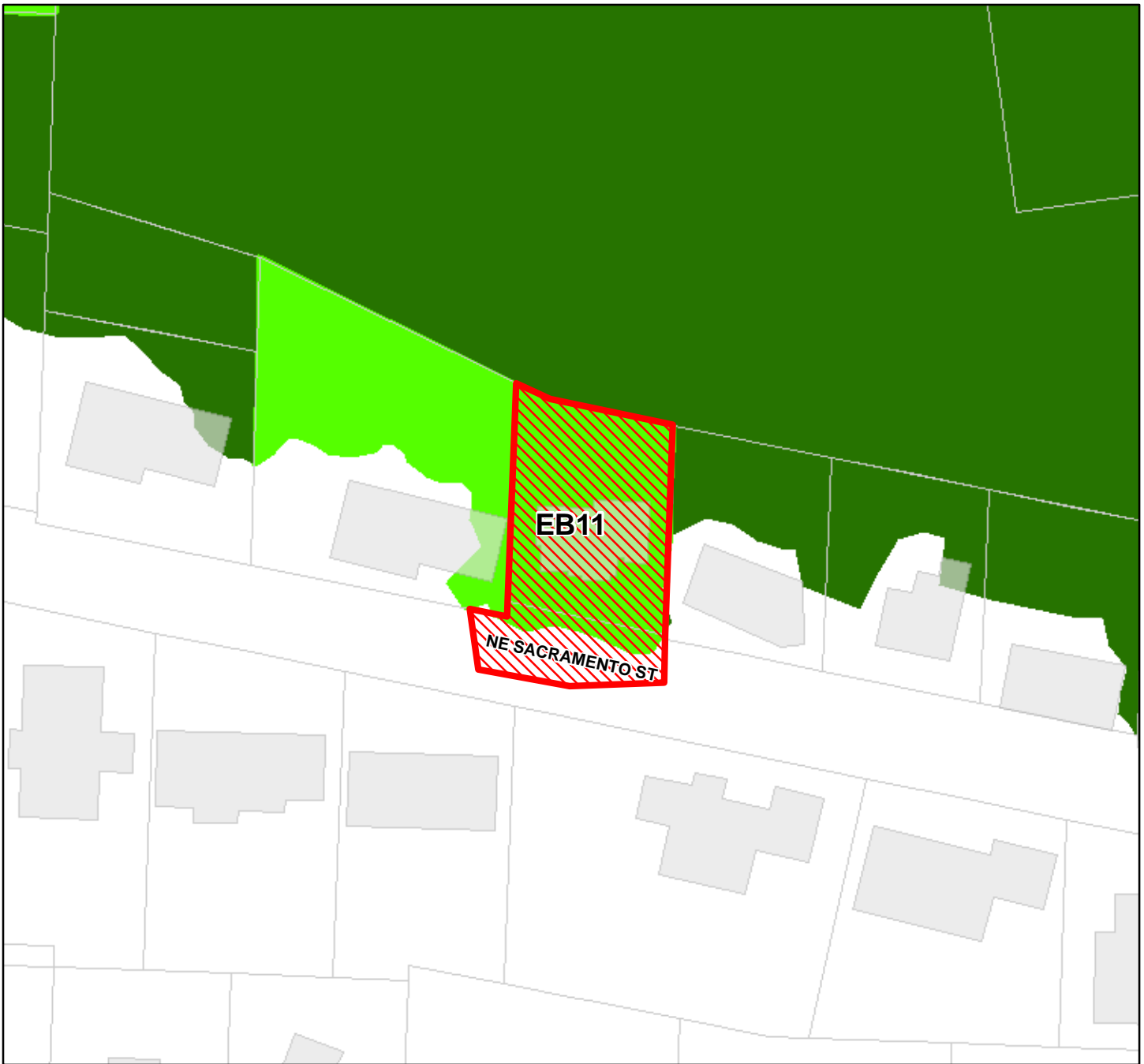
Updated: October 2021



- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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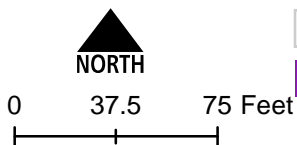


**'P' to 'C'  
Conversions**












**Conversion Description: Area is accessible from the street, and is adjacent to other development on the site.**

**State ID  
1N2E28DB 700**

Updated: October 2021

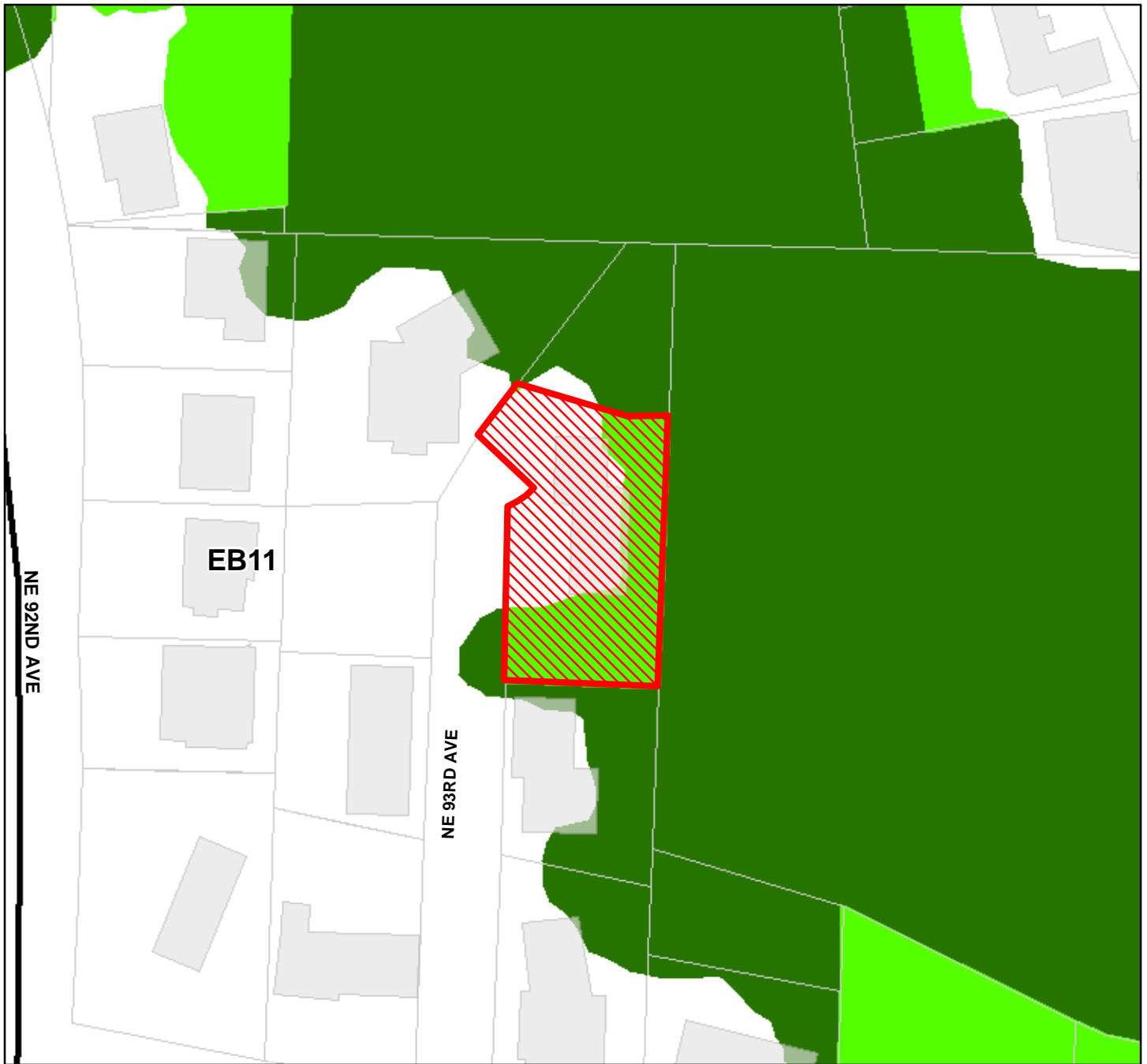


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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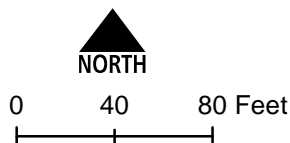


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R7 lot. Convert area close to right-of-way and existing development.**

**State ID  
1N2E28DB 1300**

Updated: October 2021



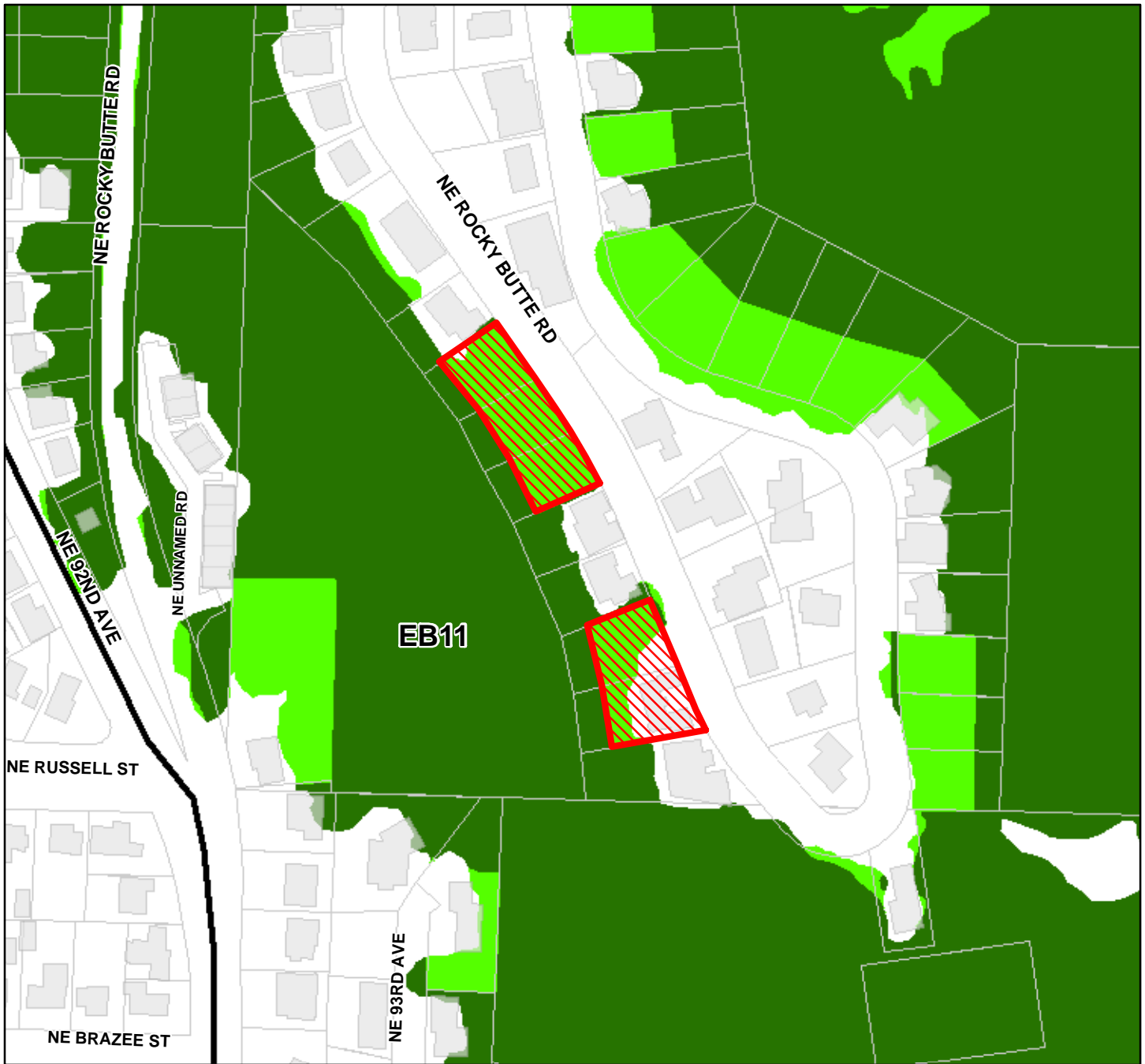
Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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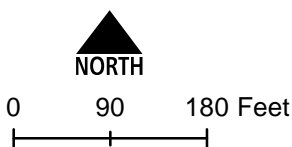
**'P' to 'C'  
Conversions**












**Conversion Description: Convert portions of vacant R7 lots to create development sites near right of way.**

**State ID**

- 1N2E28AC 5200
- 1N2E28AC 5300
- 1N2E28AC 4800
- 1N2E28AC 5400
- 1N2E28AC 4900

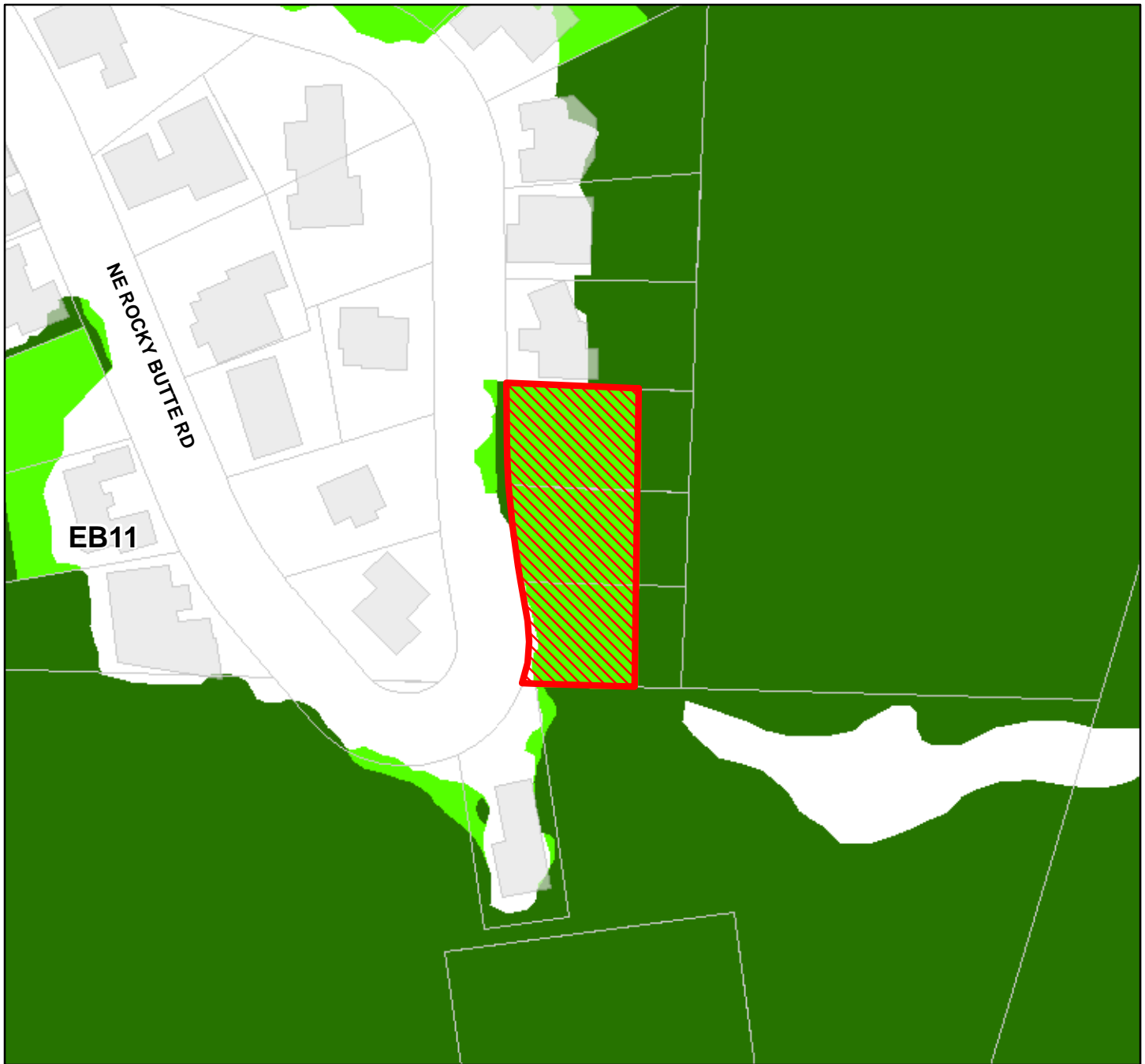
Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone














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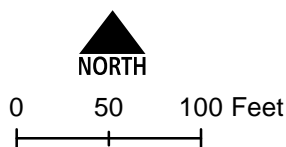
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant R7 lots. Convert area closest to right-of-way.**

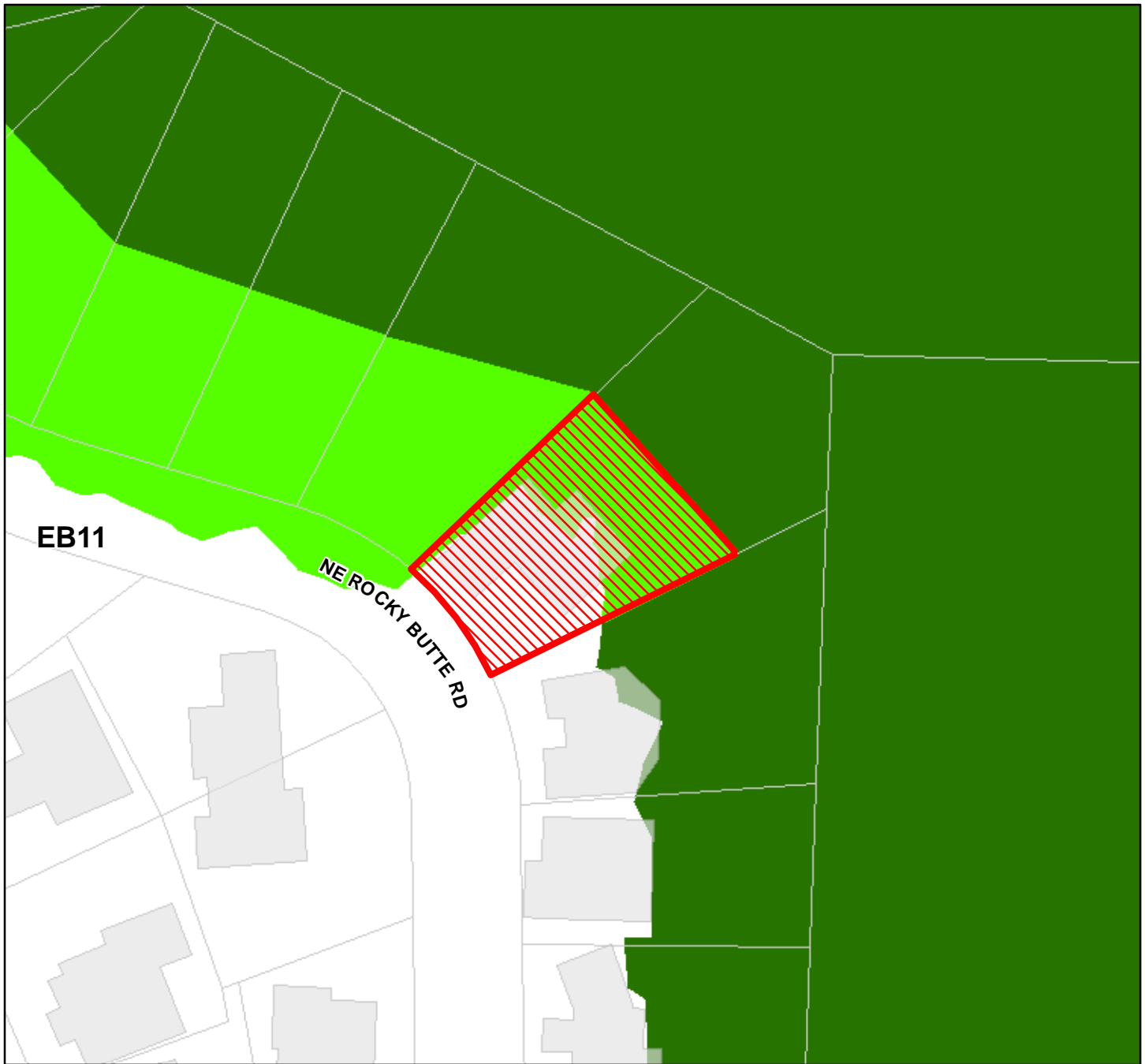
**State ID**  
1N2E28AC 500  
1N2E28AC 400  
1N2E28AC 300

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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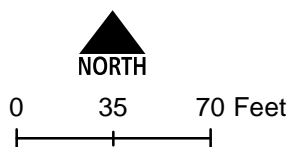


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R7 lot. Convert lot area near existing development a right of way.**

**State ID  
1N2E28AC 900**

Updated: October 2021

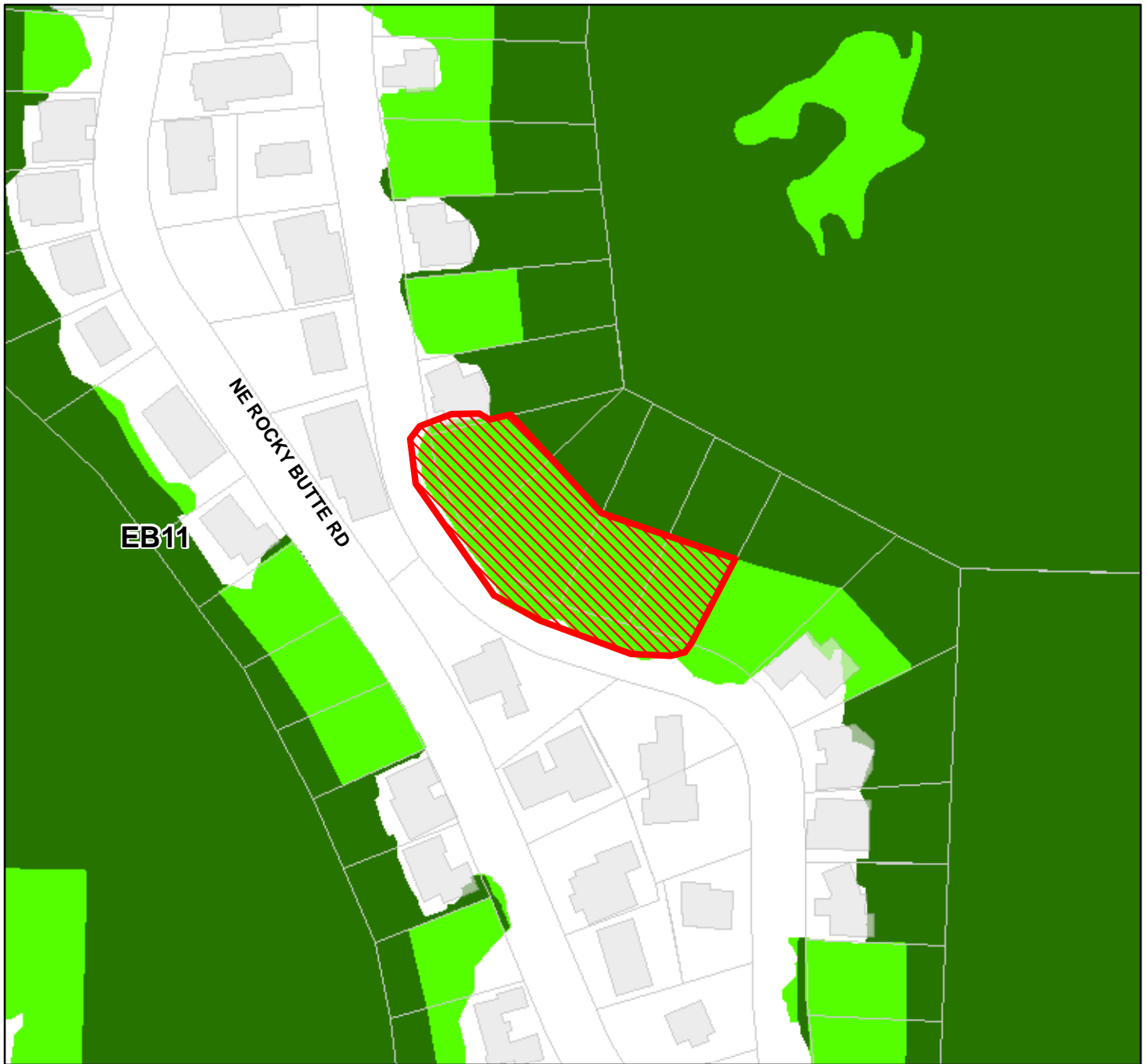


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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


**'P' to 'C'  
Conversions**

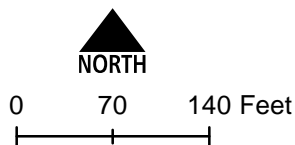
**Conversion Description: Vacant R7 lots. Convert area close to right-of-way.**

**State ID**

- 1N2E28AC 1100
- 1N2E28AC 1200
- 1N2E28AC 1300
- 1N2E28AC 1400

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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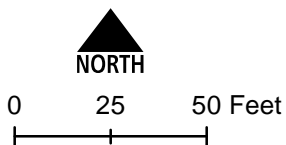


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R7 lots. Convert area close to right-of-way.**

**State ID  
1N2E28AC 1600**

Updated: October 2021

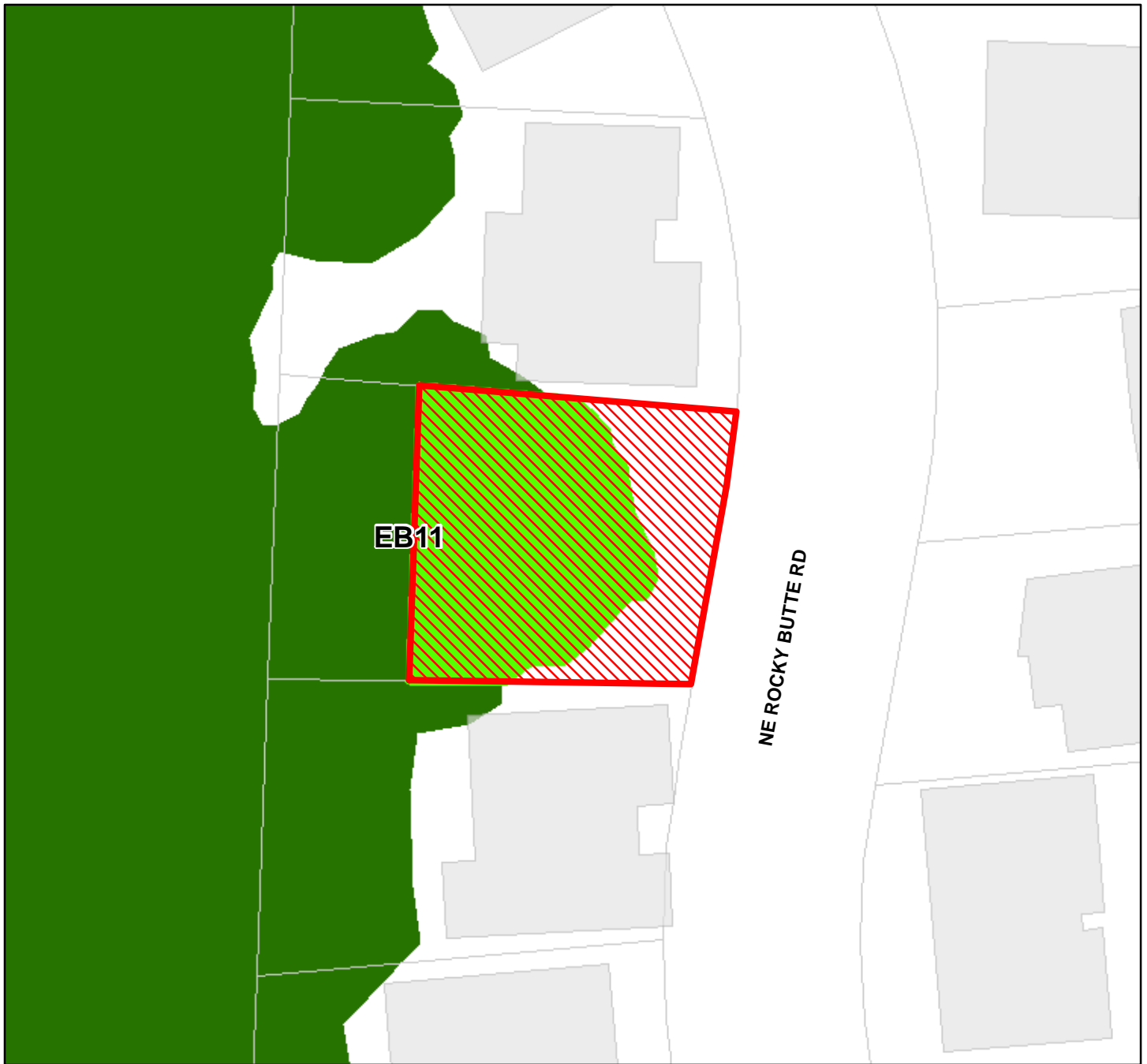


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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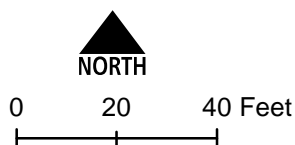


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R7 lot. Convert area closest to right-of-way.**

**State ID  
1N2E28AC 6200**

Updated: October 2021



Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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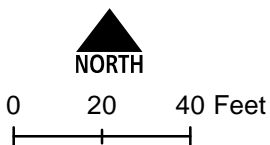


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R7 lot. Convert lot to create potential development site.**

**State ID  
1N2E28AB 2000**

Updated: October 2021



Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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**'P' to 'C'  
Conversions**

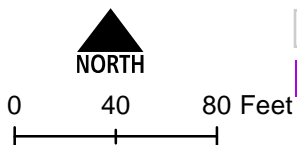
**Conversion Description: Vacant R7 lots. Convert area closest to right-of-way.**

**State ID**

- 1N2E28AB 1600
- 1N2E28AB 1800
- 1N2E28AB 1900
- 1N2E28AB 2100

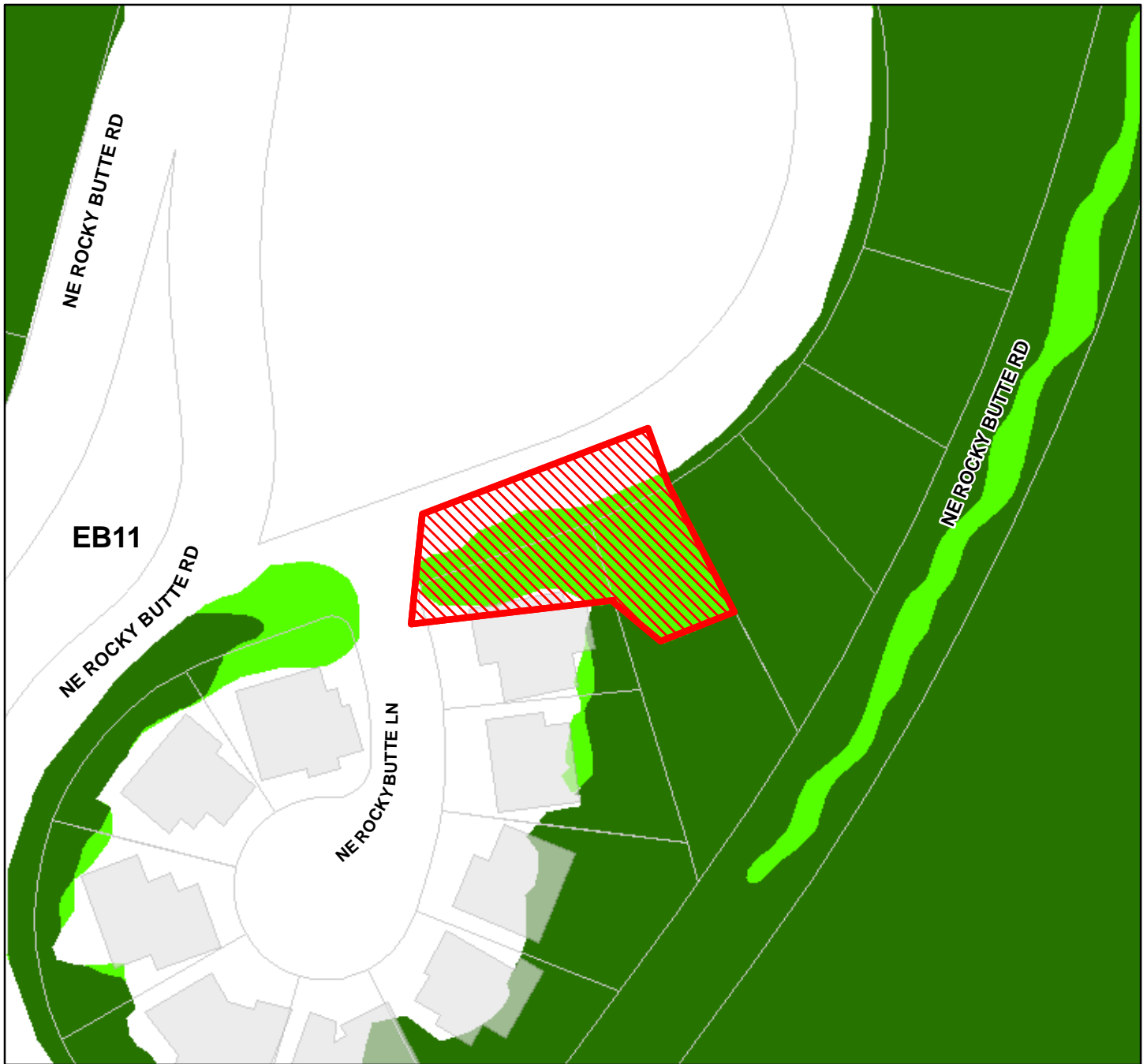
-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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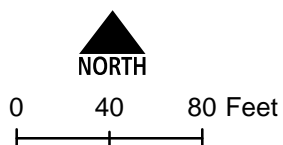


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R7 lot. Convert area closest to right-of-way.**

**State ID**  
1N2E28AB 3100  
1N2E28AB 3200

Updated: October 2021



Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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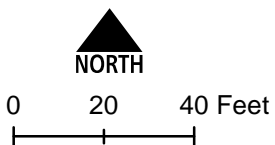


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant R5 lot. Convert area closest to right-of-way.**

**State ID  
1N2E28BA 18200**

Updated: October 2021

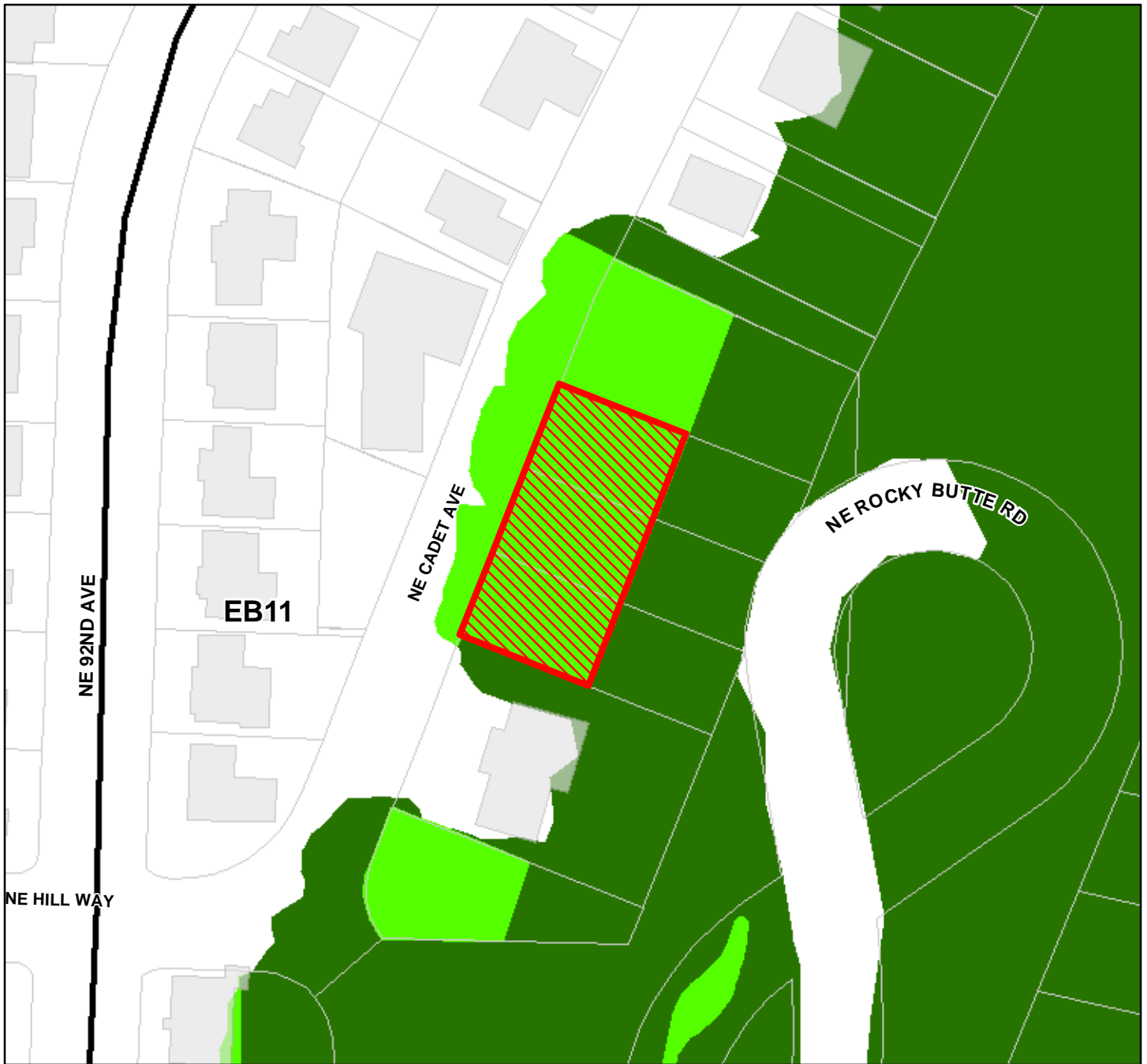


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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**'P' to 'C'  
Conversions**

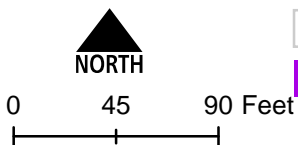
**Conversion Description: Vacant R5 lots. Convert area closest to right-of-way.**

**State ID**

- 1N2E28BA 18400
- 1N2E28BA 18501
- 1N2E28BA 18401

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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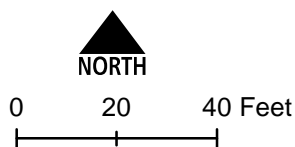


**'P' to 'C' Conversions**












**Conversion Description: Dividable R5 lot. Convert area closest to right-of-way.**

**State ID  
1N2E28AB 500**

Updated: October 2021

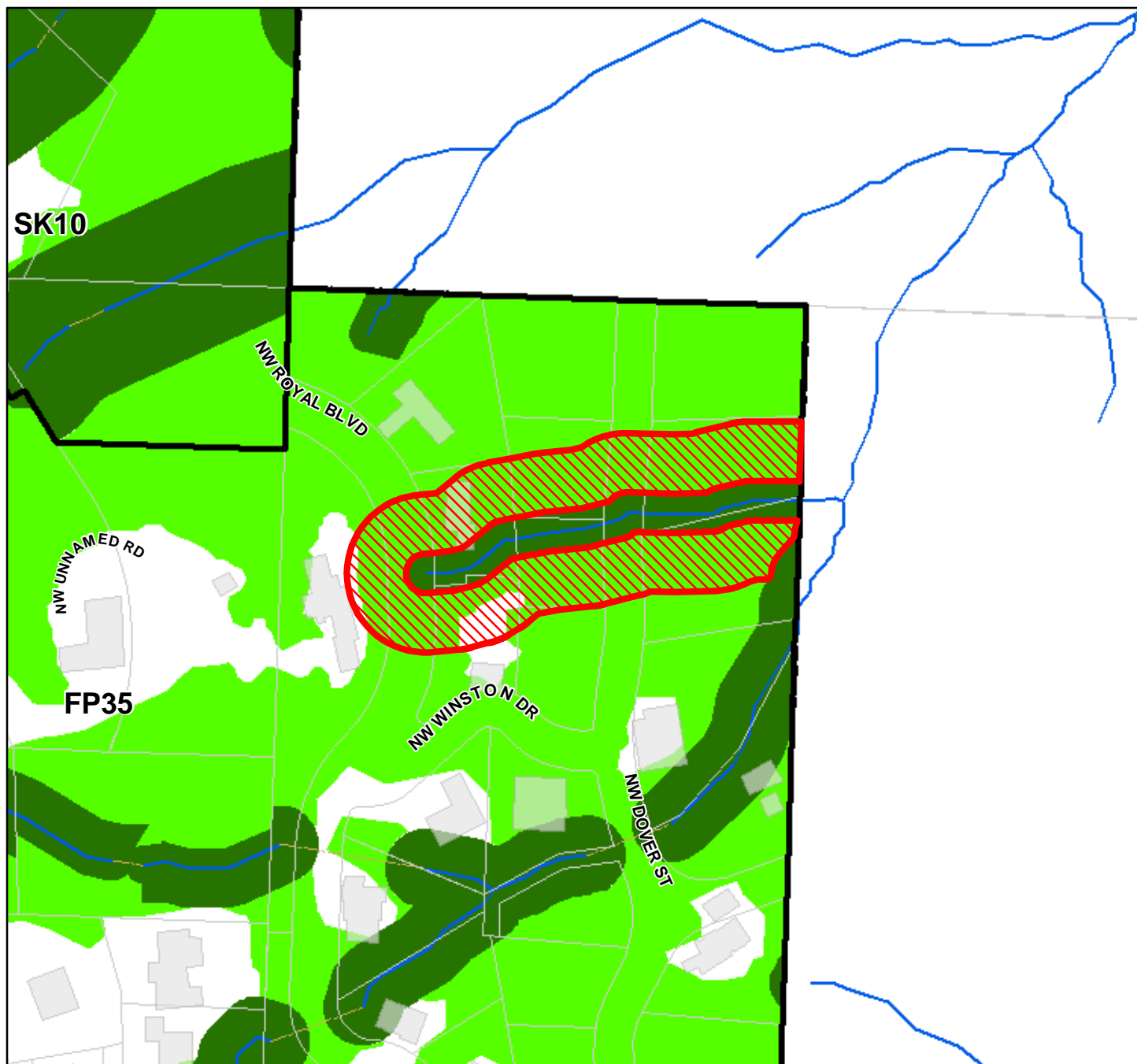


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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**'P' to 'C'  
Conversions**

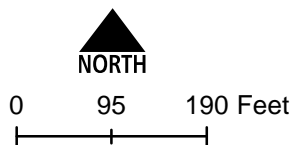
**Conversion Description: Convert parts of lots and ROW that are greater than 25' from stream.**

**State ID**

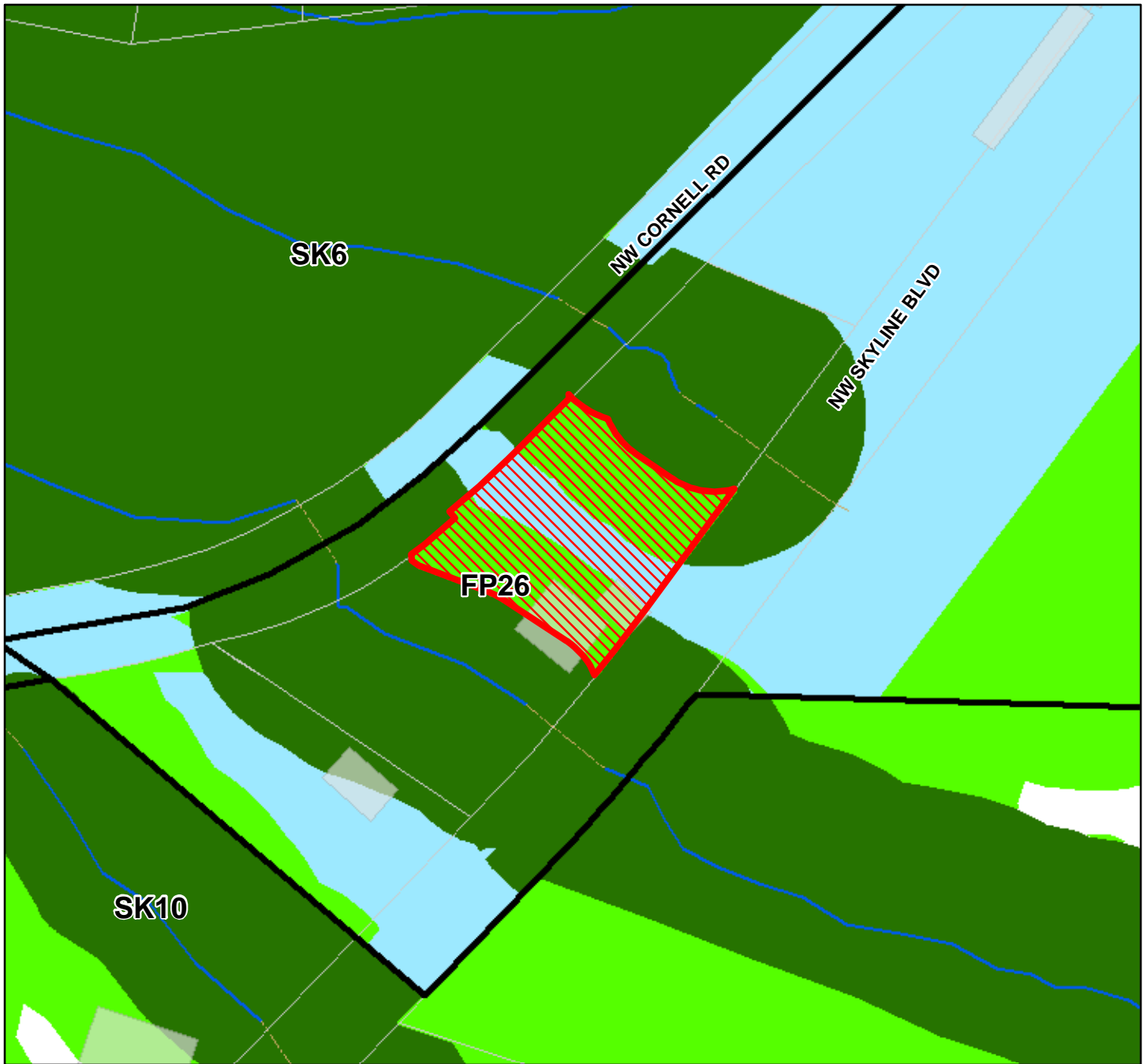
- 1N1E31CB 300
- 1N1E31CB 400
- 1N1E31CB 2100
- 1N1E31CB 2900
- 1N1E31CB 1700
- 1N1E31CB 1600
- 1N1E31CB 1500
- 1N1E31CB 2200

Updated: October 2021

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone














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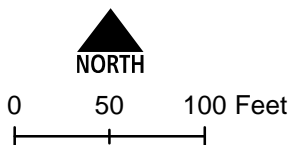
**'P' to 'C'  
Conversions**

**Conversion Description: Converted portion of lot located between stream riparian areas, including existing home.**

**State ID  
1N1W36BA 500**

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

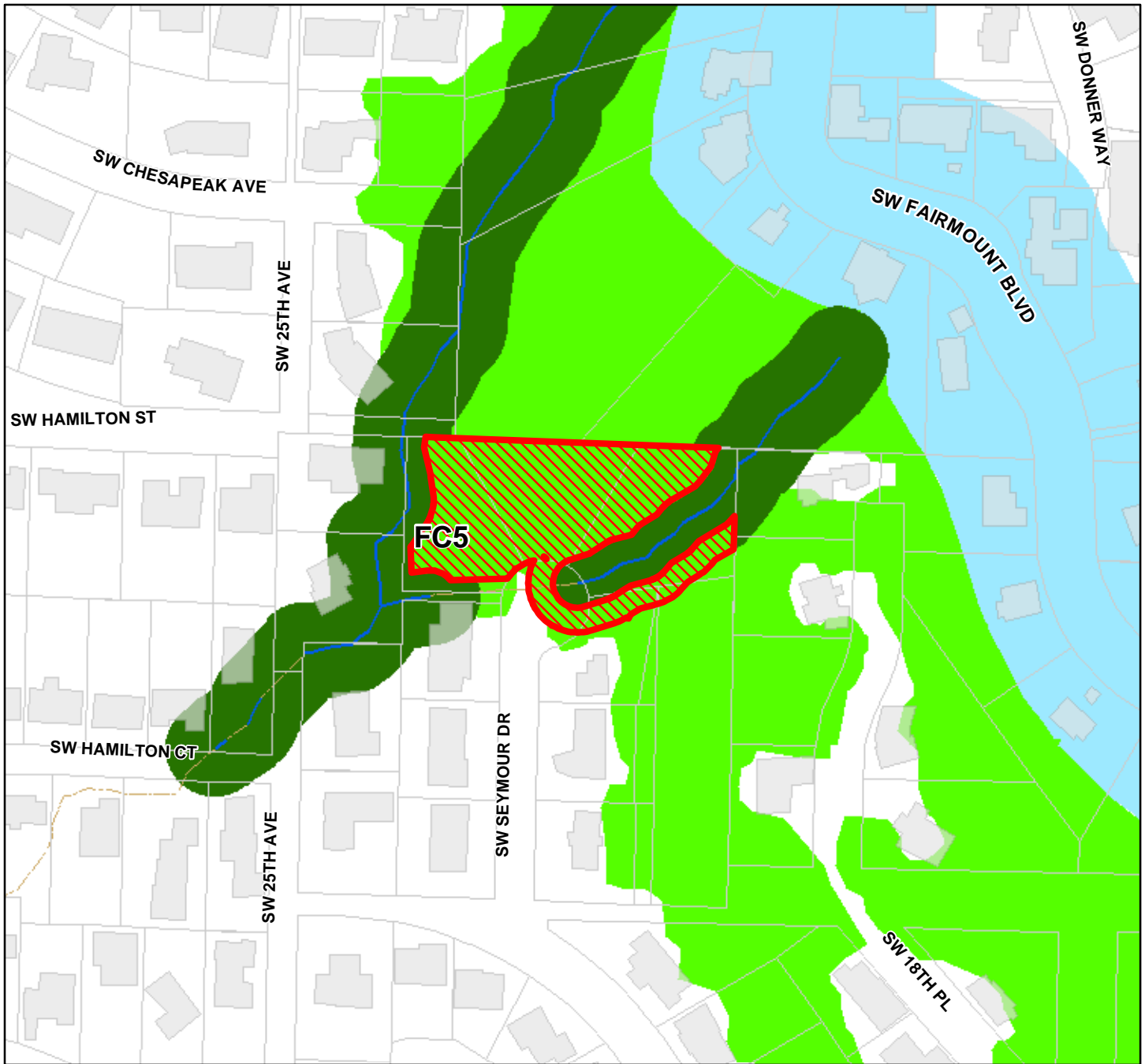
Updated: October 2021



Recommended Draft



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**'P' to 'C'  
Conversions**

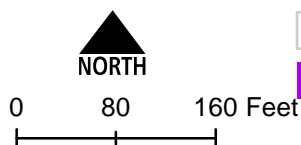
**State ID**

- 1S1E16BB 2000
- 1S1E16BB 2600
- 1S1E16BB 2800
- 1S1E16BB 2700
- 1S1E16BB 2500
- 1S1E16BB 2900

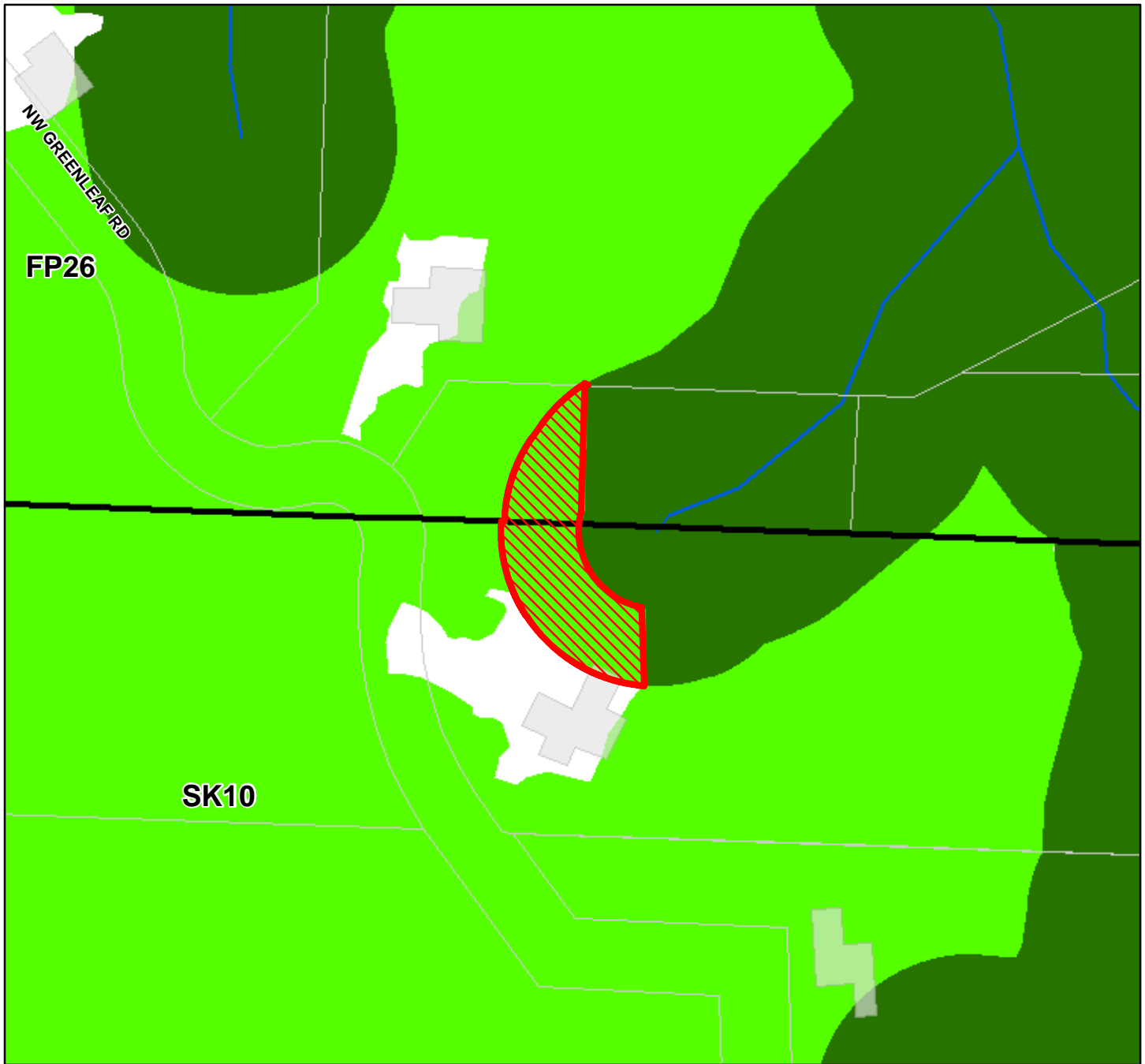
**Conversion Description: Undeveloped lots are highly constrained by protection zone. Carve out area that is more than 25 feet from streams to create potential development sites.**

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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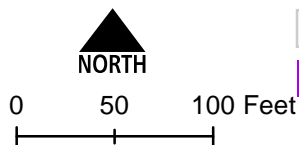


**'P' to 'C'  
Conversions**












**Conversion Description: Create building site on relatively flat area above and more than 50 feet away from stream headwater.**

**State ID**  
1N1W36A 1700  
1N1W36A 1701

Updated: October 2021



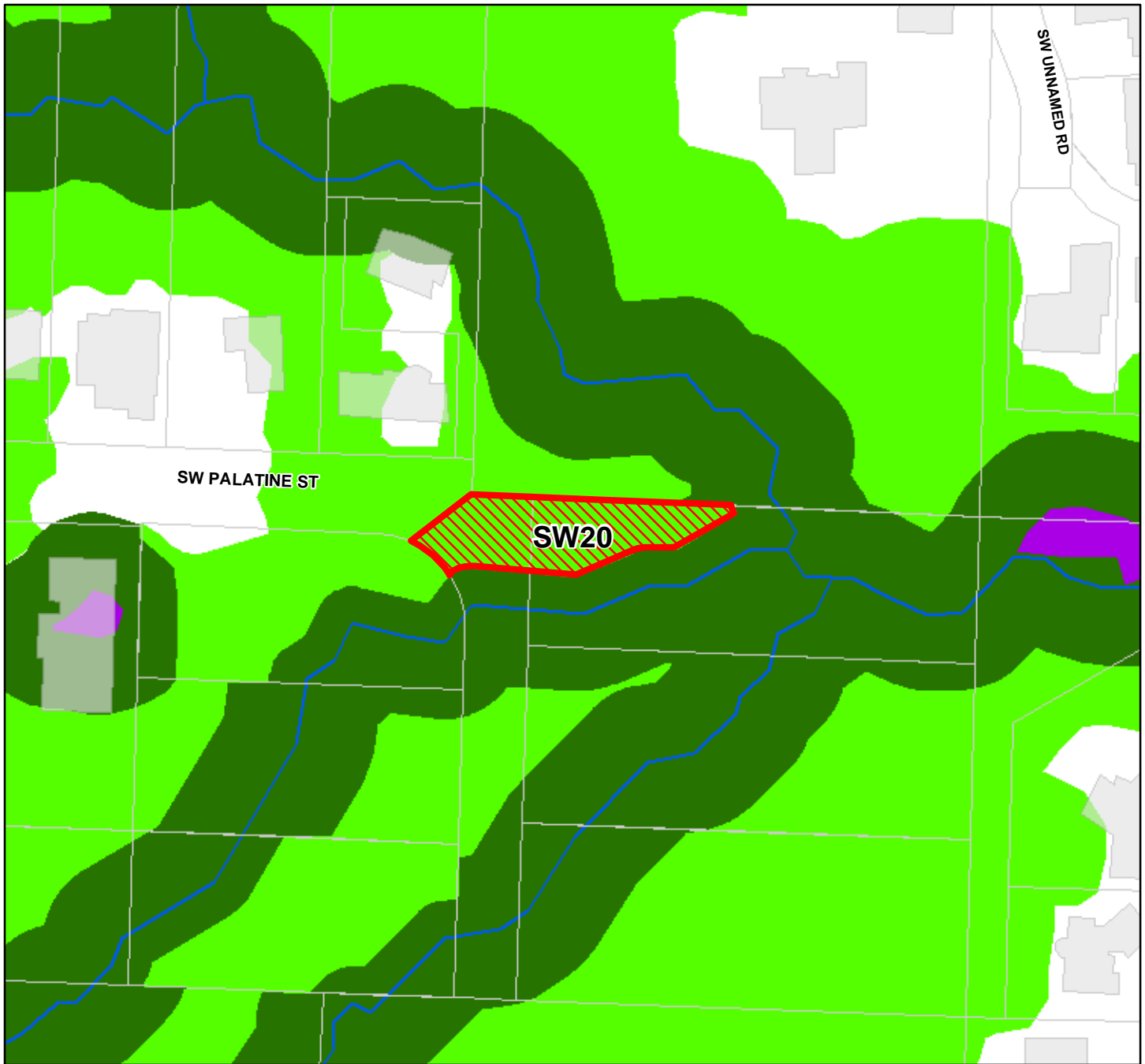
Recommended Draft

- |  |  |
|--|--|
|  'p' to 'c' Conversions |  Open stream channel  |
|  Resource Sites         |  Piped Stream Segment |
|  Urban Service Boundary |  Flood Area           |
|  Taxlots                |  Draft C Zone         |
|  Wetlands               |  Draft P Zone         |
|  |  Draft S Zone         |



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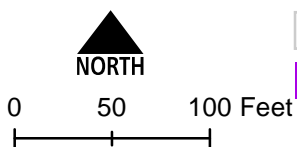
**'P' to 'C'  
Conversions**

**Conversion Description: Carve out area proximal to road that is more than 25' from streams. Still too small for development site.**

**State ID  
1S1E32AC 600**



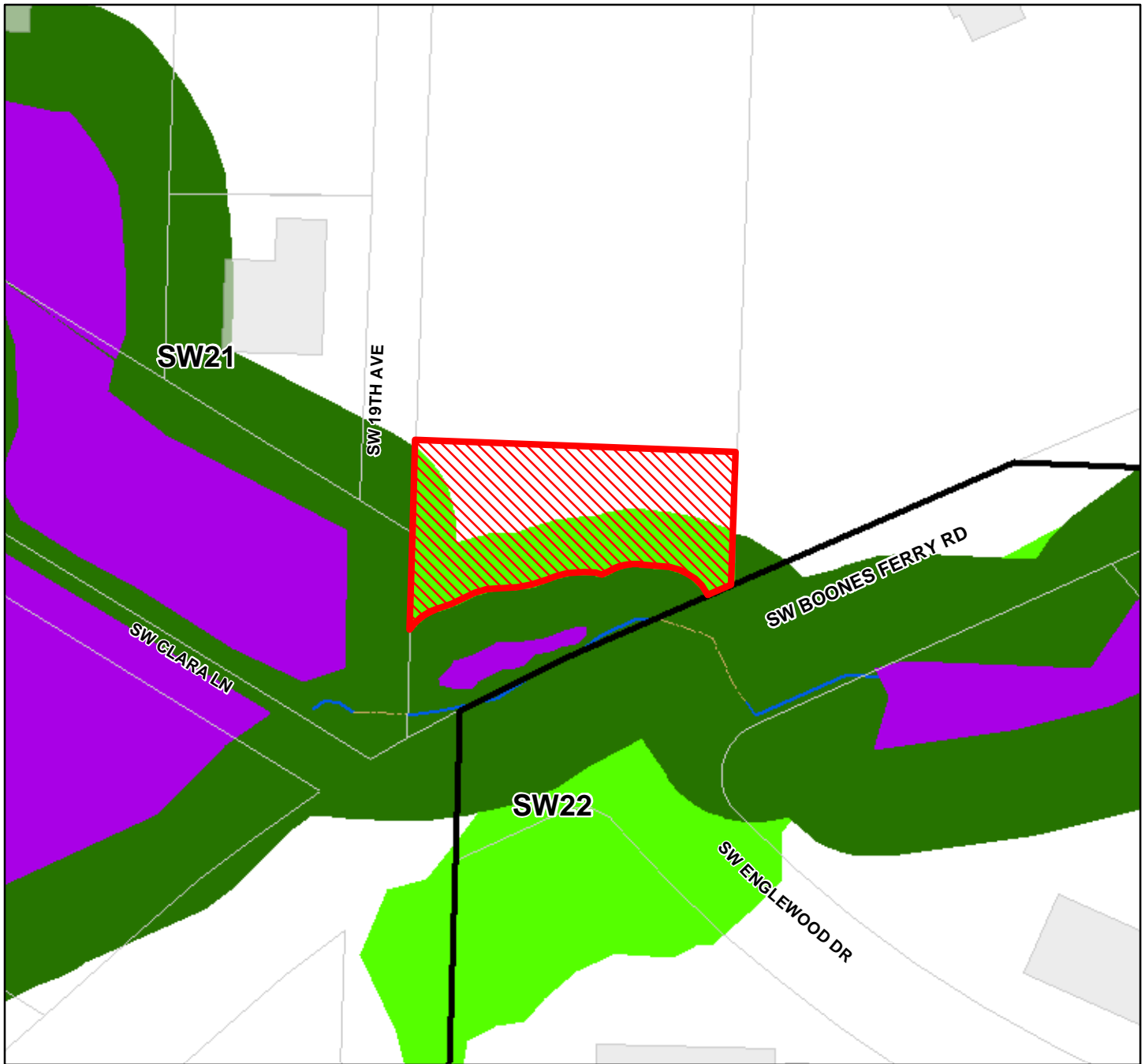
Updated: October 2021



Recommended Draft



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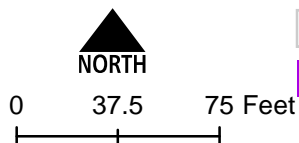
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant privately owned lot. Carve out area >25 feet from streams/wetlands**

**State ID  
1S1E33CD 1800**



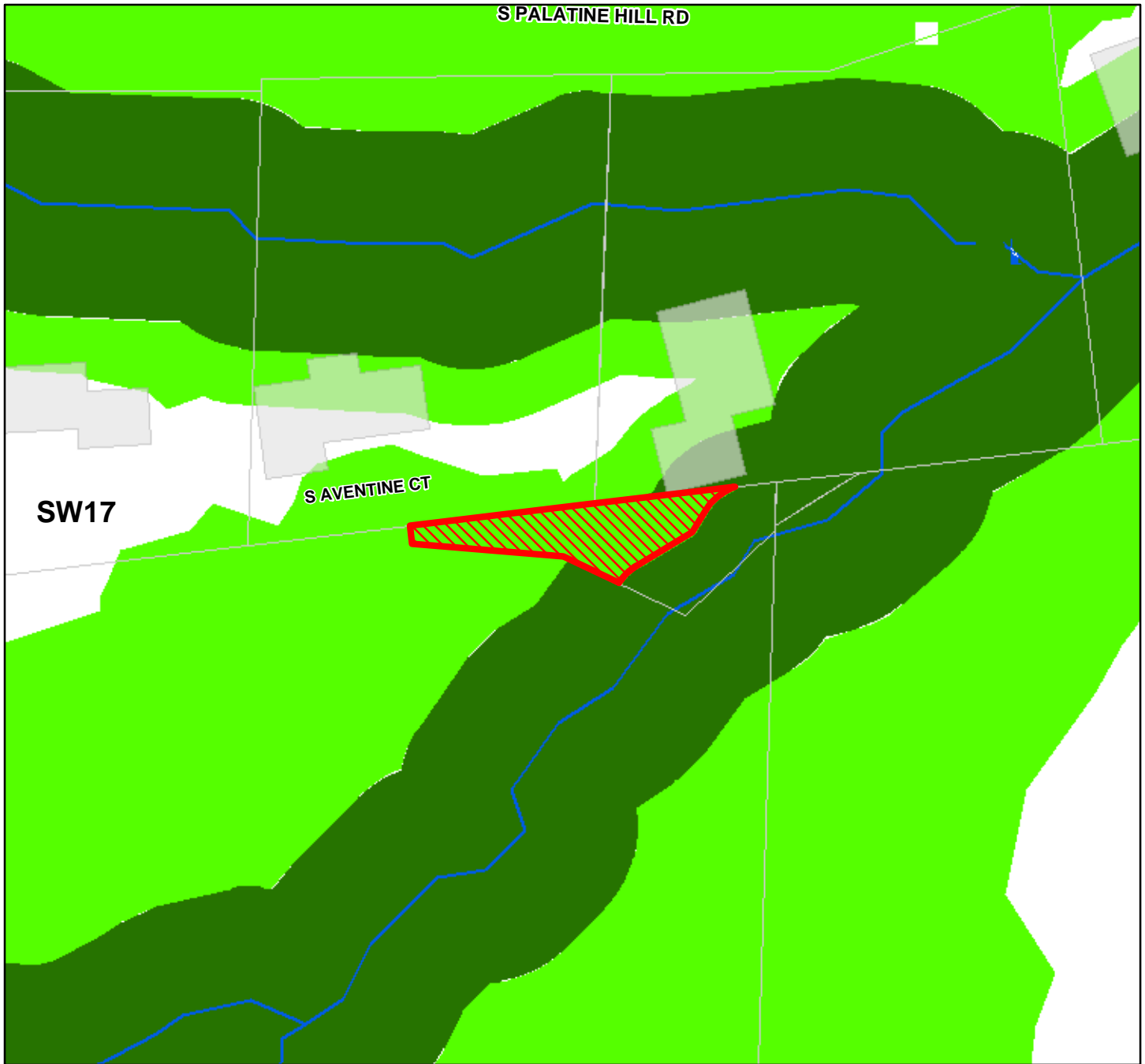
Updated: October 2021



Recommended Draft



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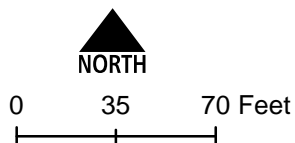
**'P' to 'C'  
Conversions**

**Conversion Description: Portion of developable lot >25ft from stream**

**State ID  
1S1E34AD 100**



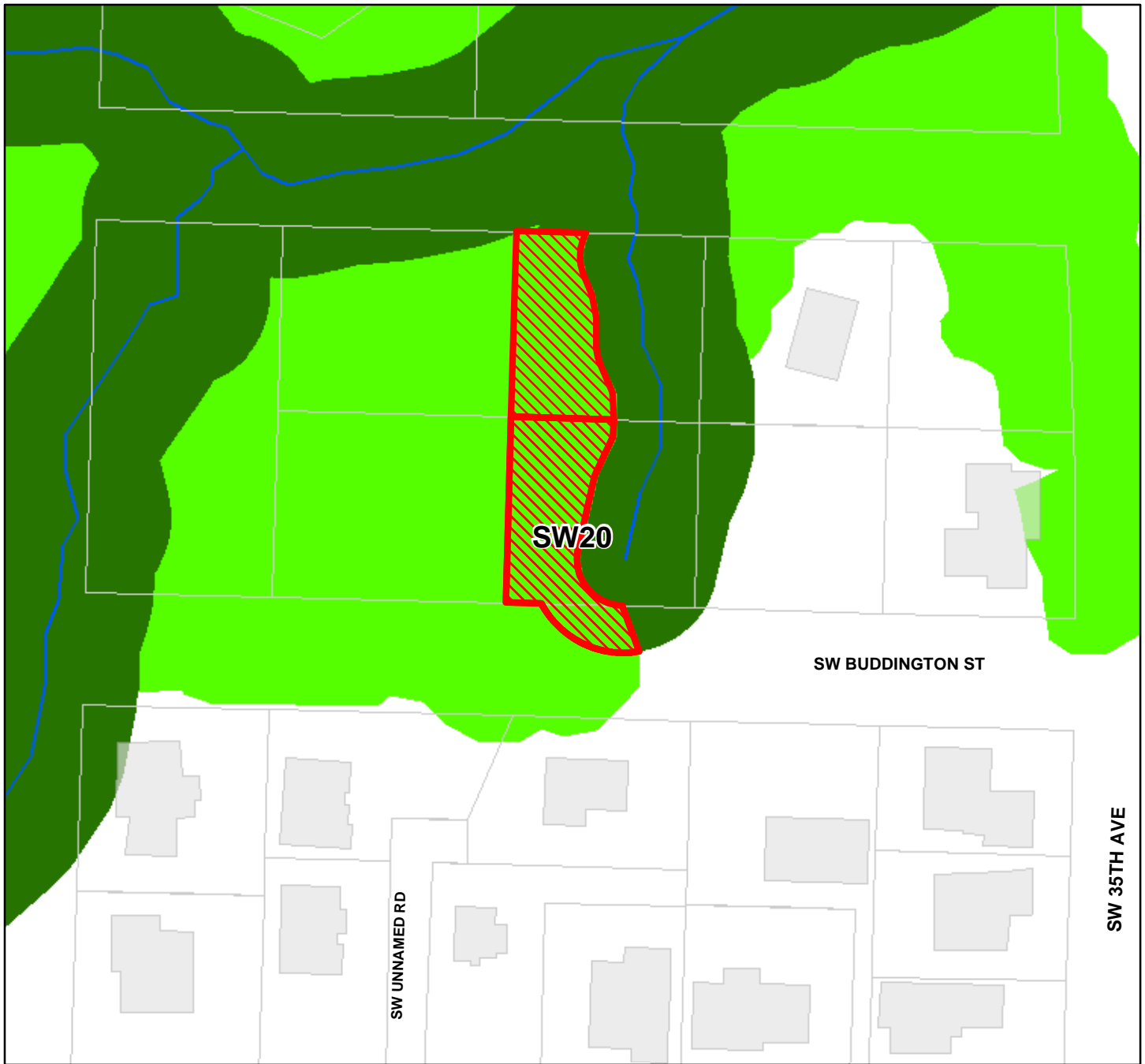
Updated: October 2021



Recommended Draft



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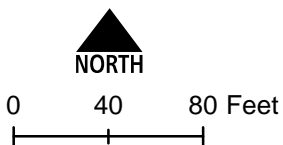


**'P' to 'C'  
Conversions**












**Conversion Description: Portion of lot >25' from stream**

**State ID**  
1S1E32BD 300  
1S1E32BD 700

Updated: October 2021

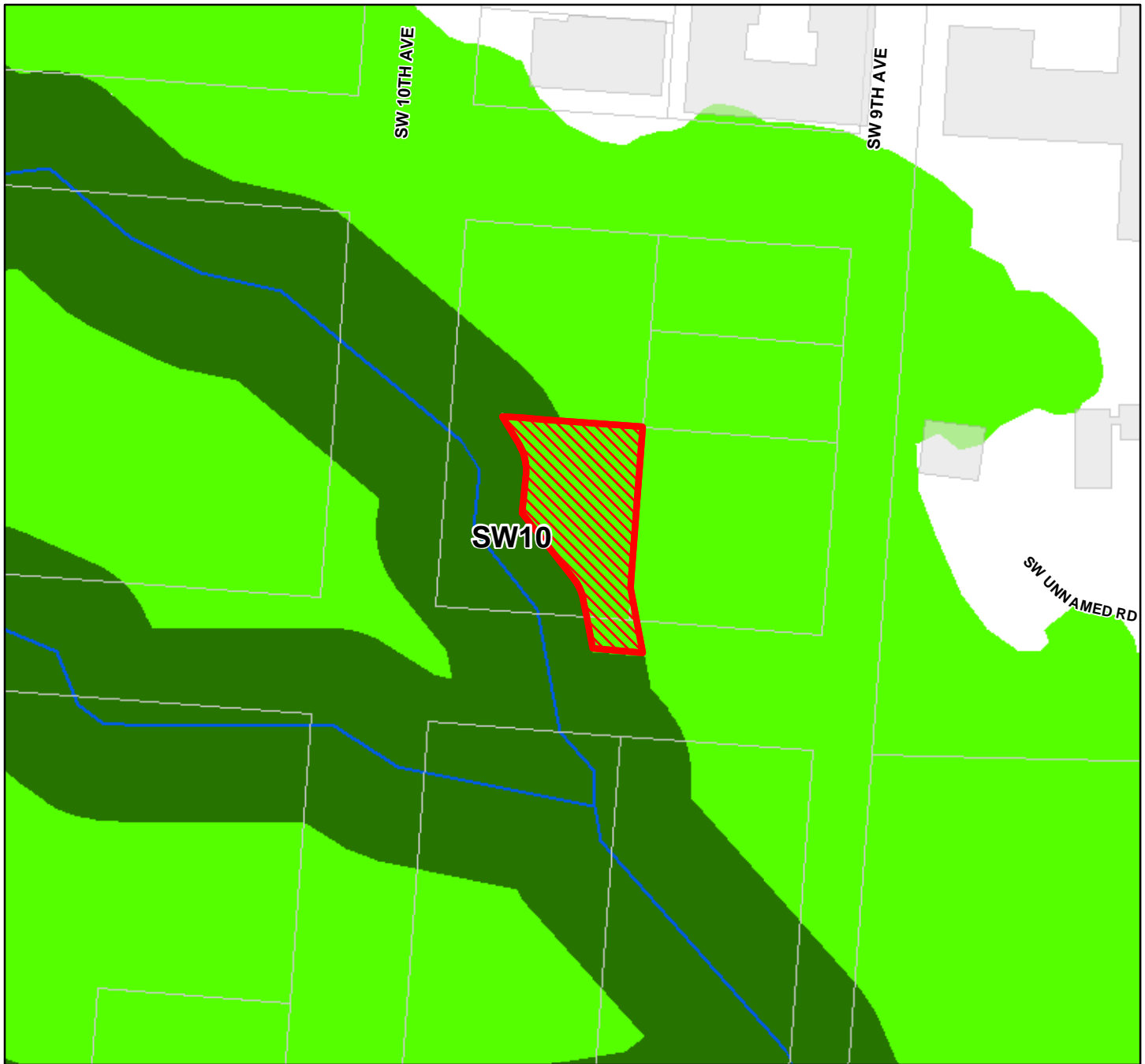


Recommended Draft

- |  |  |
|--|--|
|  'p' to 'c' Conversions |  Open stream channel  |
|  Resource Sites         |  Piped Stream Segment |
|  Urban Service Boundary |  Flood Area           |
|  Taxlots                |  Draft C Zone         |
|  Wetlands               |  Draft P Zone         |
|  |  Draft S Zone         |



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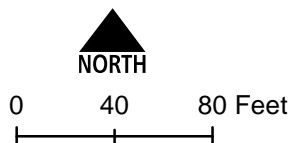
**'P' to 'C'  
Conversions**

**Conversion Description: Portion of undeveloped lot >25' from stream**

**State ID  
1S1E09DB 3600**



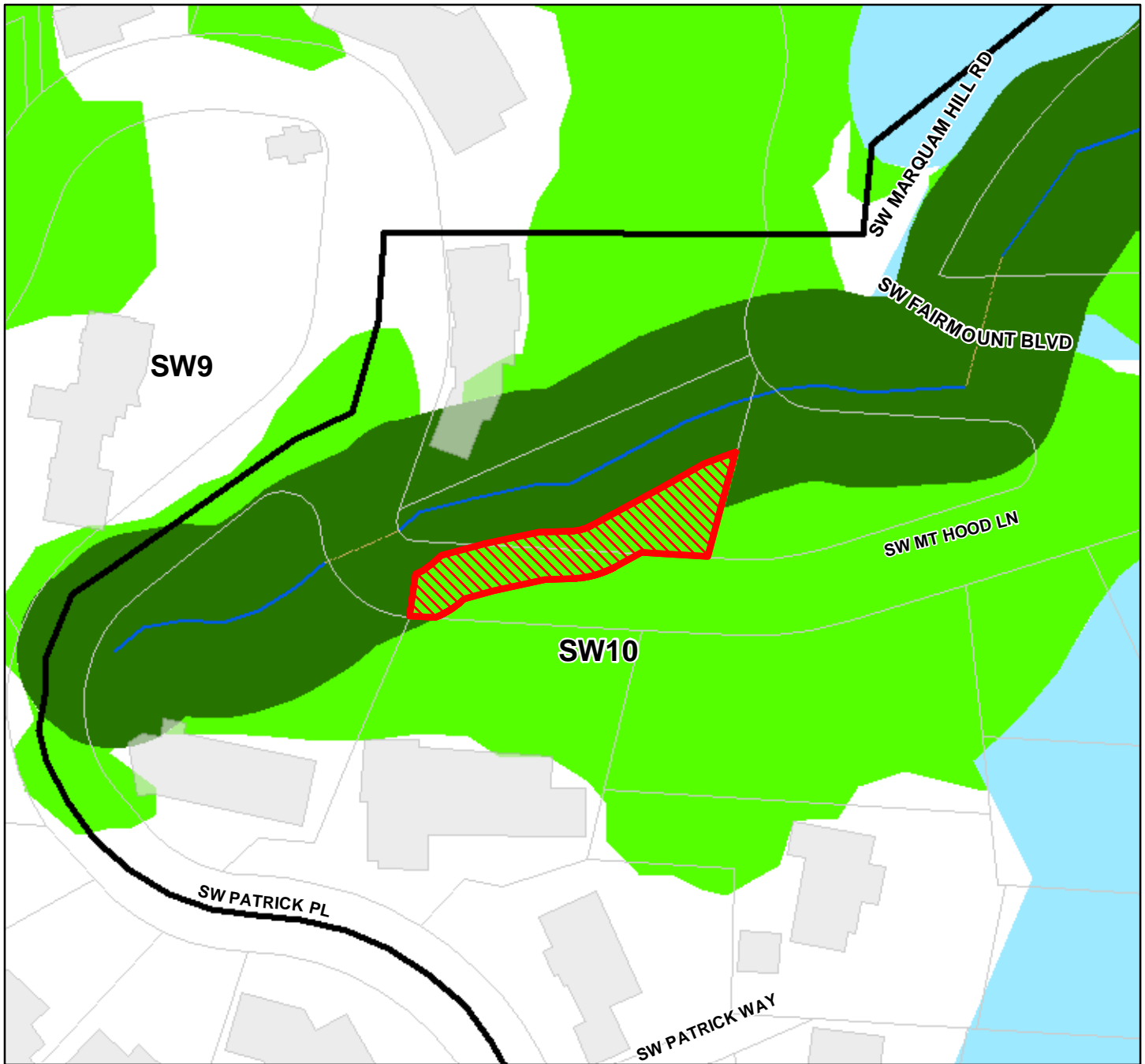
Updated: October 2021



Recommended Draft



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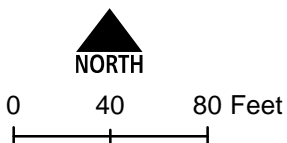
**'P' to 'C' Conversions**

**Conversion Description: Undeveloped residential lot area >25' from stream.**

**State ID**  
**1S1E09CB 1101**



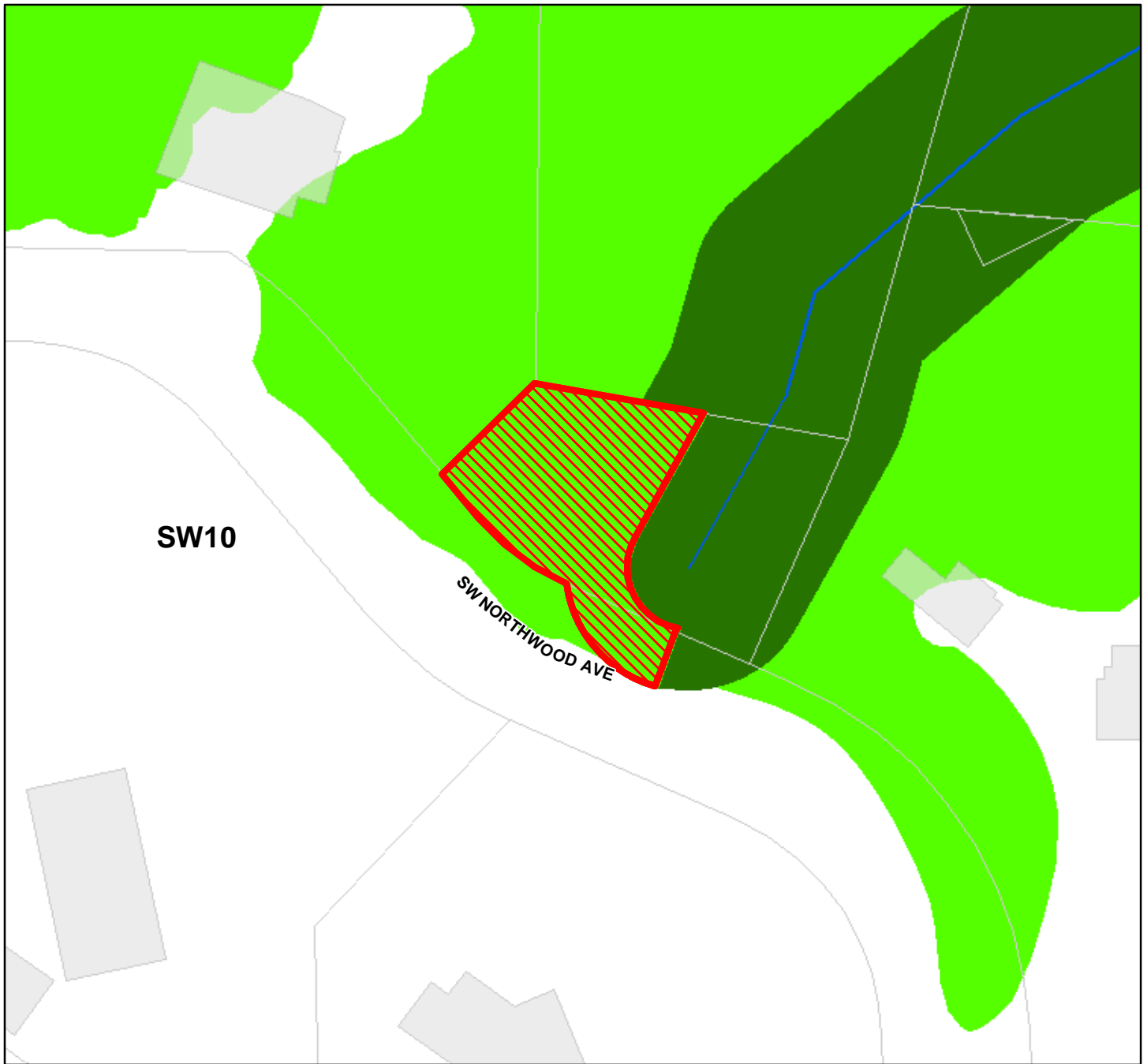
Updated: October 2021



Recommended Draft



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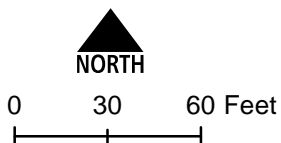
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant residential lot. Carve out area >25' from stream**

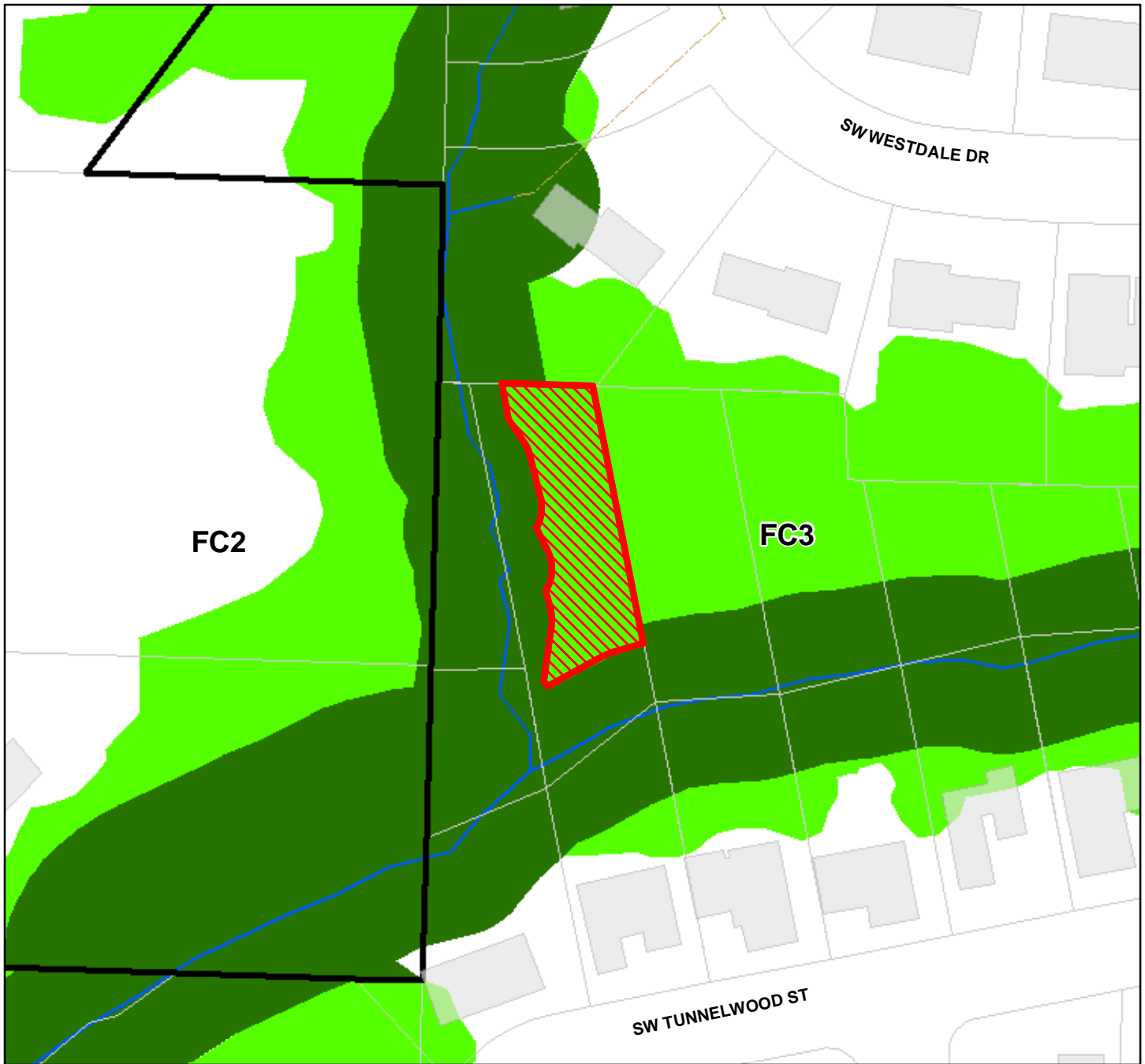
**State ID  
1S1E16AB 401**



Updated: October 2021



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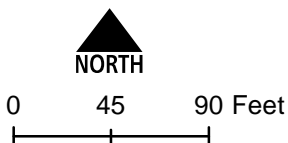
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant residential lot. Carve out area >25' from stream**

**State ID  
1S1E08CB 6500**



Updated: October 2021

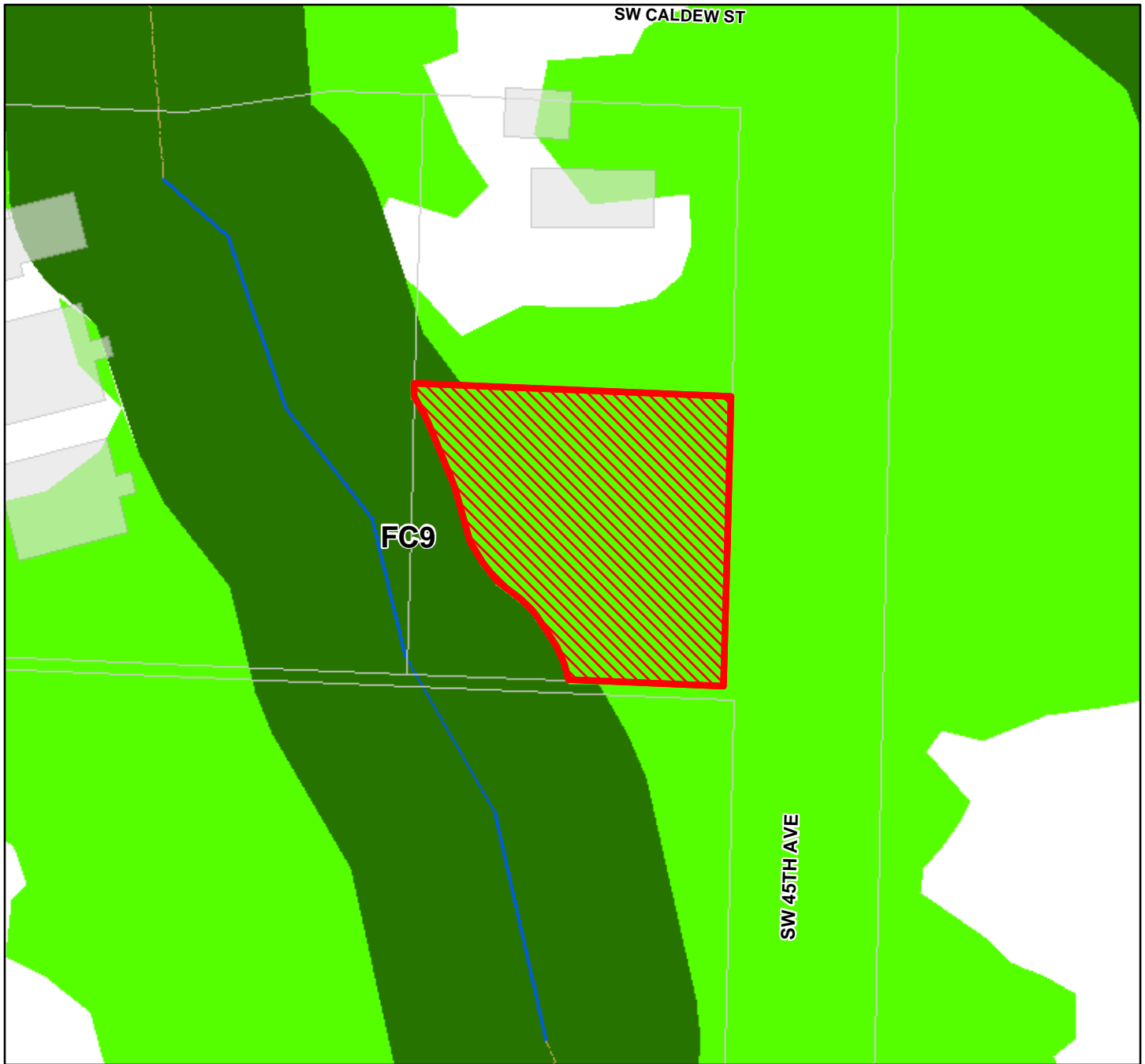


Recommended Draft



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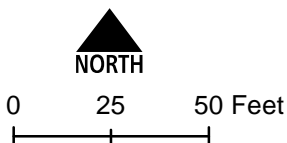
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant residential lot. Convert area >25' from streams/wetlands**

**State ID  
1S1E19AD 500**



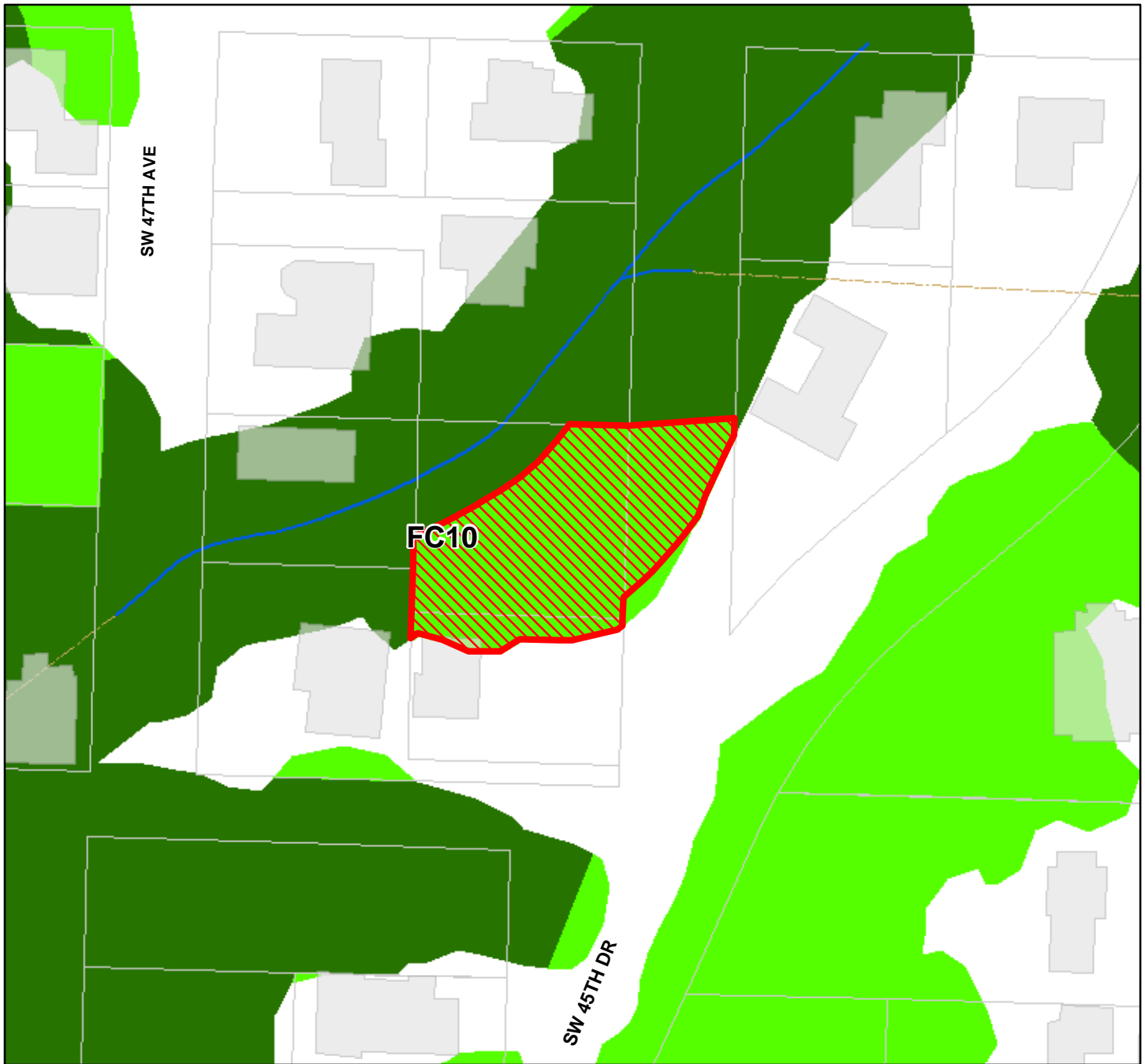
Updated: October 2021



Recommended Draft














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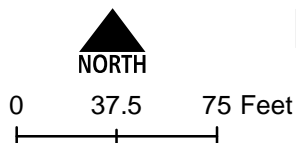
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant residential lot. Convert area >25' from stream**

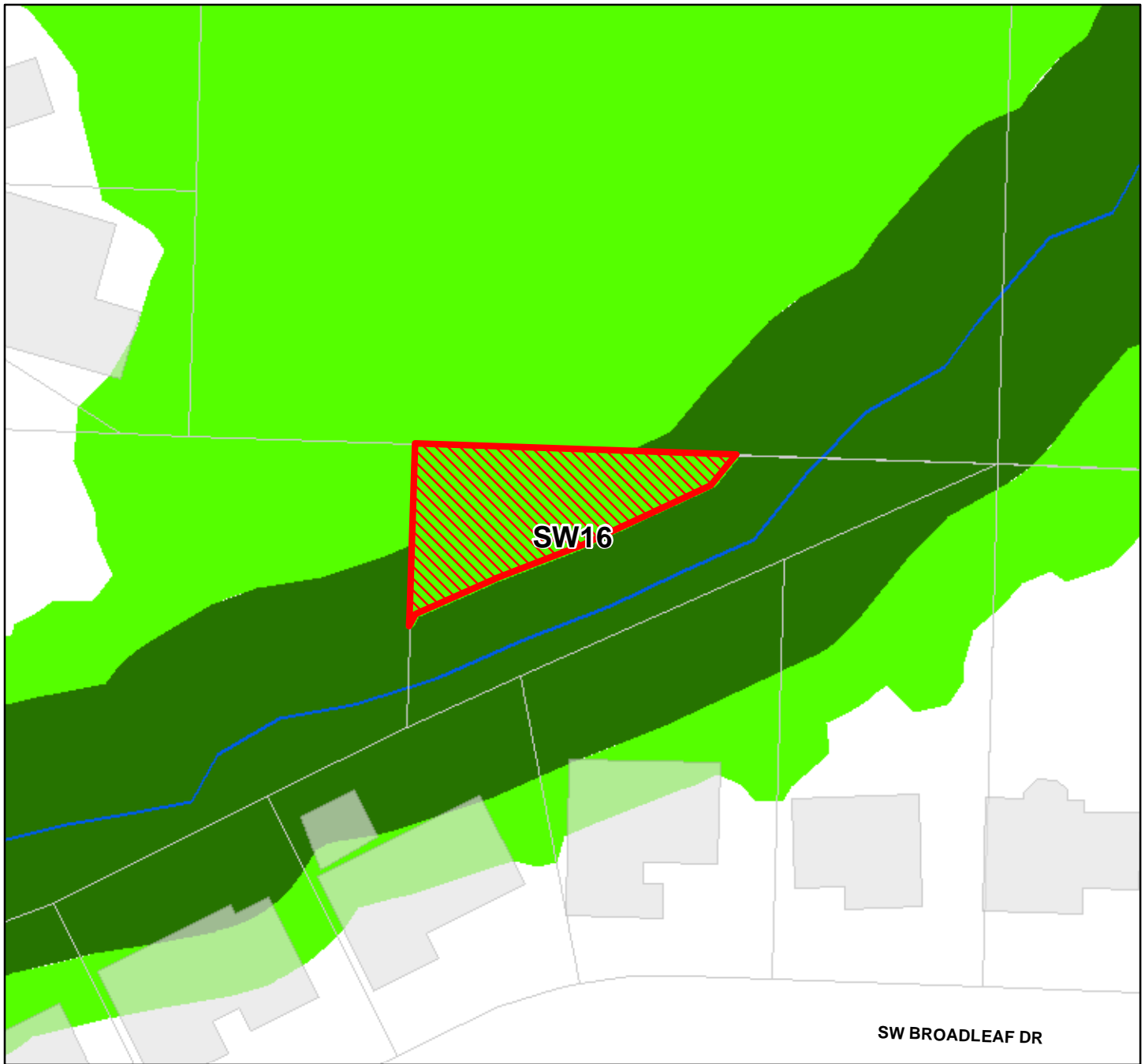
**State ID**  
1S1E19DD 3900  
1S1E19DD 4000

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

Updated: October 2021



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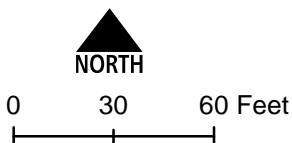
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant residential lot. Convert area >25' from stream**

**State ID  
1S1E28CB 100**



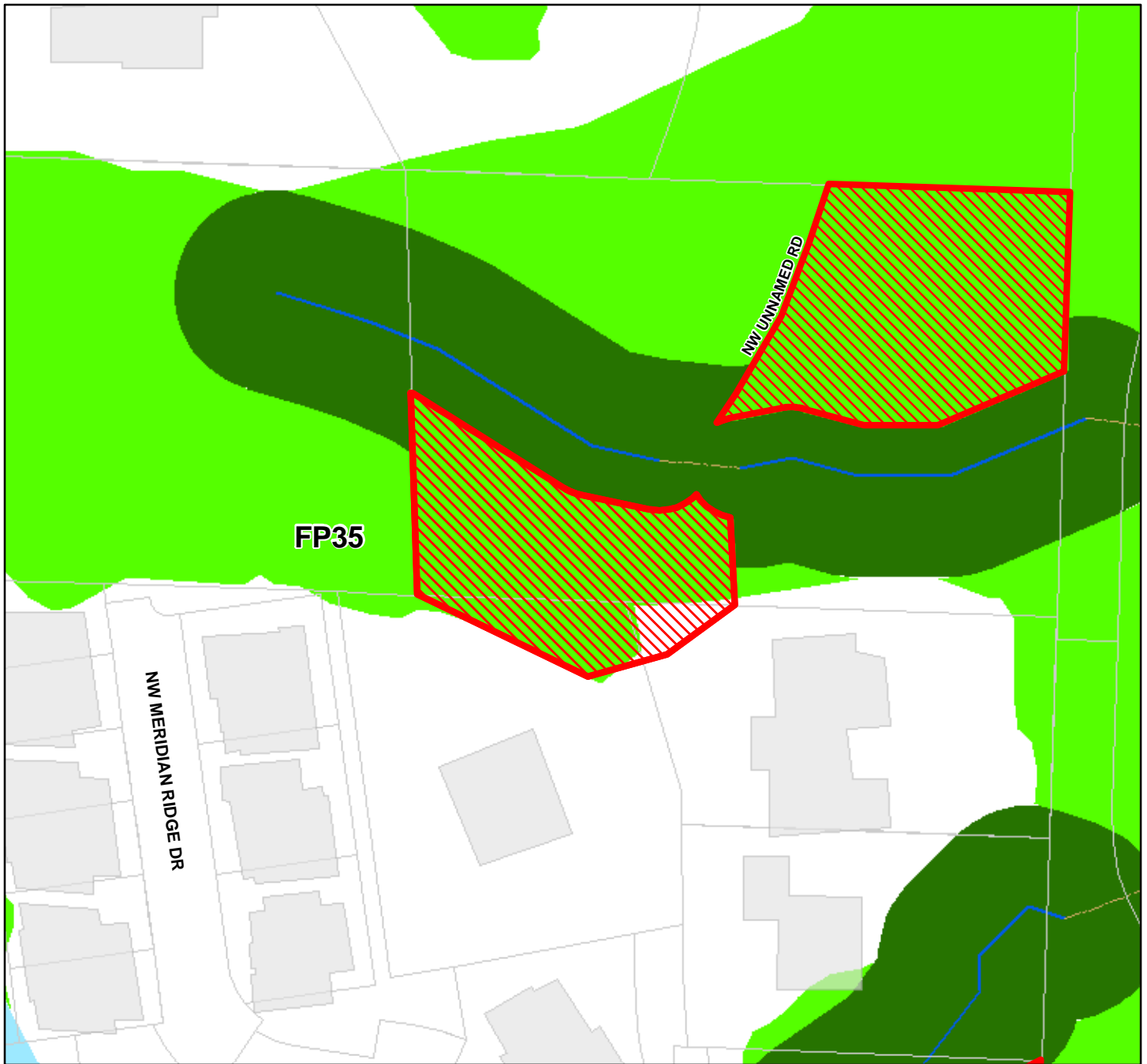
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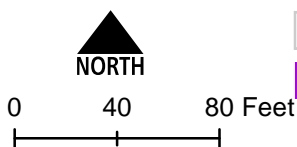
**'P' to 'C'  
Conversions**

**Conversion Description: Vacant residential lot. Potential Building site near existing developmen and potential building site adjacent to existing driveway.**

**State ID**  
1N1W36DA 1600  
1N1W36DA 1700  
1N1W36DA 2100

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

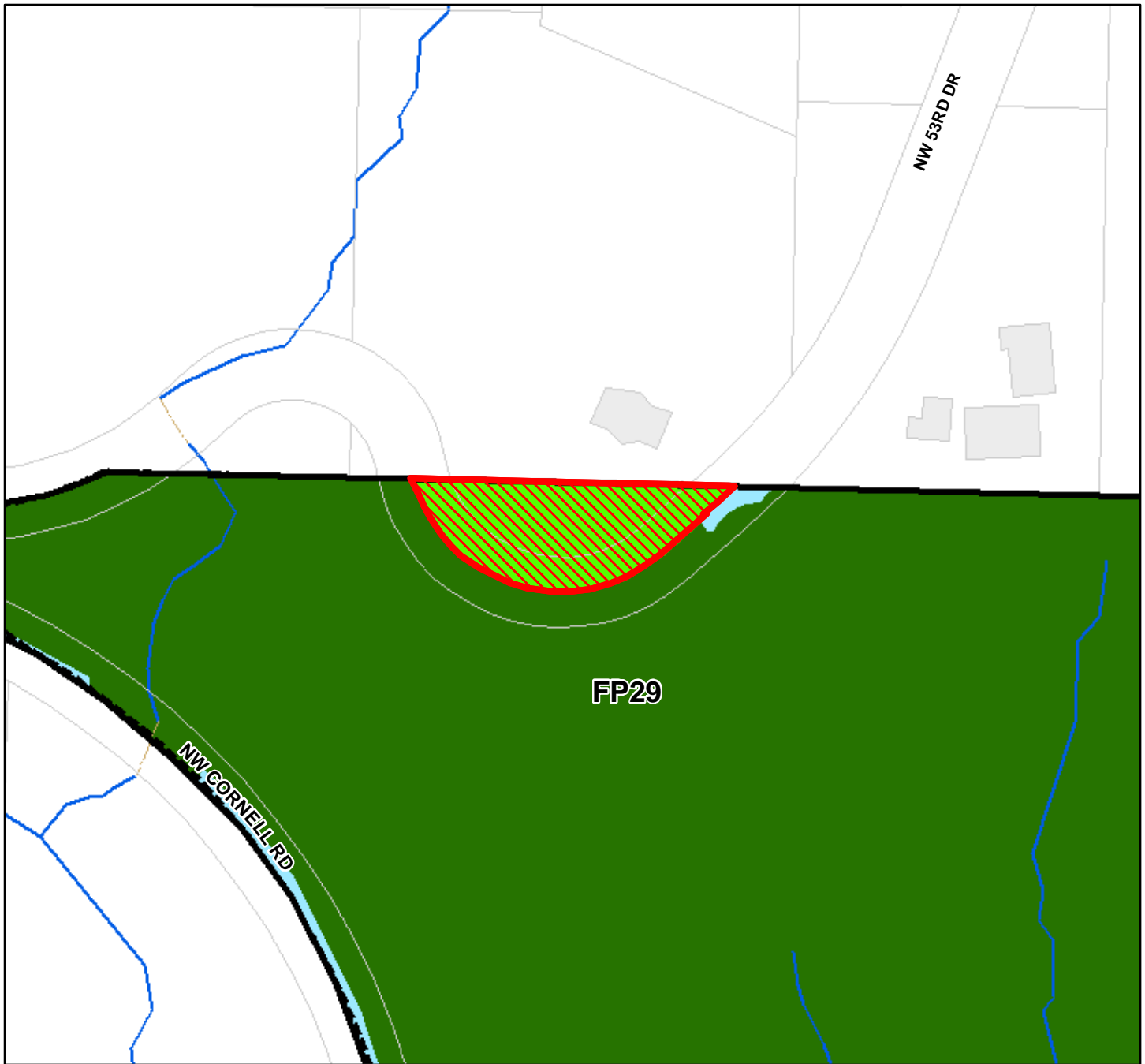
Updated: October 2021



Recommended Draft














The information on the map was derived from digital databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland ensures meaningful access to city programs, services, and activities to comply with Civil Rights Title VI and ADA Title II laws and reasonably provides: translation, interpretation, modifications, accommodations, alternative formats, auxiliary aids and services. To request these services, contact 503-823-7700, City TTY 503-823-6868, Relay Service: 711.



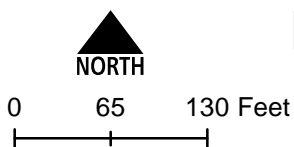
**'P' to 'C' Conversions**

**Conversion Description: Lot has c zone under existing zoning.**

**State ID  
1N1E31AC 200**

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

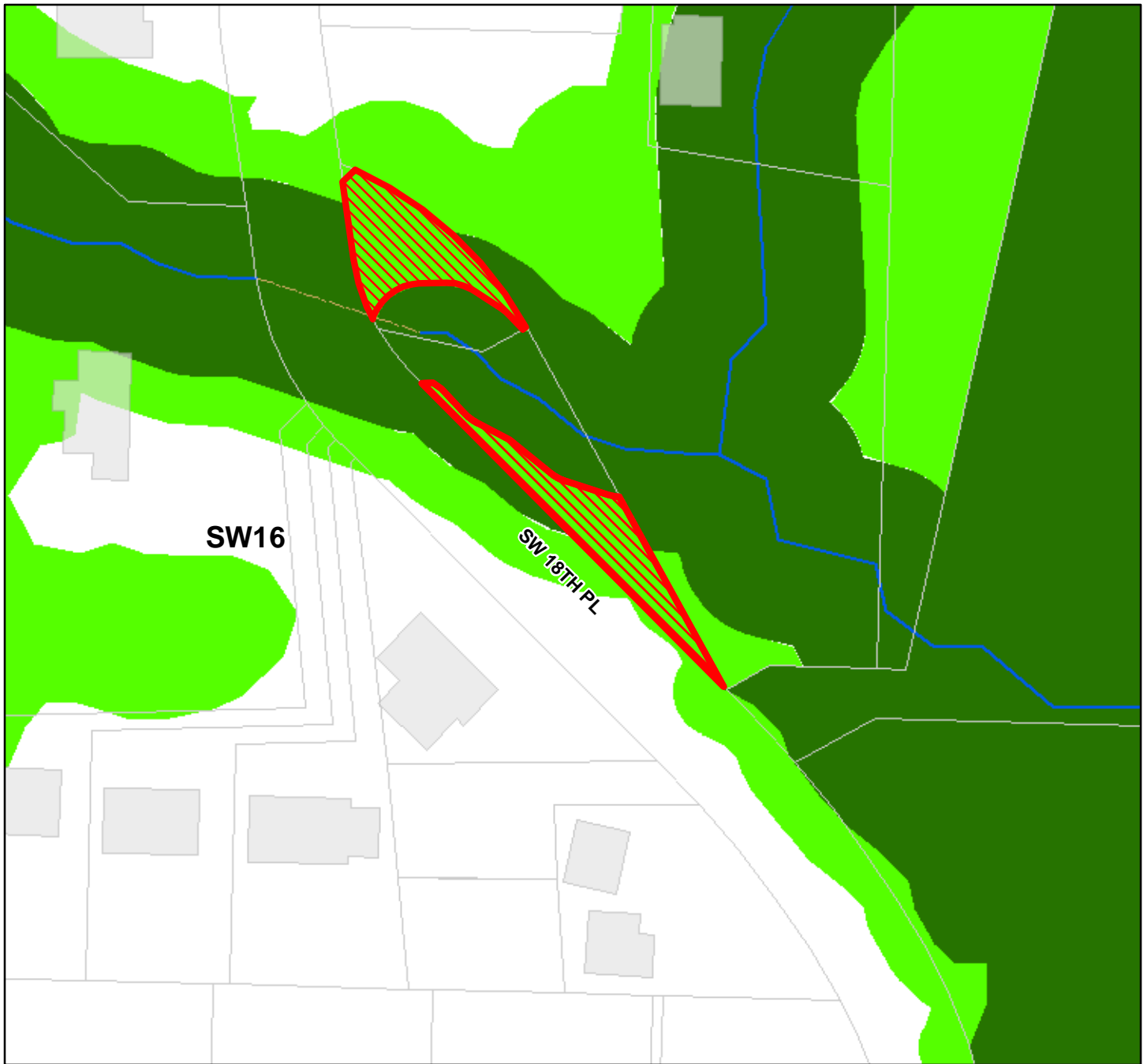
Updated: October 2021



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**'P' to 'C'  
Conversions**

State ID  
1S1E28BD 2400  
1S1E28BD 2300

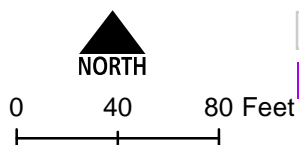
**Conversion Description:**

**Southern lot: Vacant residential lot. Carve out portion of lot >25' from stream.**

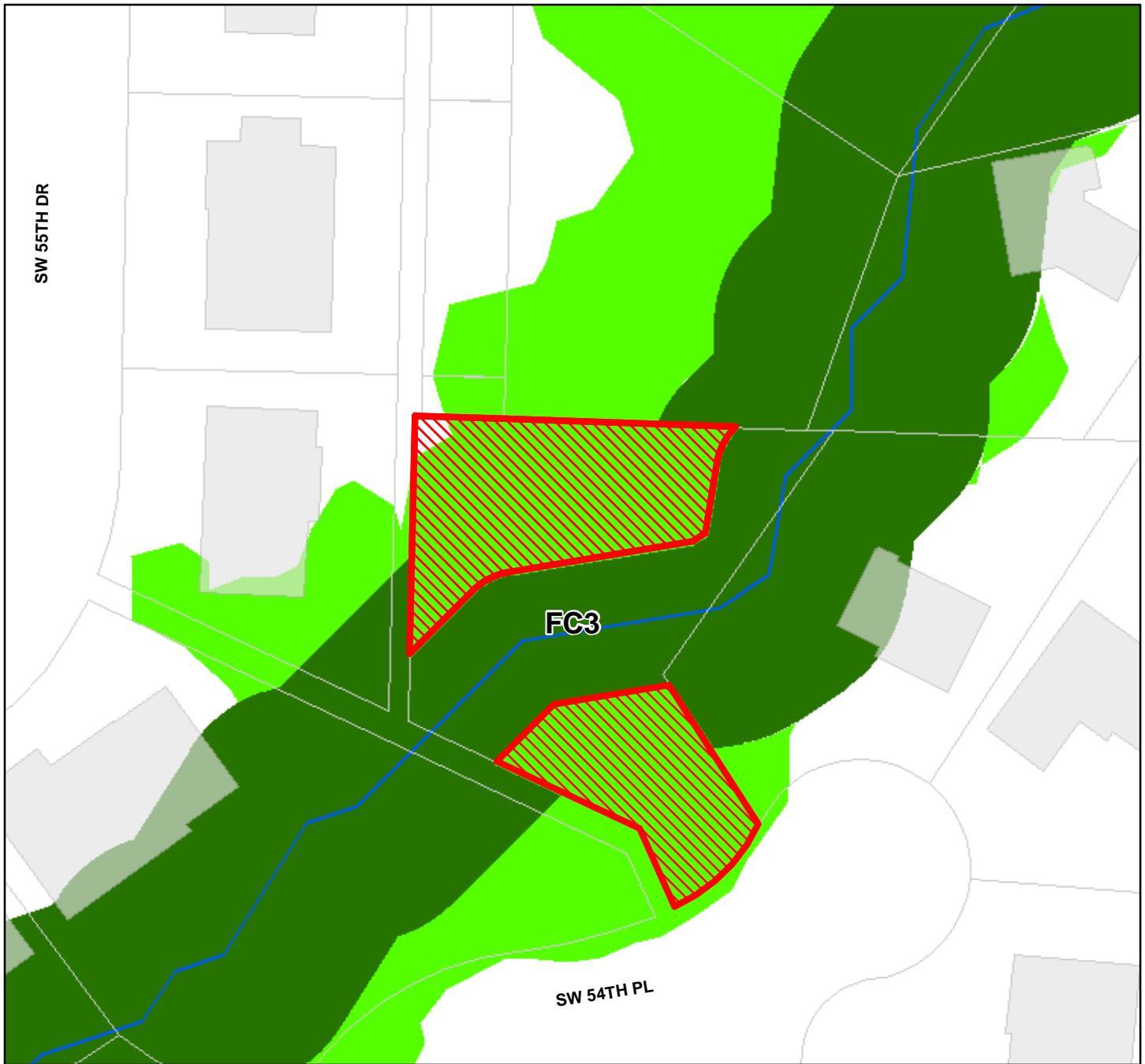
**Northern lot: Vacant residential lot with 90% p zone coverage. Convert lot area >25' from stream.**

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

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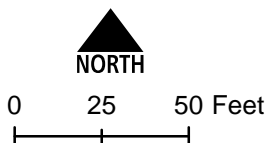
**'P' to 'C'  
Conversions**

**Conversion Description:  
Vacant residential lot. Convert areas >25' from stream**

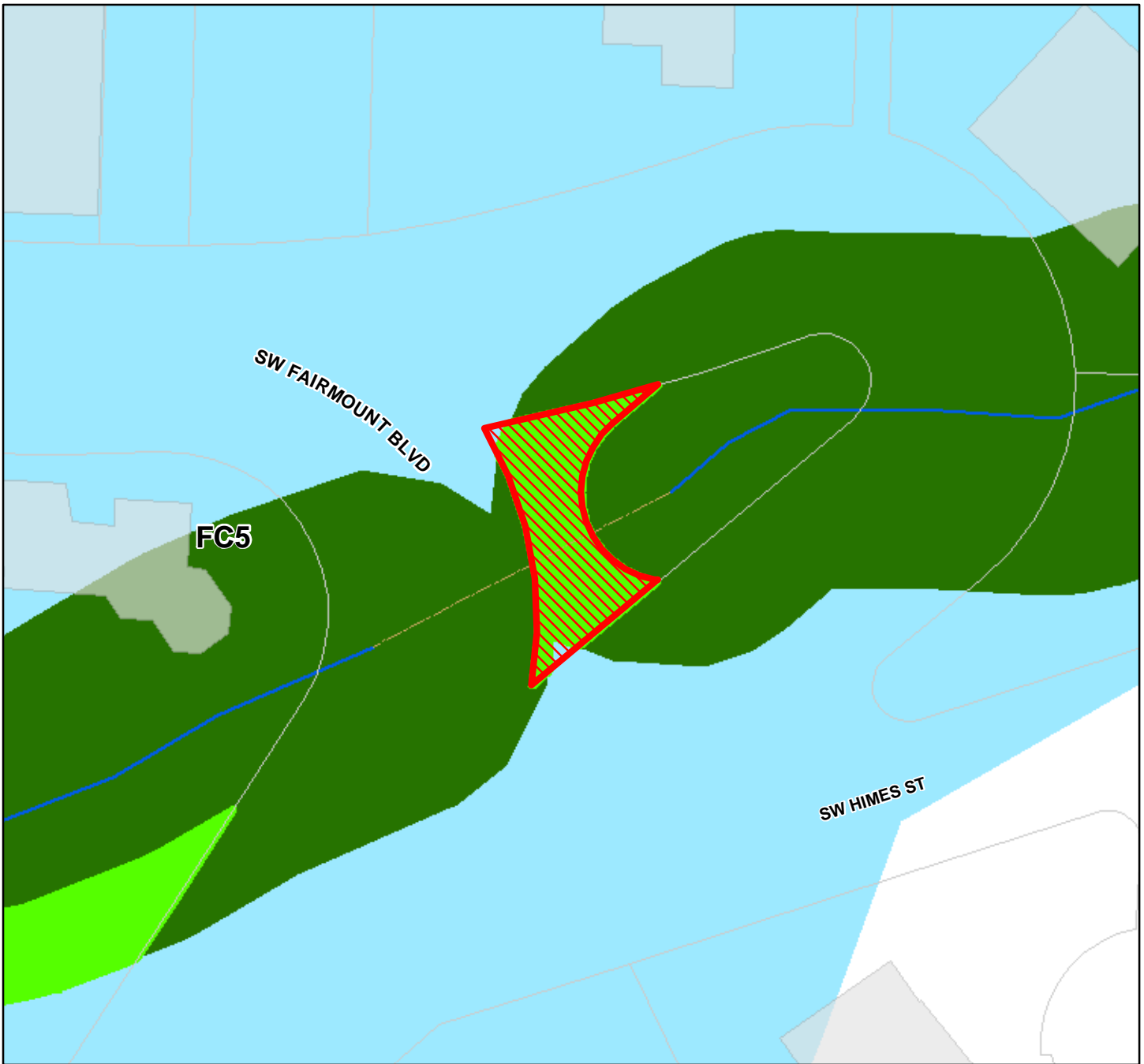
**State ID  
1S1E07CD 500**



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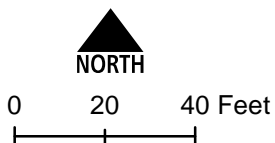
**'P' to 'C'  
Conversions**

**Conversion Description:  
Vacant residential lot. Convert area >25' from stream.**

**State ID  
1S1E08DA 6400**



Updated: October 2021

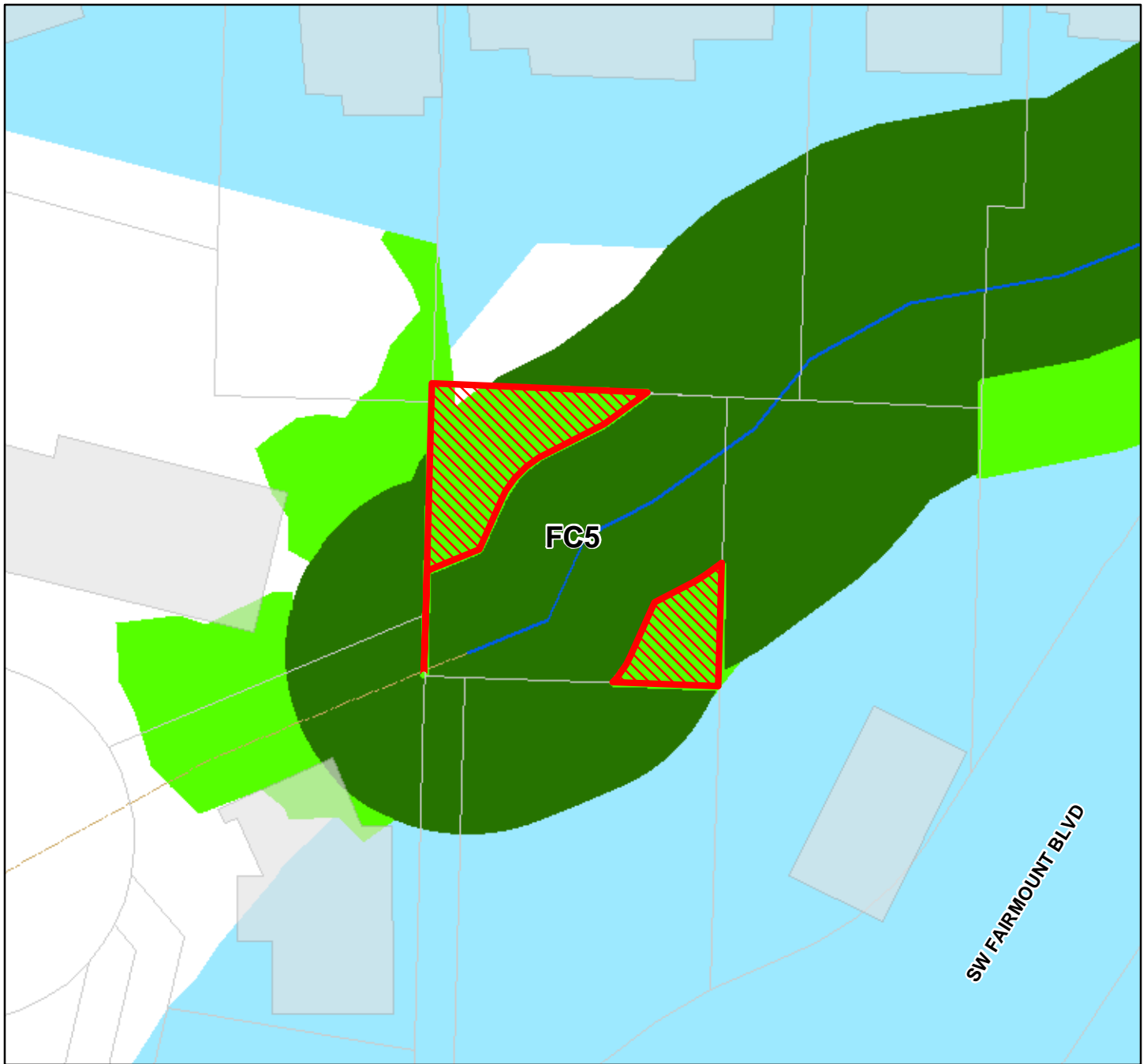


Recommended Draft



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




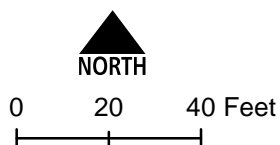
**'P' to 'C'  
Conversions**

**Conversion Description:  
Vacant residential lot. Convert area >25' from stream.**

**State ID  
1S1E08DA 7200**

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

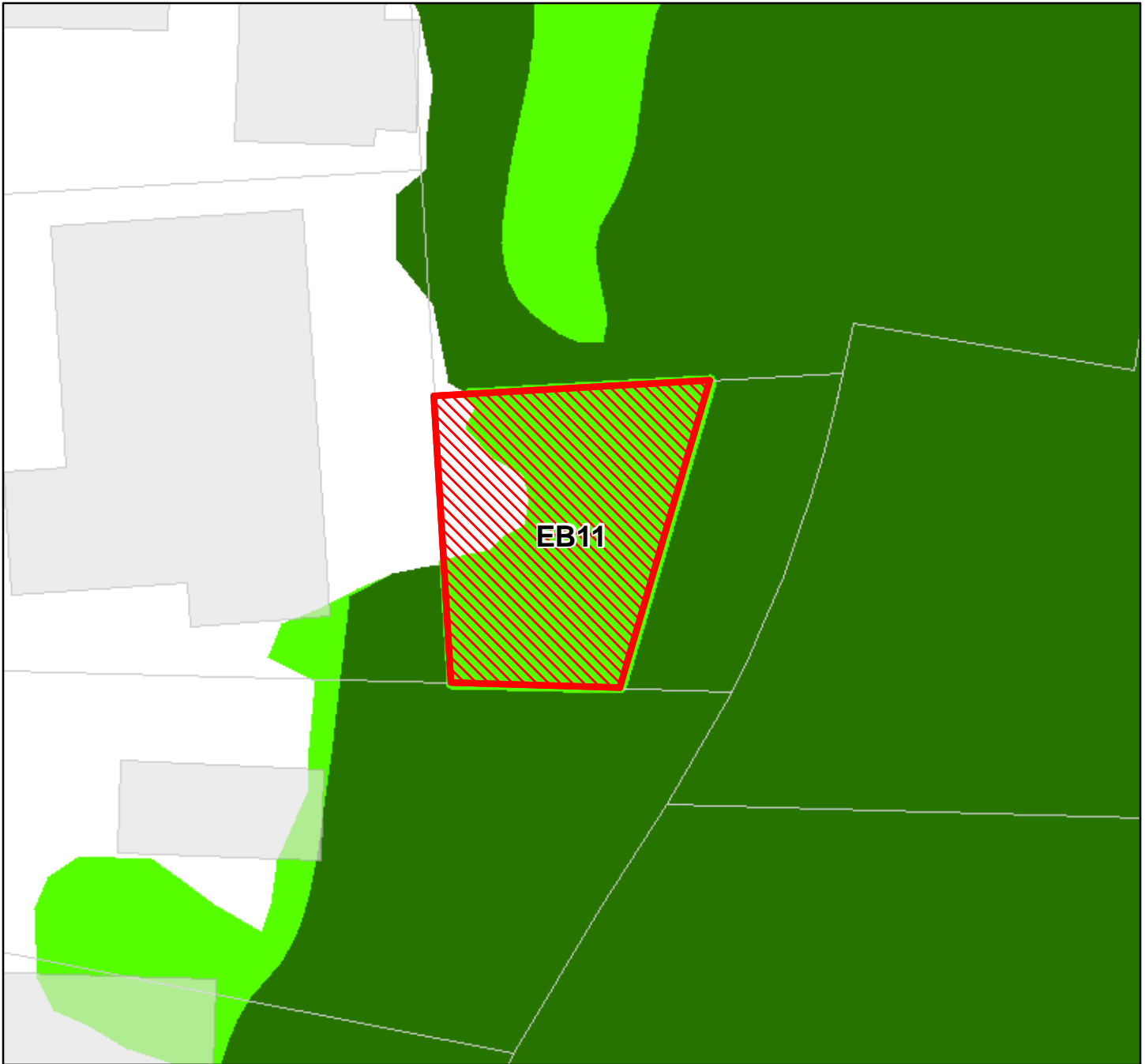
Updated: October 2021



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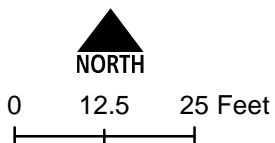
**'P' to 'C'  
Conversions**

**Conversion Description:  
Terraced and non steep portion of vacant residential lot**

**State ID  
1N2E21DC 600**



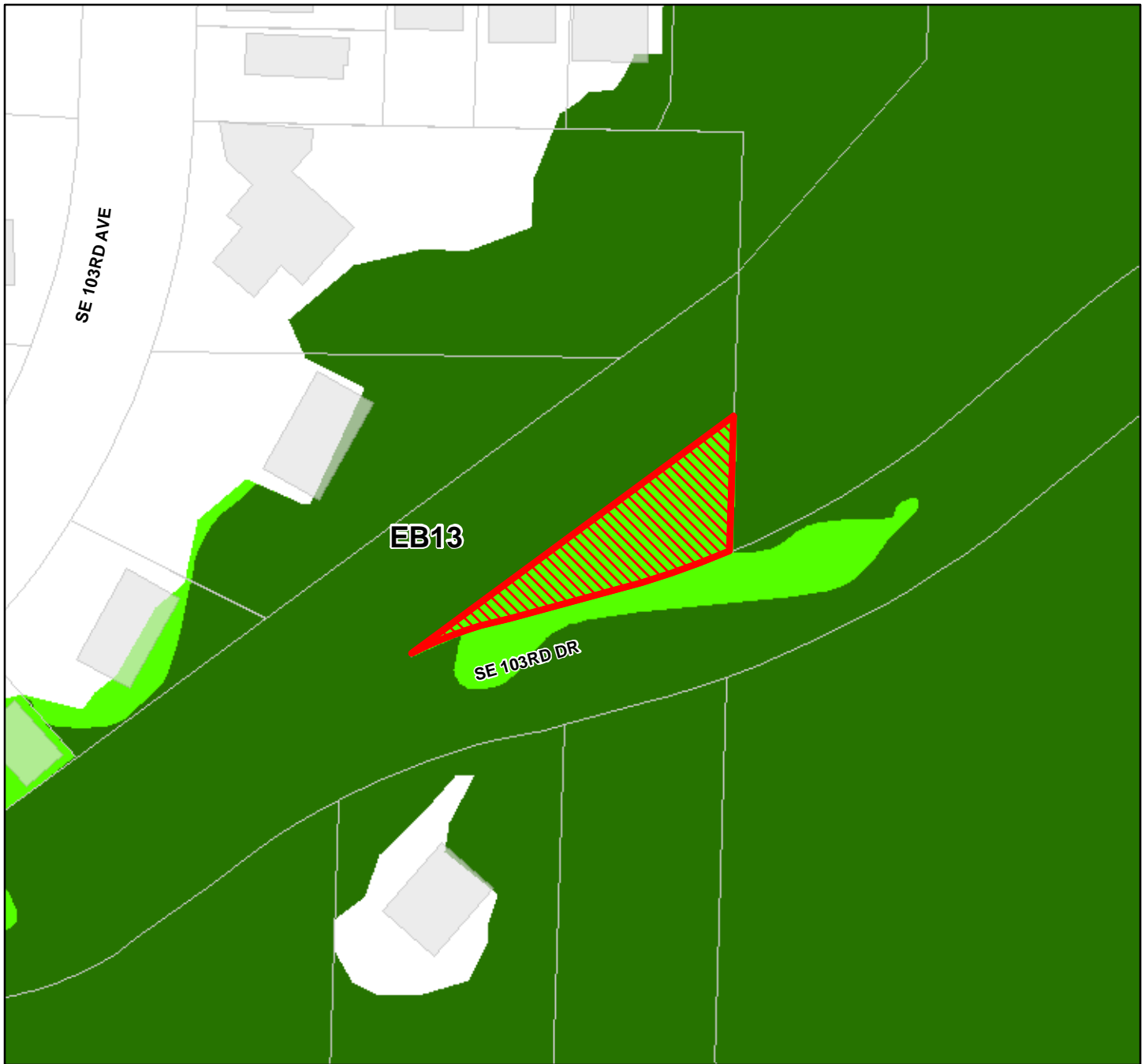
Updated: October 2021



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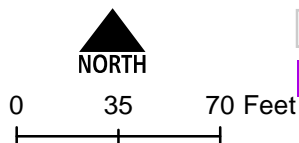
**'P' to 'C'  
Conversions**

**Conversion Description:  
Vacant R5 lot. Convert to preserve development capacity.**

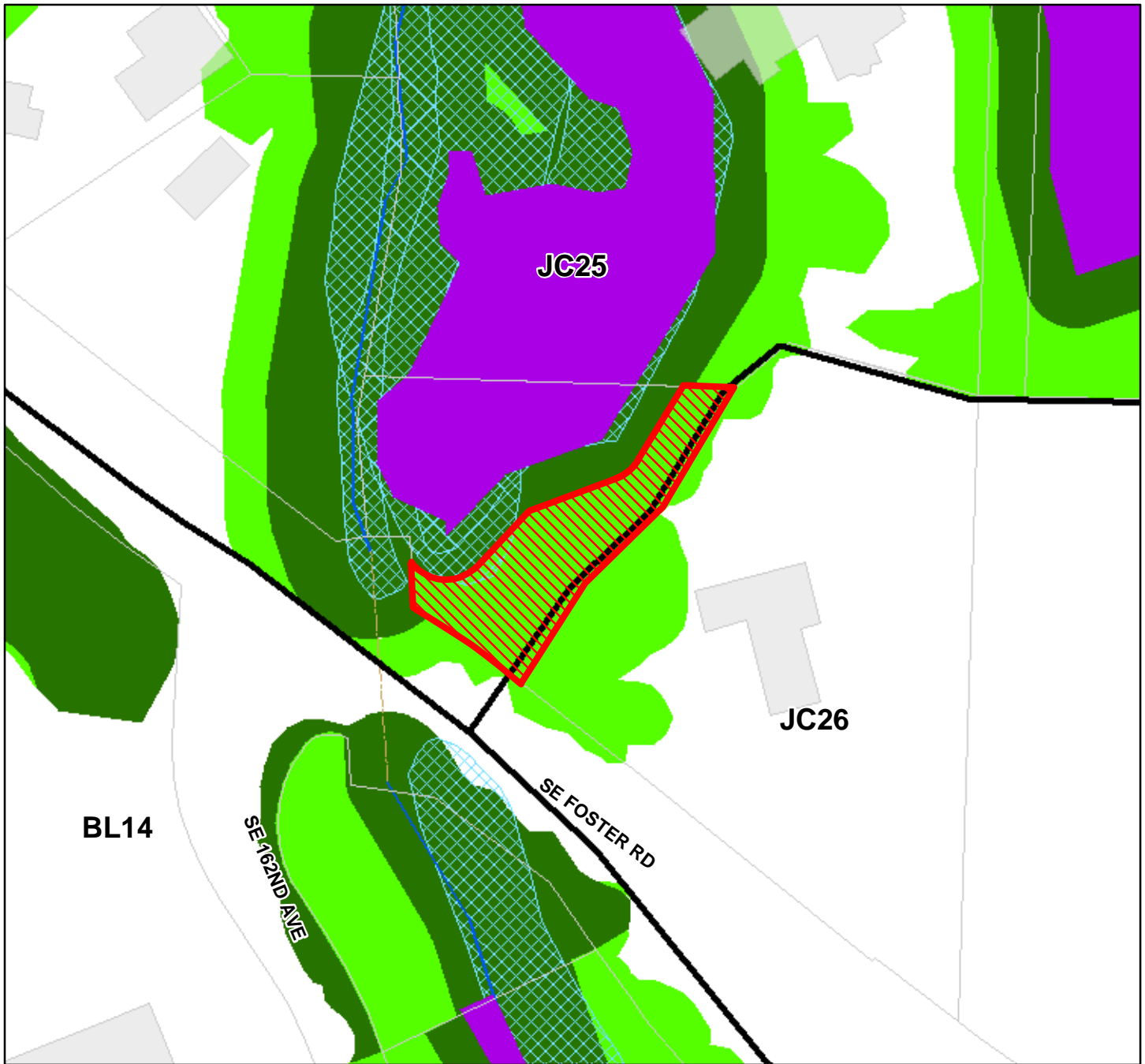
**State ID  
1S2E10B 300**



Updated: October 2021














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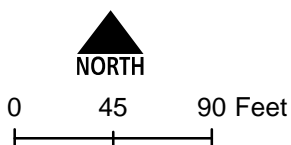
**'P' to 'C'  
Conversions**

**Conversion Description:**  
R20 zoned lot mostly in p zone. Convert area >25' from streams/wetlands.

**State ID**  
1S2E24AA 200

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

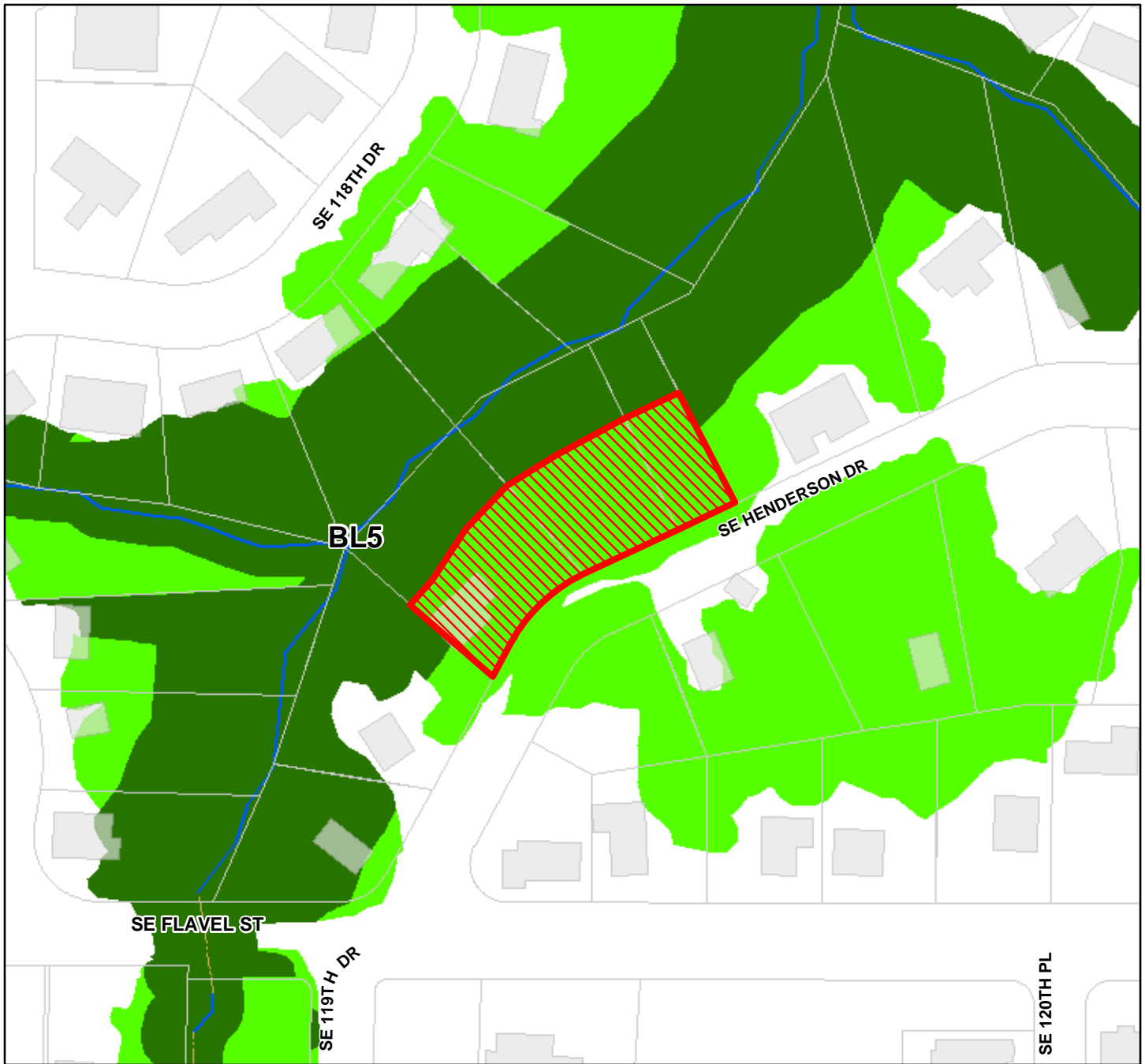
Updated: October 2021



Recommended Draft














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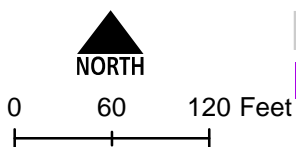
**'P' to 'C'  
Conversions**

**Conversion Description:  
Vacant residential lots. Convert area >50' from streams.**

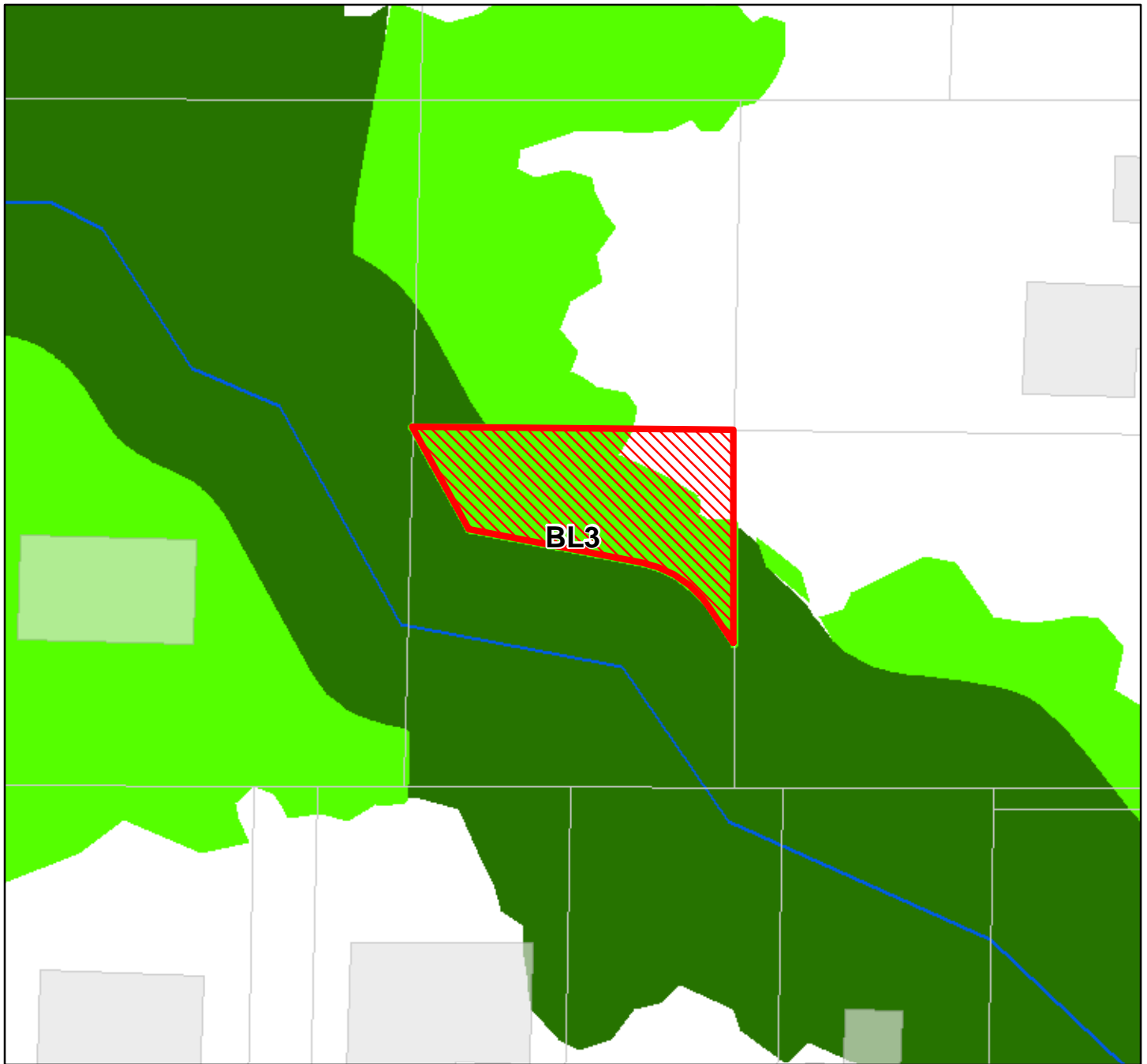
**State ID**  
1S2E22AD 1800  
1S2E22AD 1900  
1S2E22AD 2000

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021














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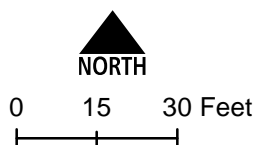
**'P' to 'C'  
Conversions**

**Conversion Description:  
Vacant R7 lot, convert non-riparian area contiguous to existing  
development.**

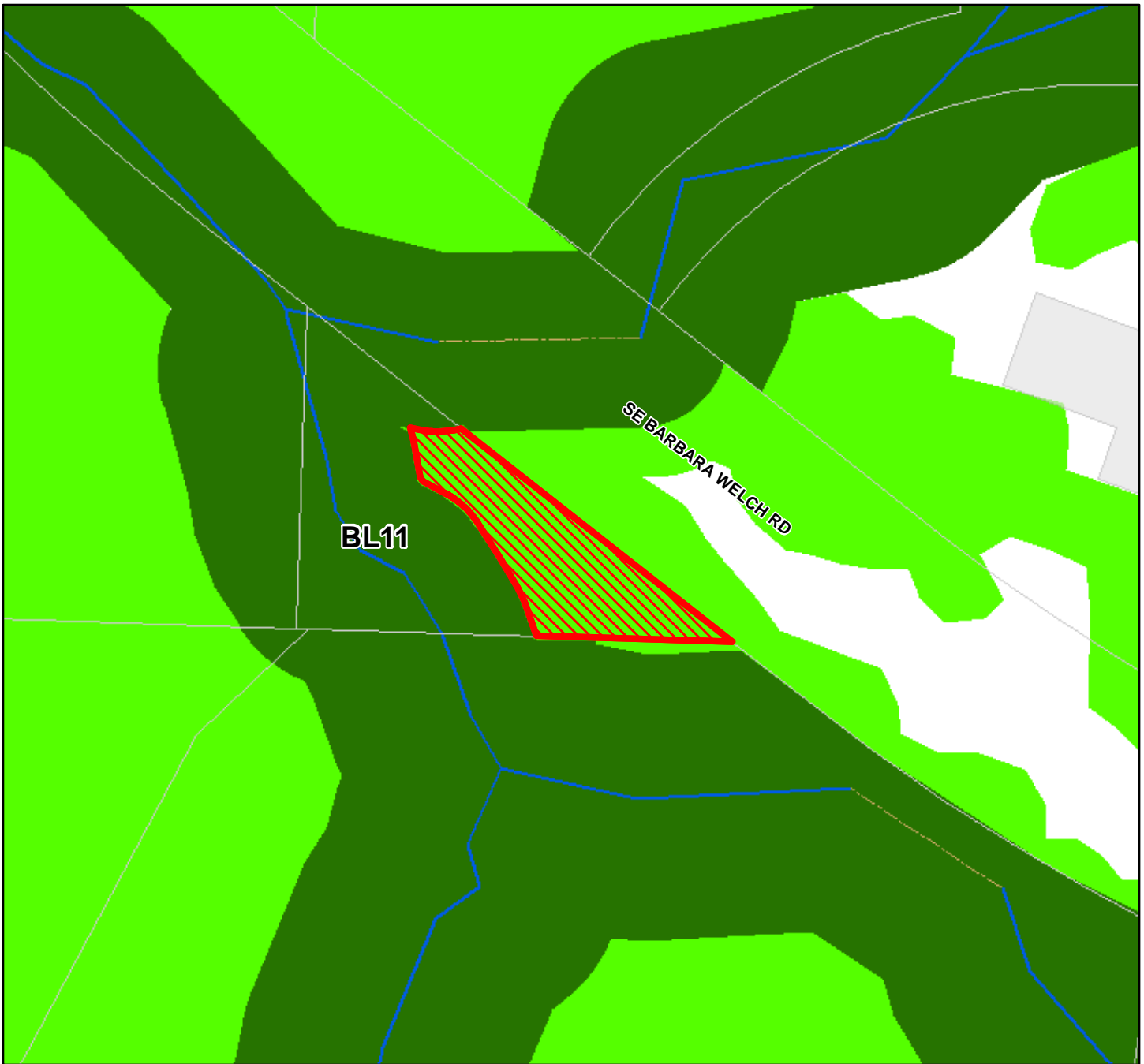
**State ID  
1S2E22BC 2201**

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |

Updated: October 2021



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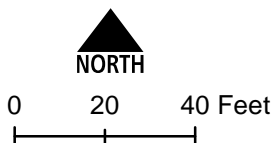
**'P' to 'C'  
Conversions**

**Conversion Description:  
Vacant R20 lot. Convert space >25' from stream**

**State ID  
1S2E24BD 2700**



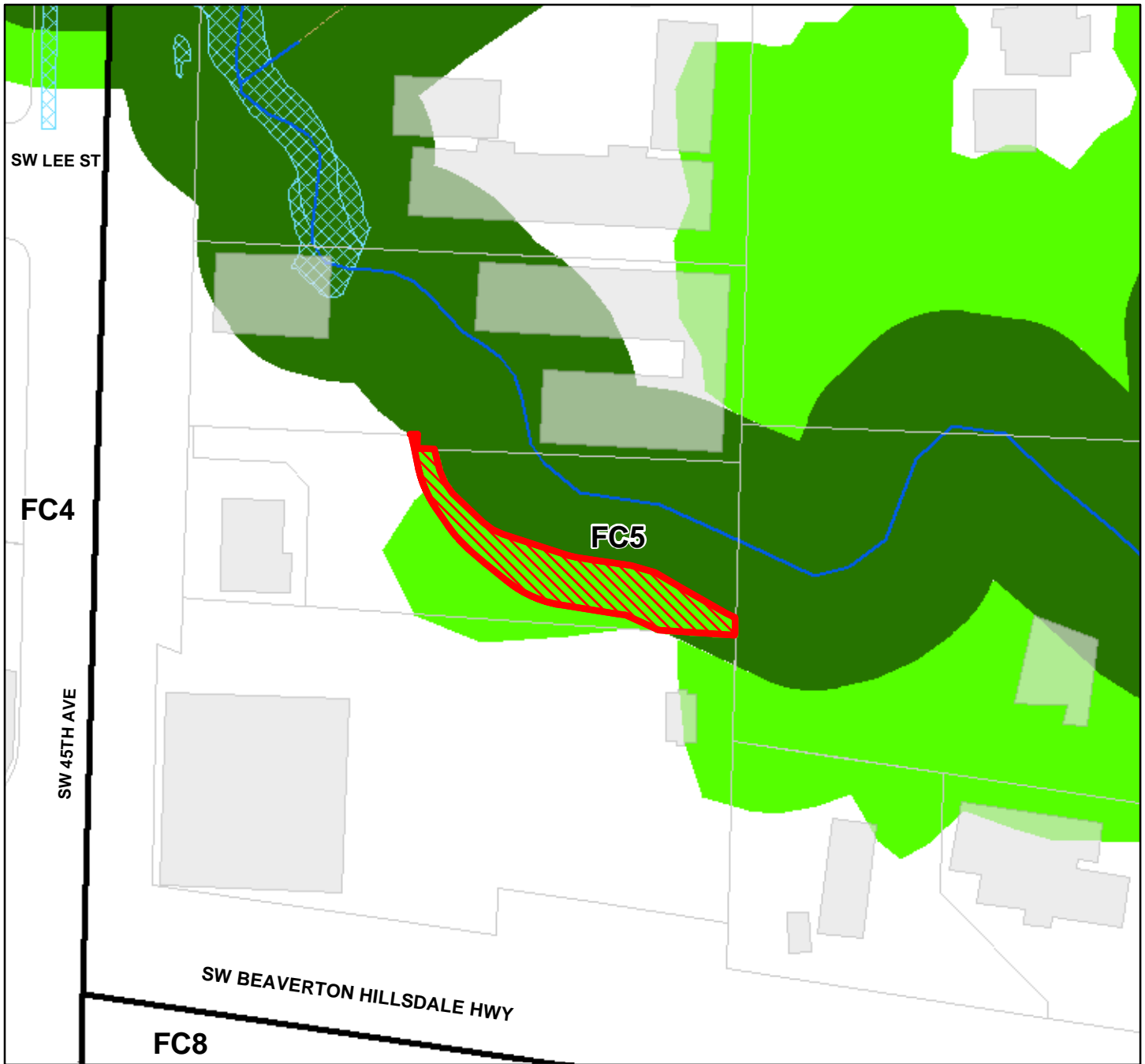
Updated: October 2021



Recommended Draft



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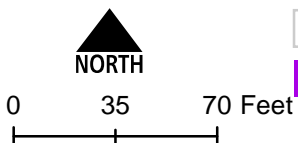
**'P' to 'C'  
Conversions**

**Conversion Description:  
Vacant MFR lot. Convert area >25' from streams/wetlands.**

**State ID  
1S1E17BC 3800**

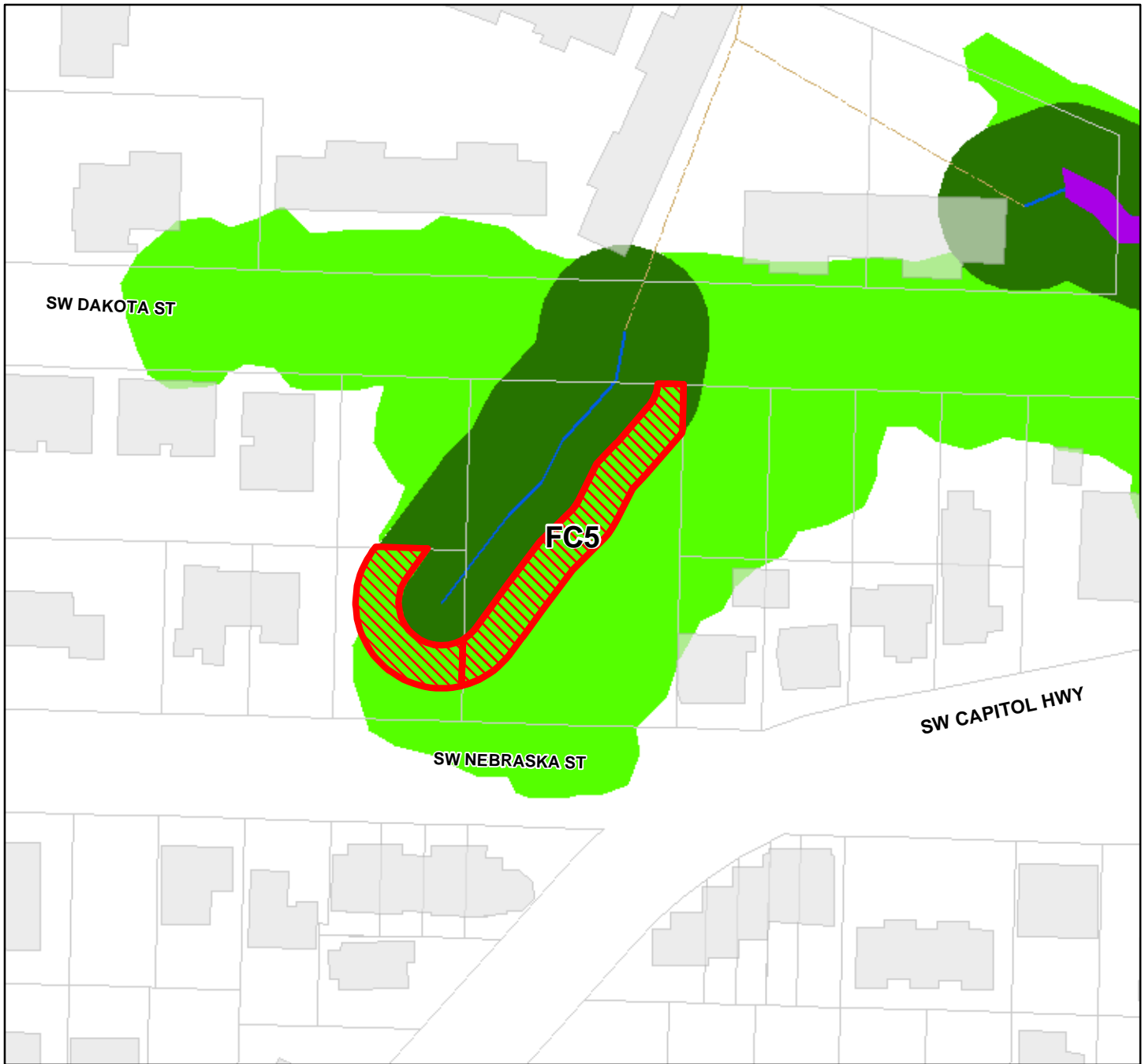


Updated: October 2021



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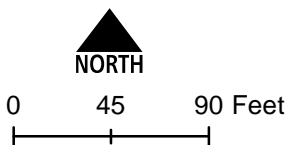


**'P' to 'C'  
Conversions**












**Conversion Description:  
Vacant MFR lots. Convert area >25' from streams/wetlands.**

**State ID**  
1S1E16CC 4800  
1S1E16CC 5400

Updated: October 2021

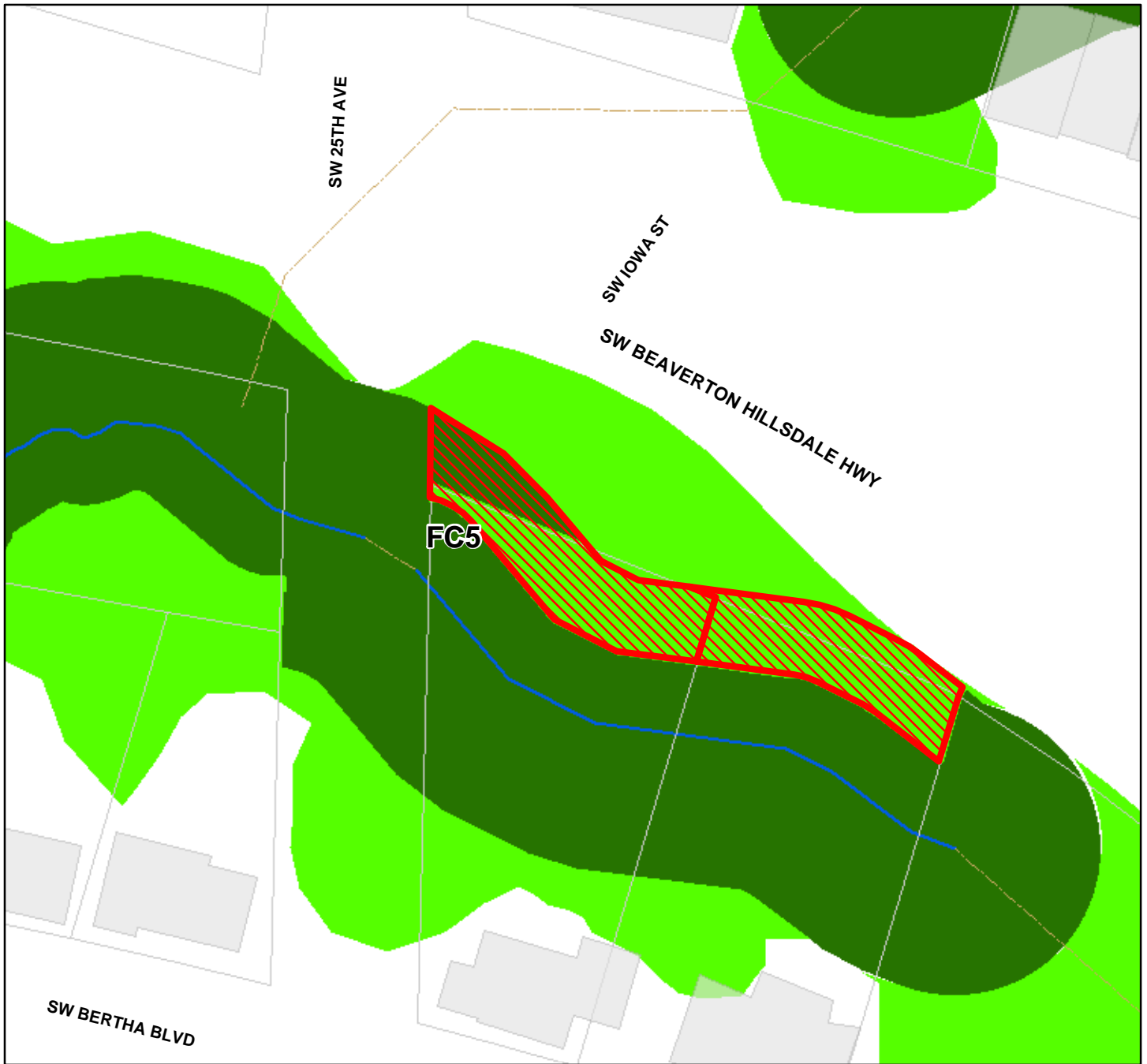


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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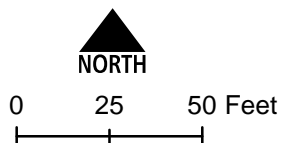


**'P' to 'C'  
Conversions**












**Conversion Description: MFR lots. Covert area that is >25'  
from streams/wetlands.**

**State ID**  
1S1E16CC 3700  
1S1E16CC 3600

Updated: October 2021

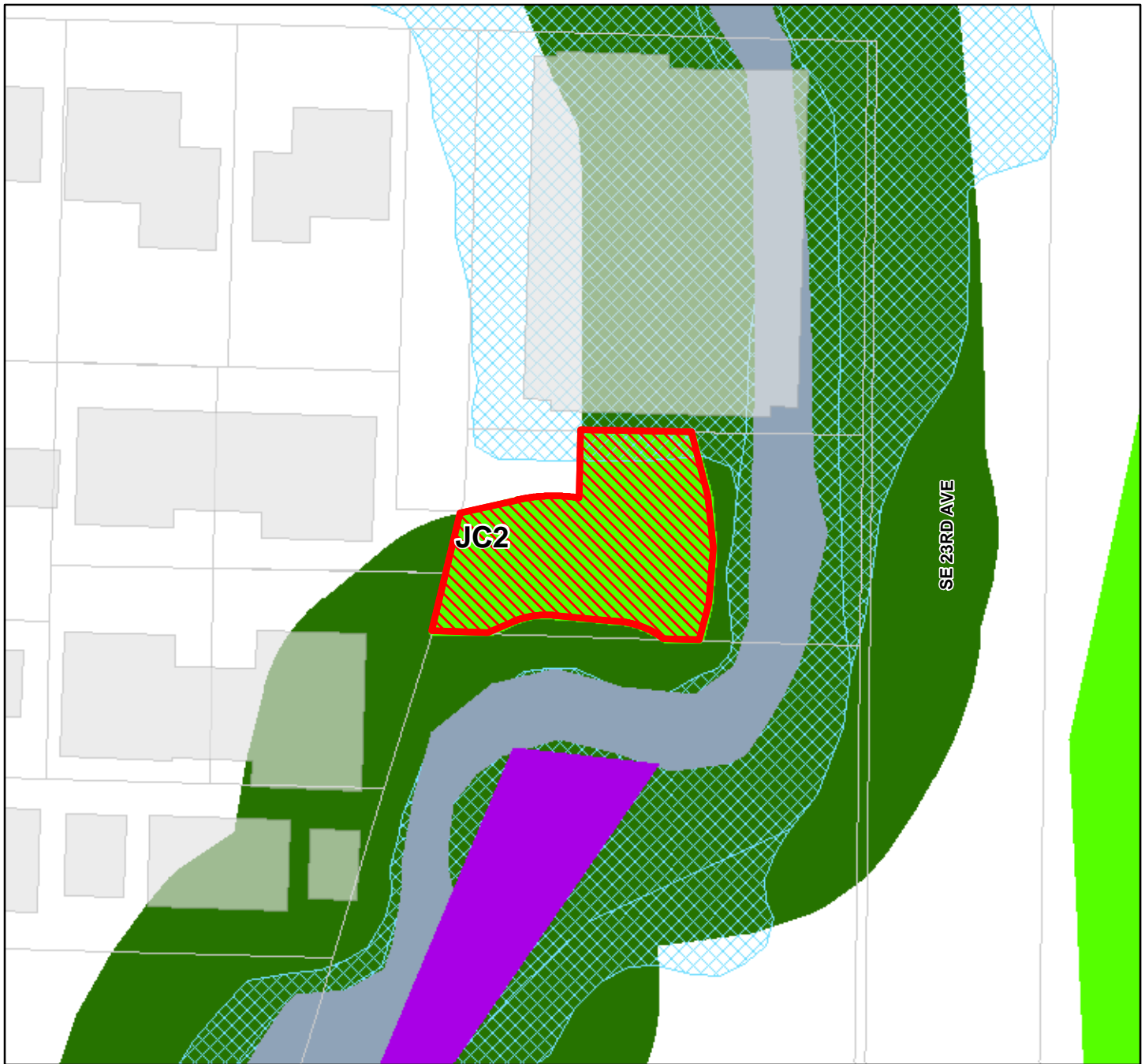


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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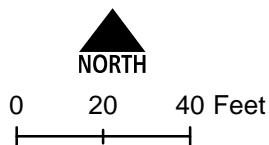













**'P' to 'C'  
Conversions**

**Conversion Description: Vacant MFR lot. Convert area >25' from streams/wetlands.**

**State ID  
1S1E23DA 1500**

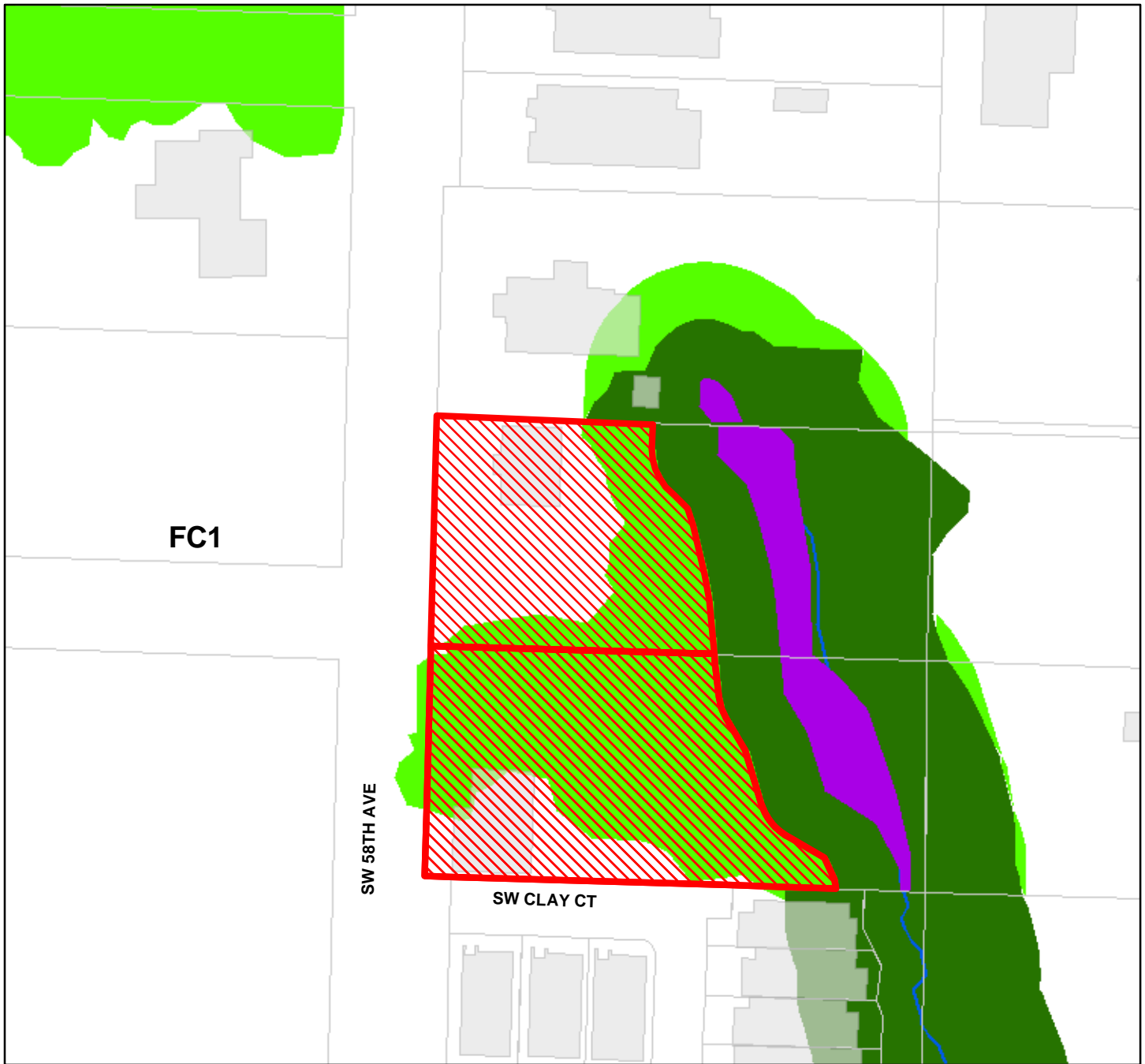
Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone













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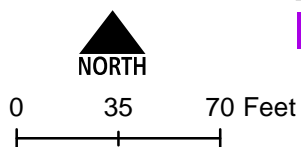
**'P' to 'C'  
Conversions**

**Conversion Description: Underutilized MFR lot. Convert area >25' from streams/wetlands.**

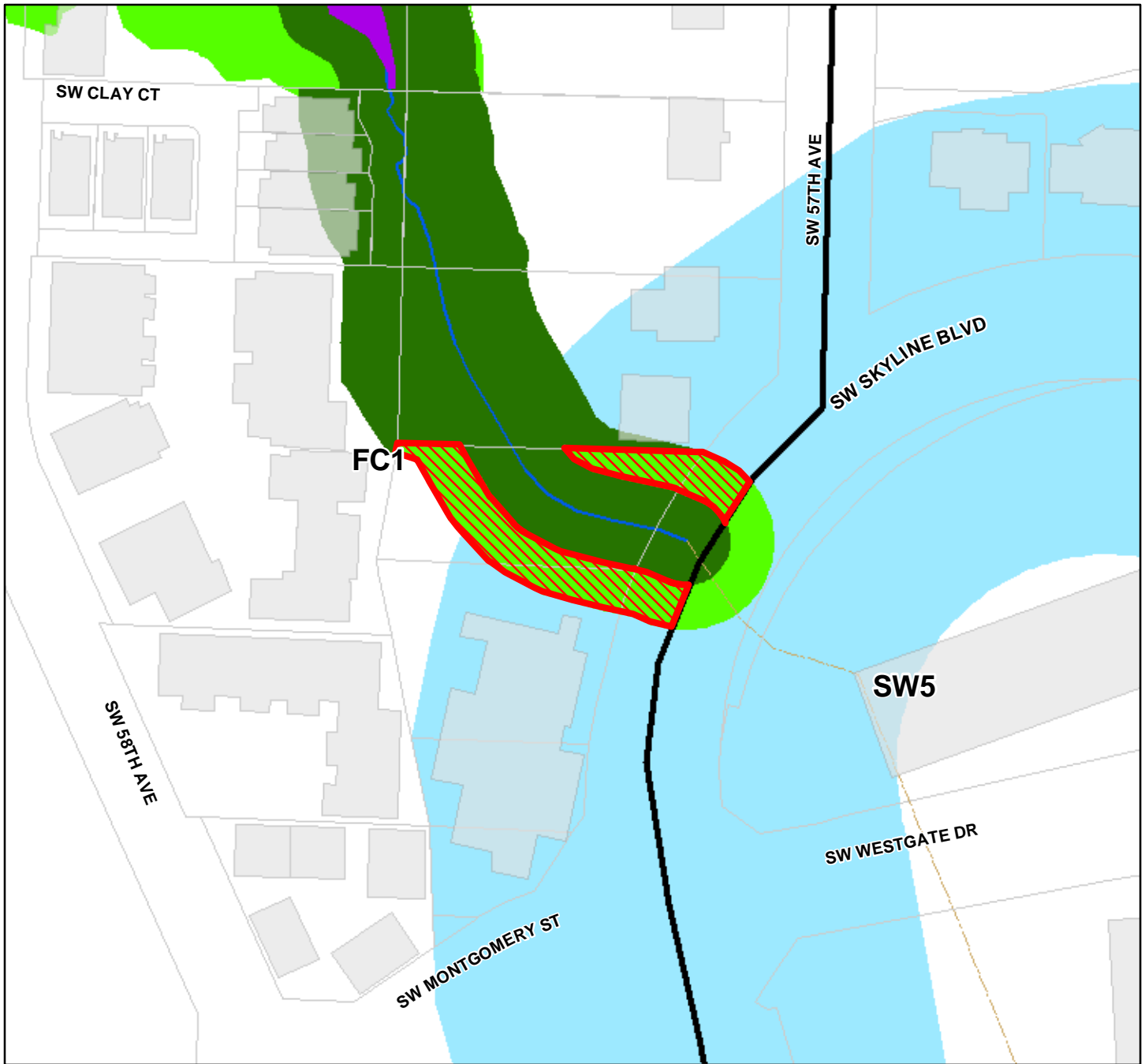
**State ID**  
1S1E06CA 2500  
1S1E06CA 2600

-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021














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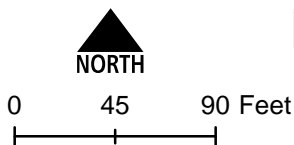
**'P' to 'C'  
Conversions**

**Conversion Description: Underutilized MFR lot. Convert area >25' from streams/wetlands.**

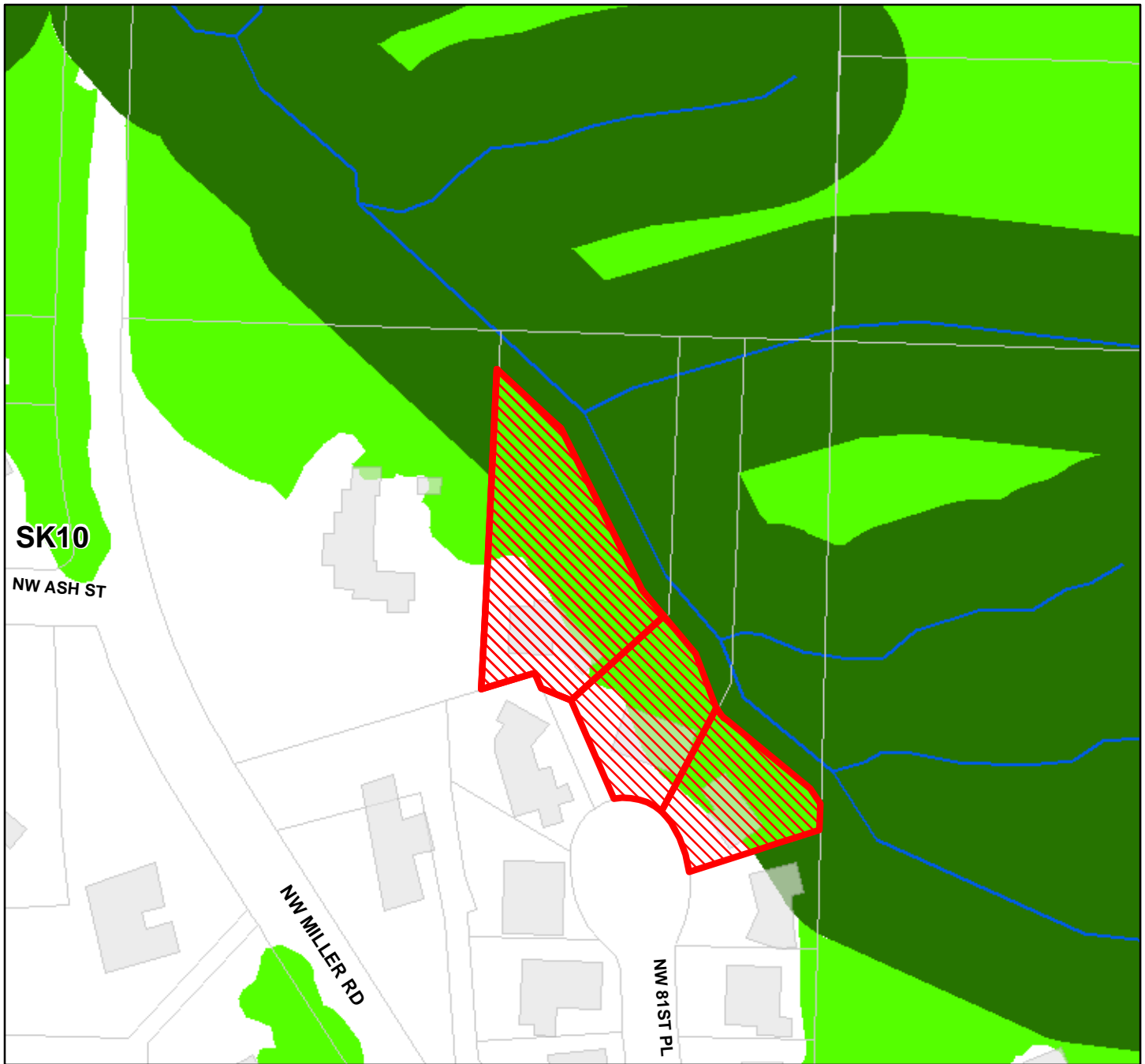
**State ID**  
1S1E06CA 1500  
1S1E06CA 1600

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021














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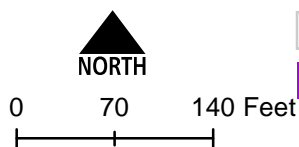
**'P' to 'C'  
Conversions**

**Conversion Description: Developed, dividable residential lot.**

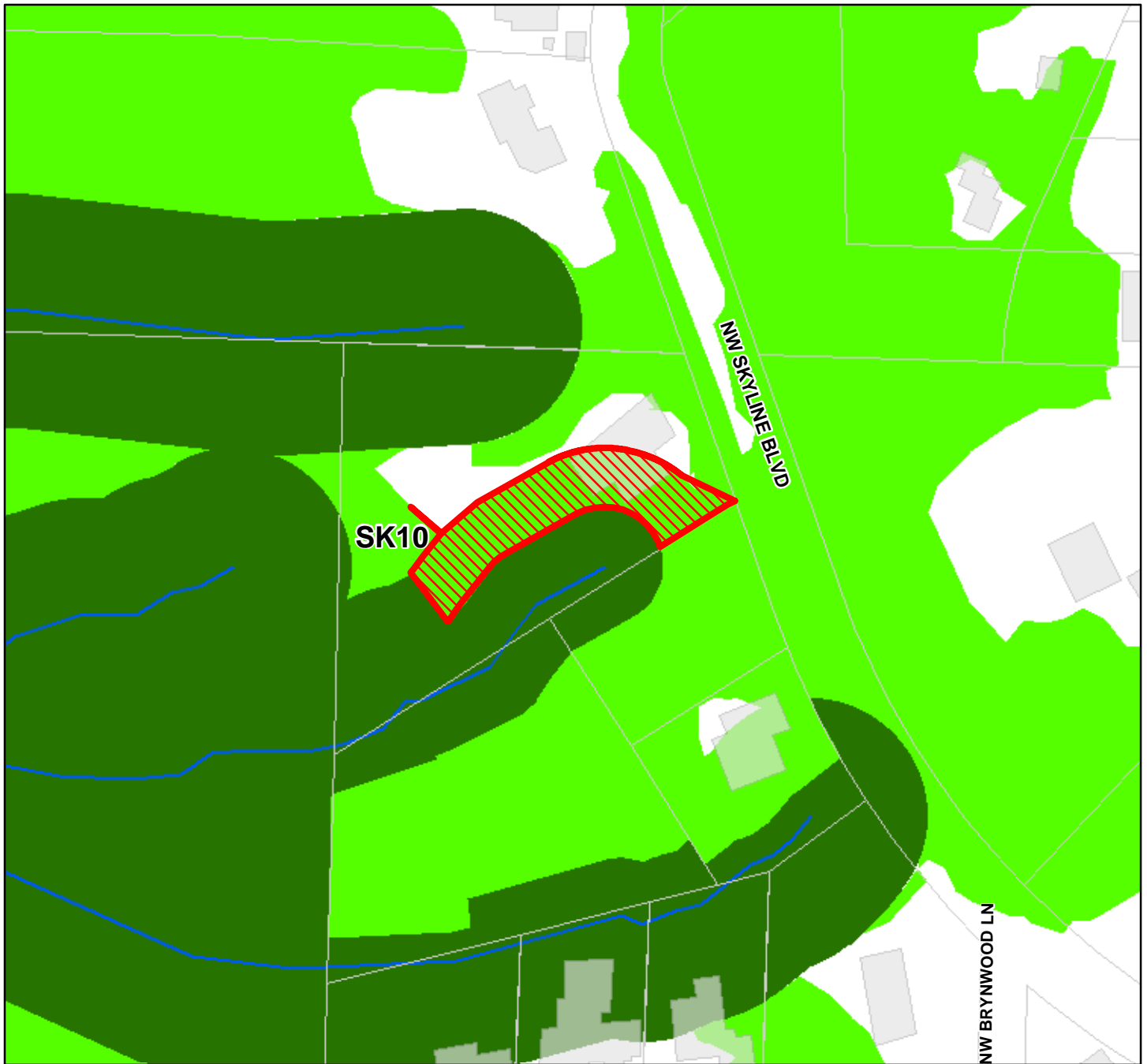
**State ID**  
1N1W36CB 1300  
1N1W36CB 100  
1N1W36CB 1400

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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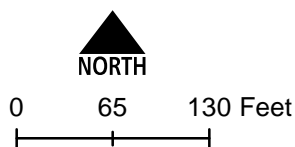


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable residential lot. Convert area near existing development >50' from stream.**

**State ID  
1N1W36CA 1000**

Updated: October 2021



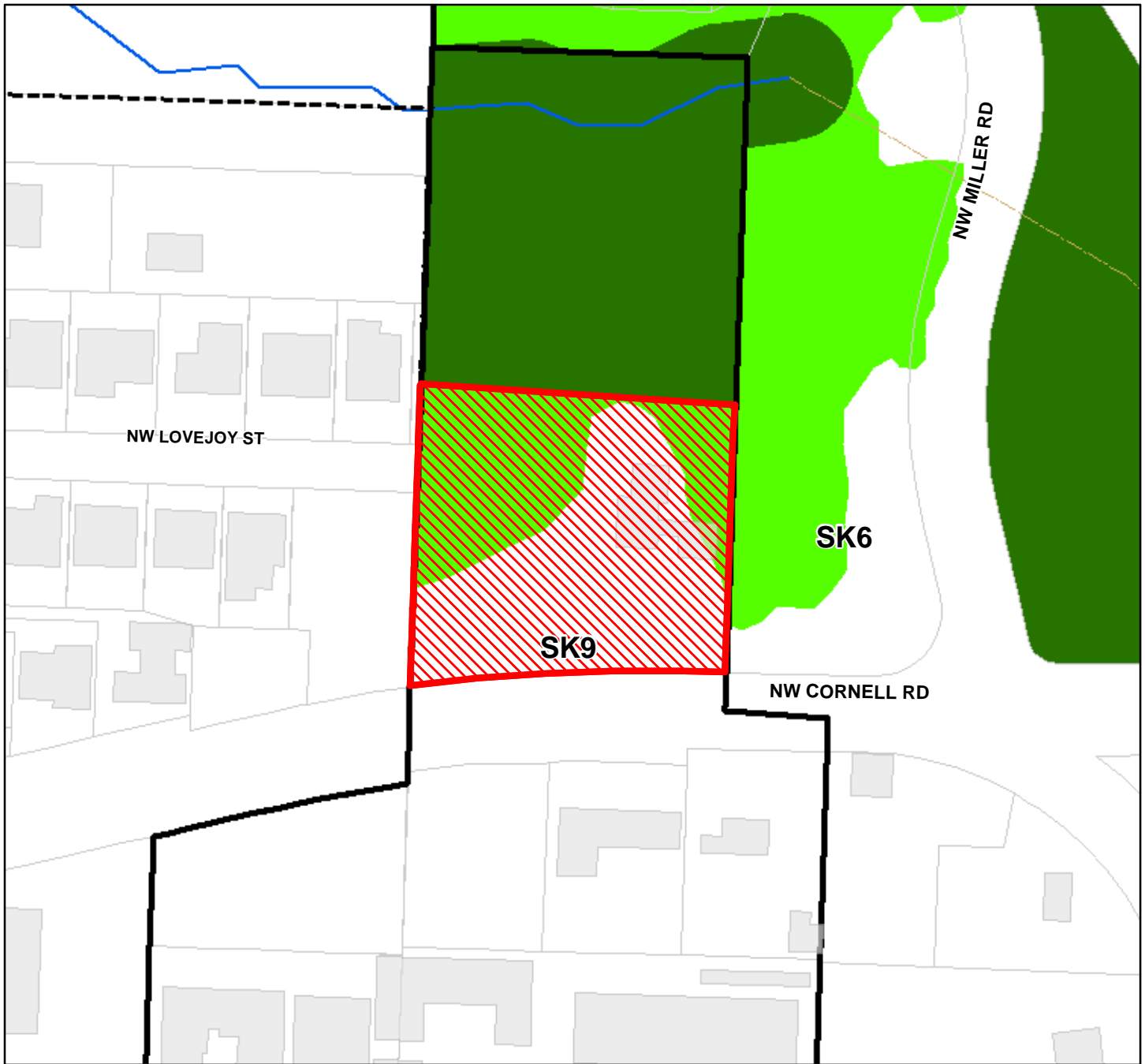
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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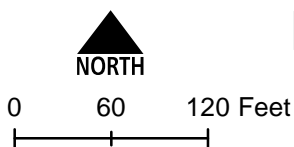


**'P' to 'C'  
Conversions**

**Conversion Description: Dividable residential lot. Create space for additional development near existing house.**

**State ID  
1N1W36BB 4400**

Updated: October 2021



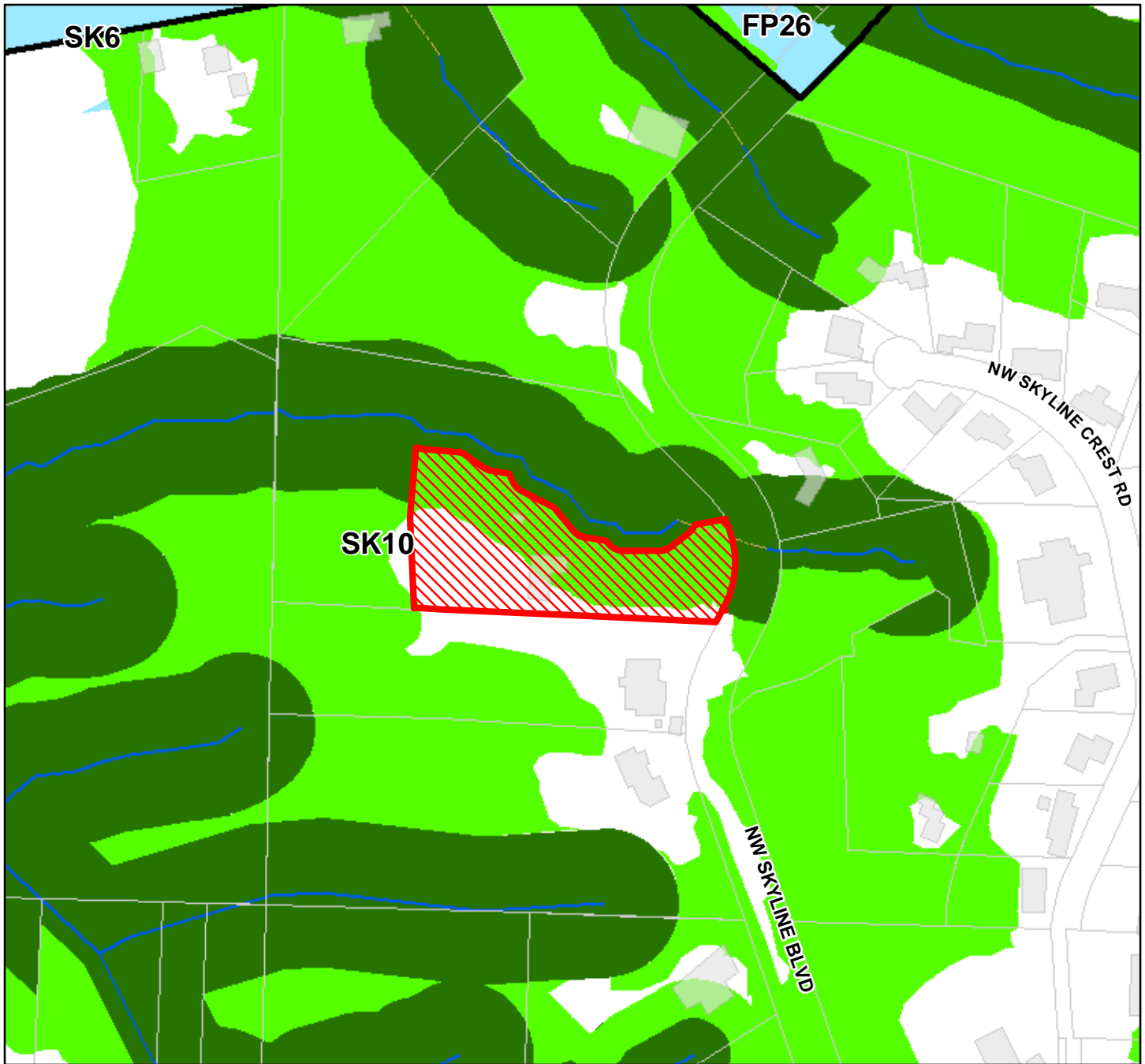
Recommended Draft

- 'p' to 'c' Conversions
- Resource Sites
- Urban Service Boundary
- Taxlots
- Wetlands
- Open stream channel
- Piped Stream Segment
- Flood Area
- Draft C Zone
- Draft P Zone
- Draft S Zone



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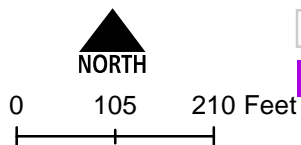


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable residential lot. Convert area near existing development.**

**State ID  
1N1W36BD 3300**

Updated: October 2021

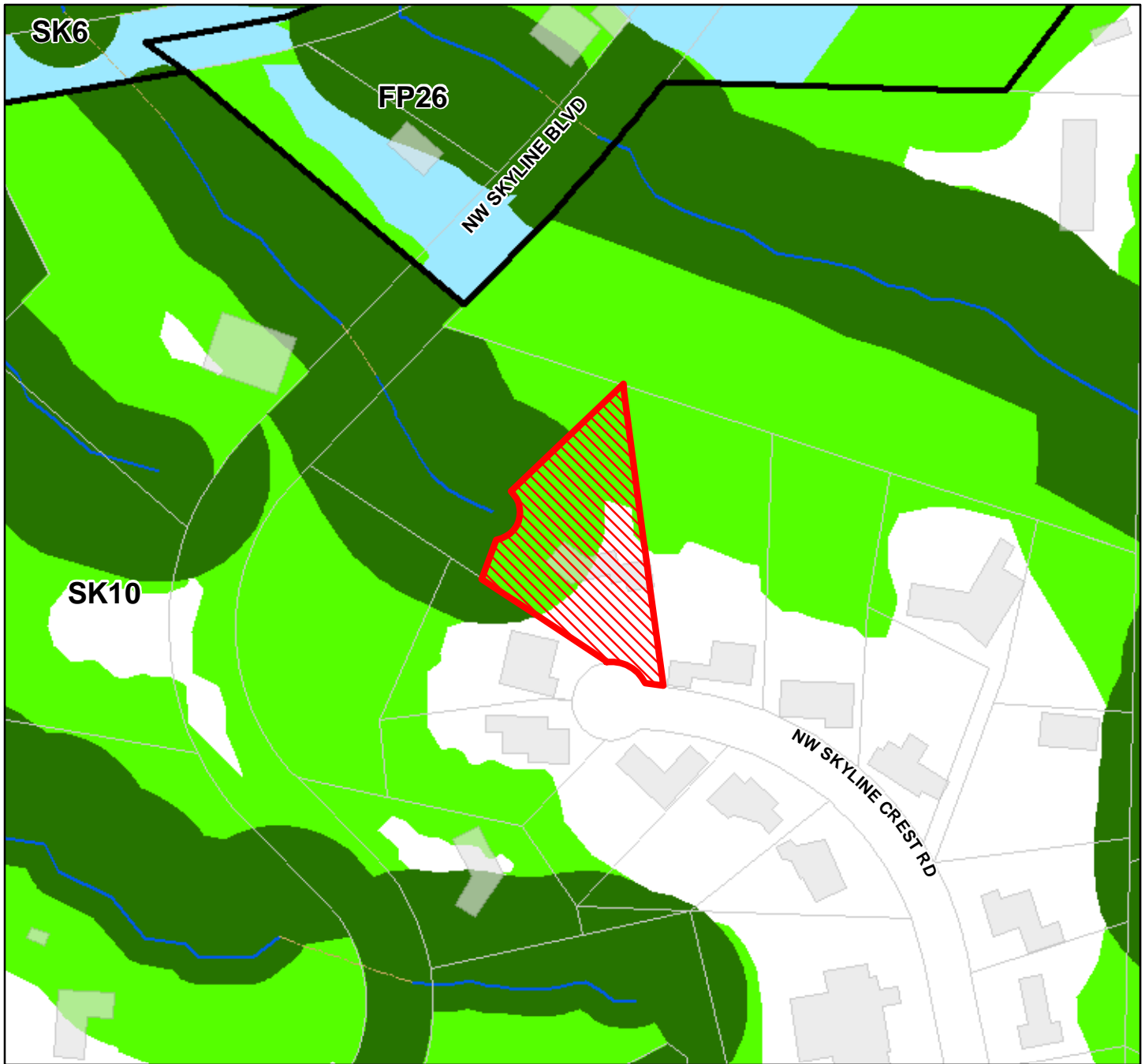


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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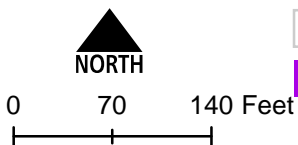


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area near existing development.**

**State ID  
1N1W36BD 200**

Updated: October 2021

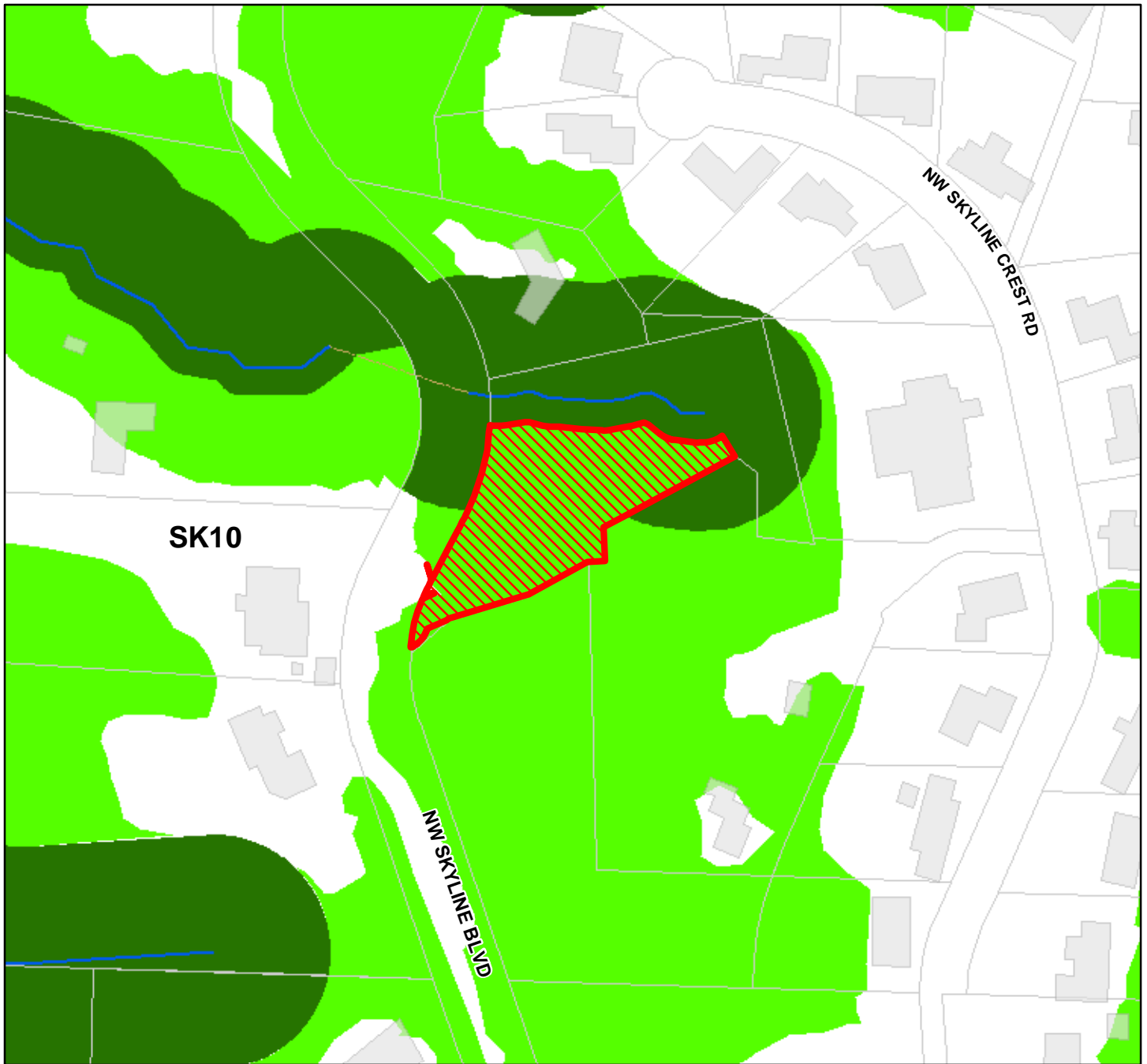


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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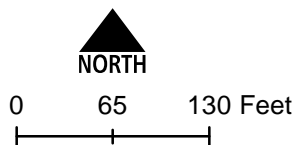


**'P' to 'C'  
Conversions**












**Conversion Description: Vacant, dividable R10 lot.**

**State ID  
1N1W36BD 2800**

Updated: October 2021



Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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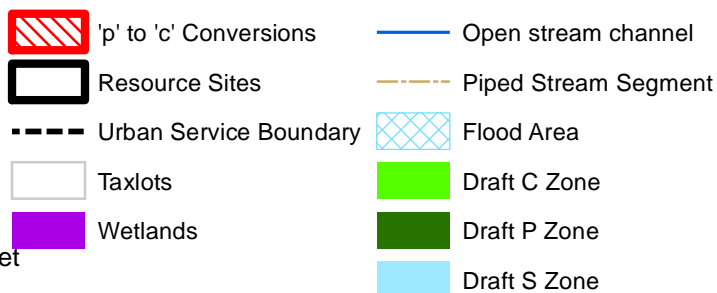


**'P' to 'C'  
Conversions**

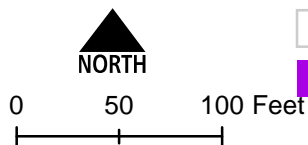
**Conversion Description:**

**Northern Lot: Dividable R10 lot. Covert space near existing development.  
Southern Lot: Vacant, dividable R10 lot.**

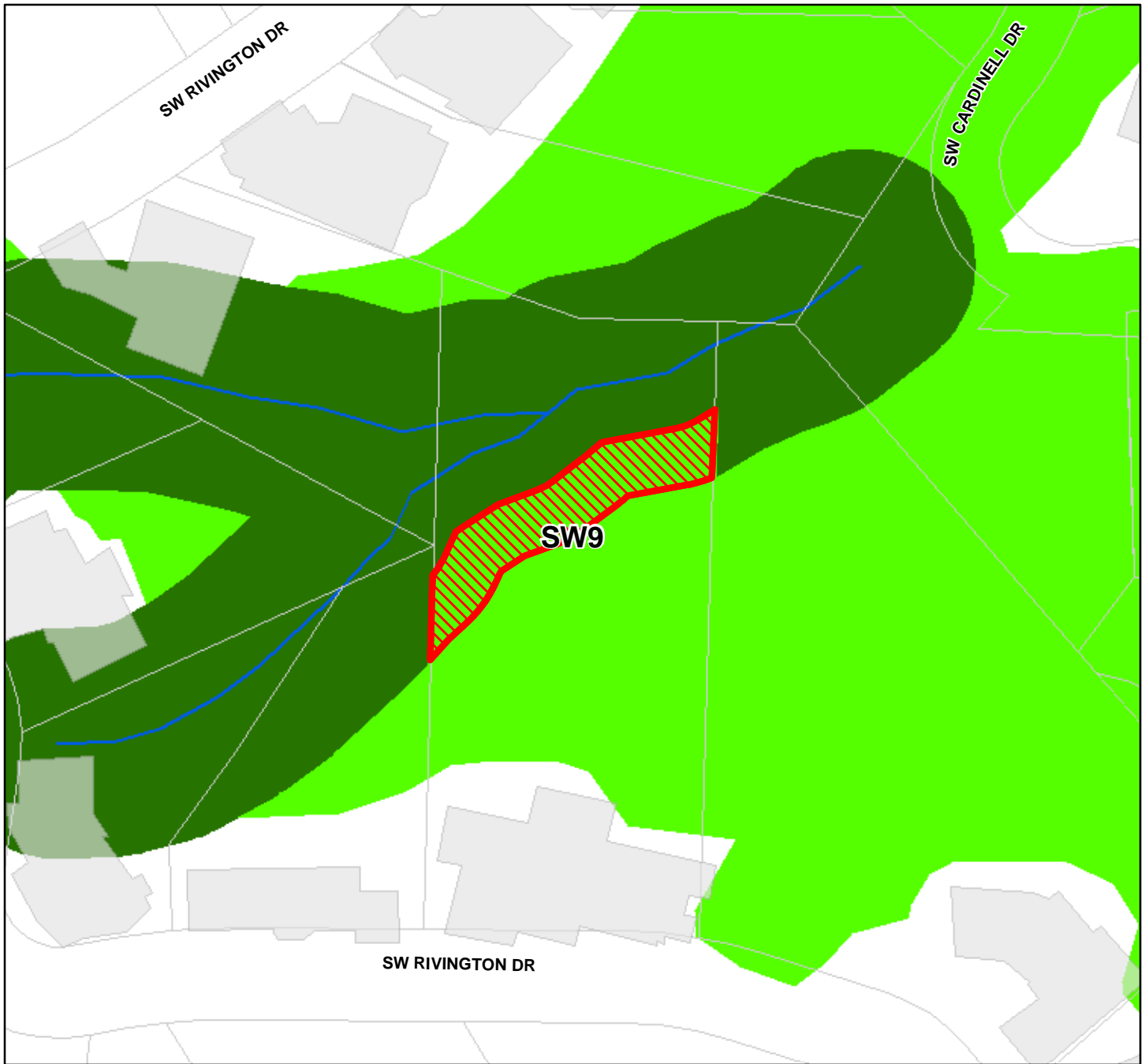
**State ID**  
1N1E31DD 3100  
1N1E31DD 3200



Updated: October 2021



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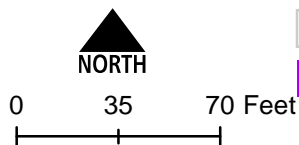


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot.**

**State ID  
1S1E04DC 1300**

Updated: October 2021

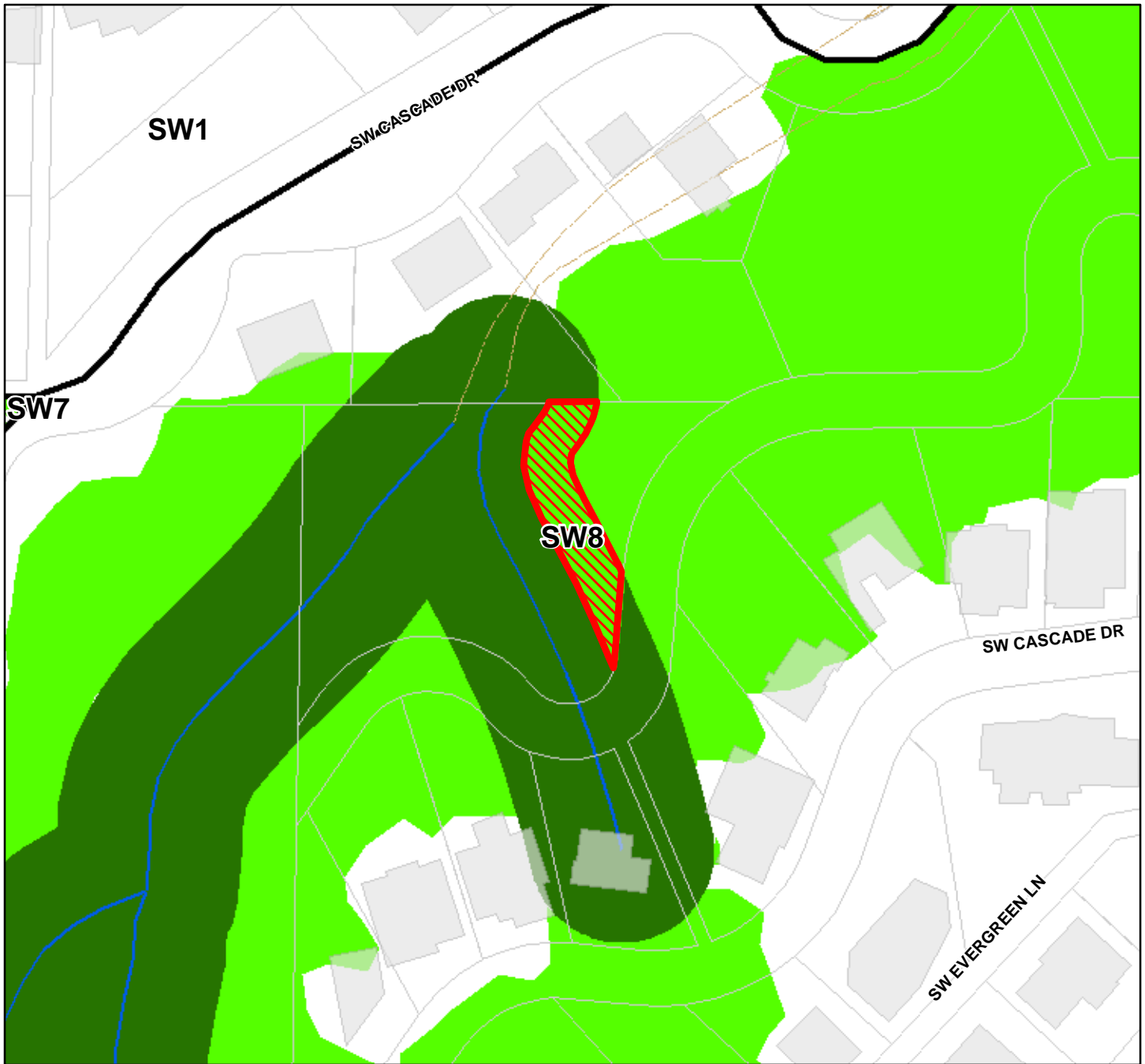


Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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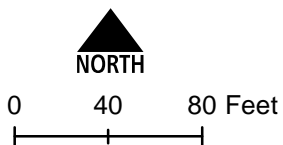


'P' to 'C'  
Conversions

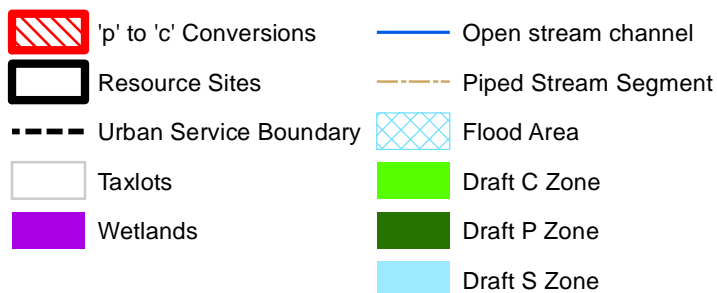
Conversion Description: Vacant residential lot.

State ID  
1S1E05AB 1700

Updated: October 2021



Recommended Draft



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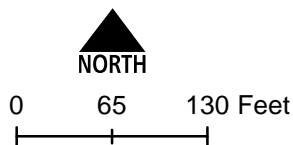


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable residential lot.**

**State ID  
1S1E08AD 2200**

Updated: October 2021



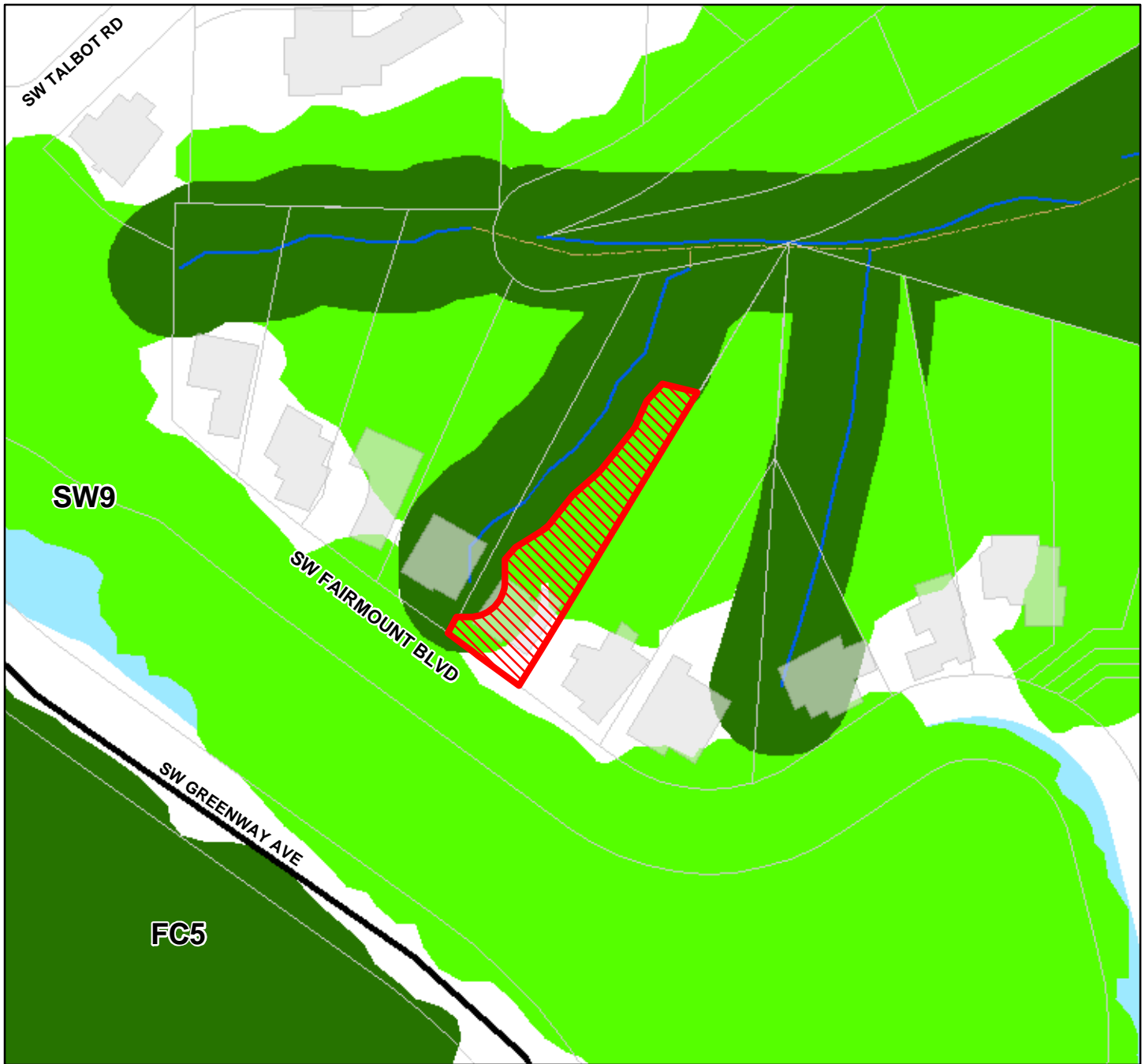
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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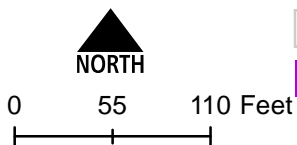


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot.**

**State ID  
1S1E08AD 1800**

Updated: October 2021



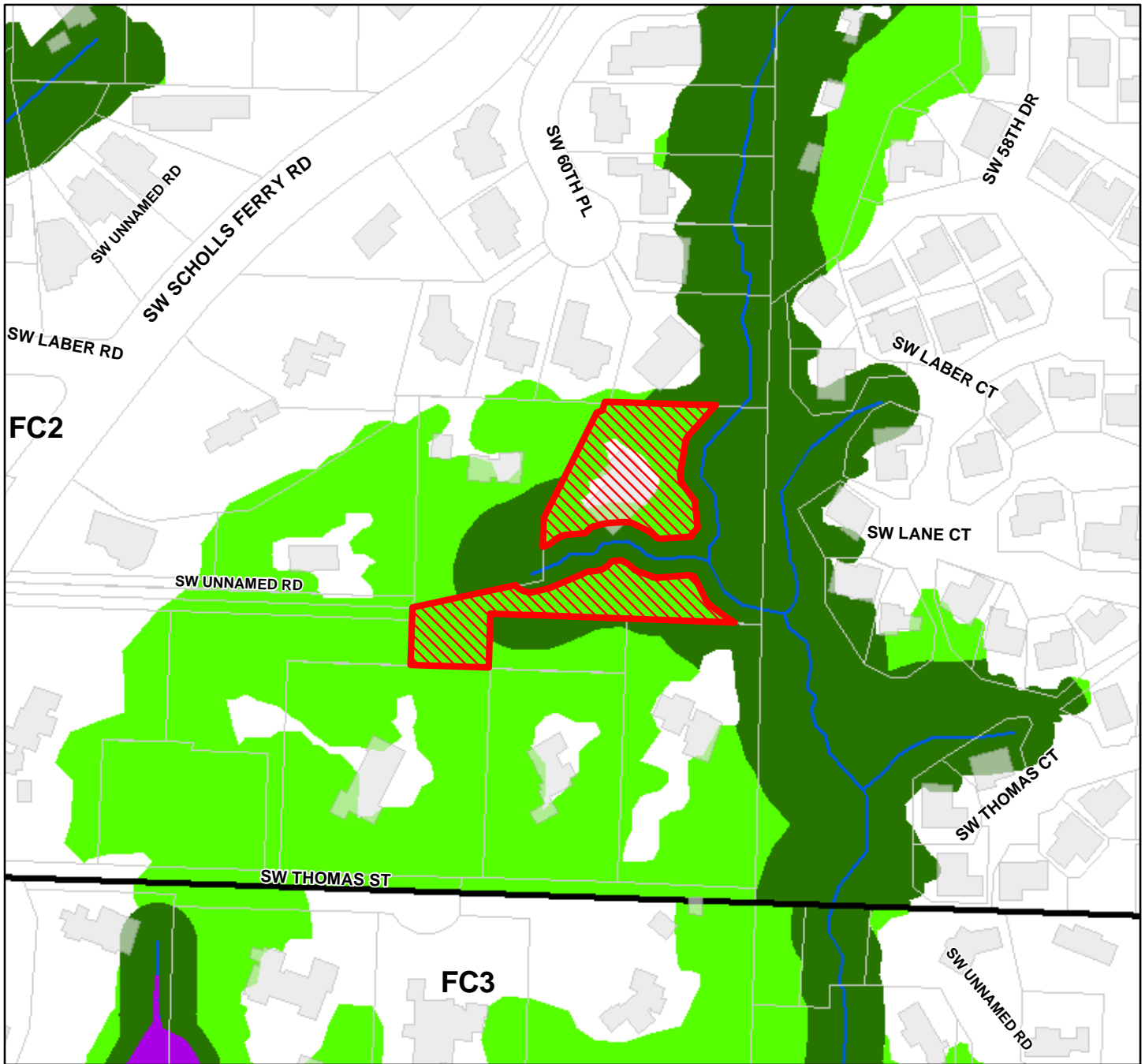
Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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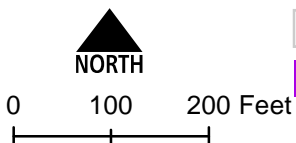


**'P' to 'C' Conversions**












**Conversion Description: Dividable R20 lot. Convert area out side of stream riparian area for additional development.**

**State ID**  
**1S1E07CB 3800**

Updated: October 2021

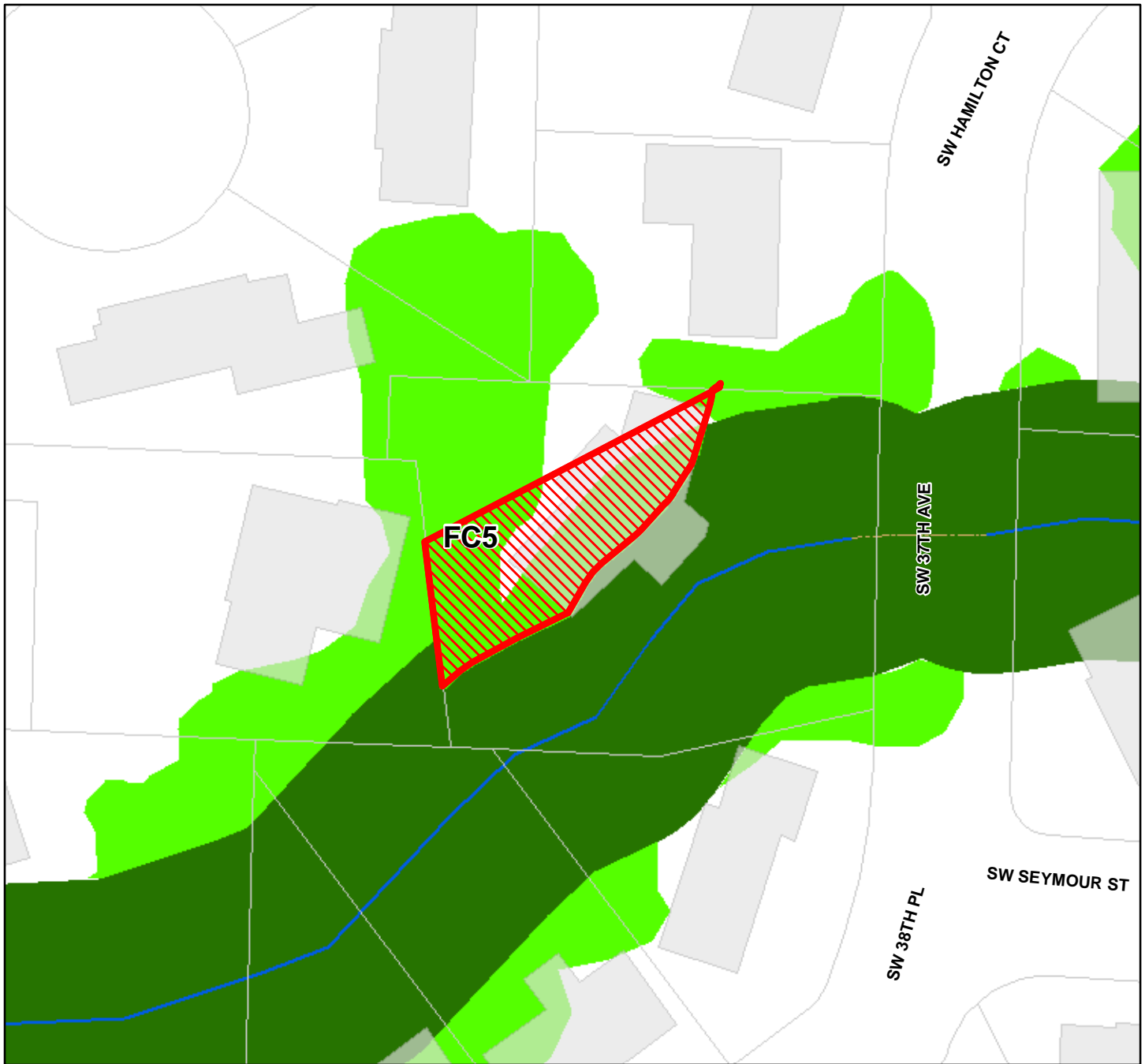


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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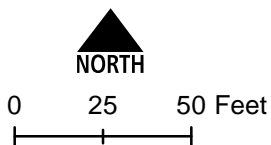


**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R10 lot. Convert area around existing development.**

**State ID  
1S1E17BA 2500**

Updated: October 2021

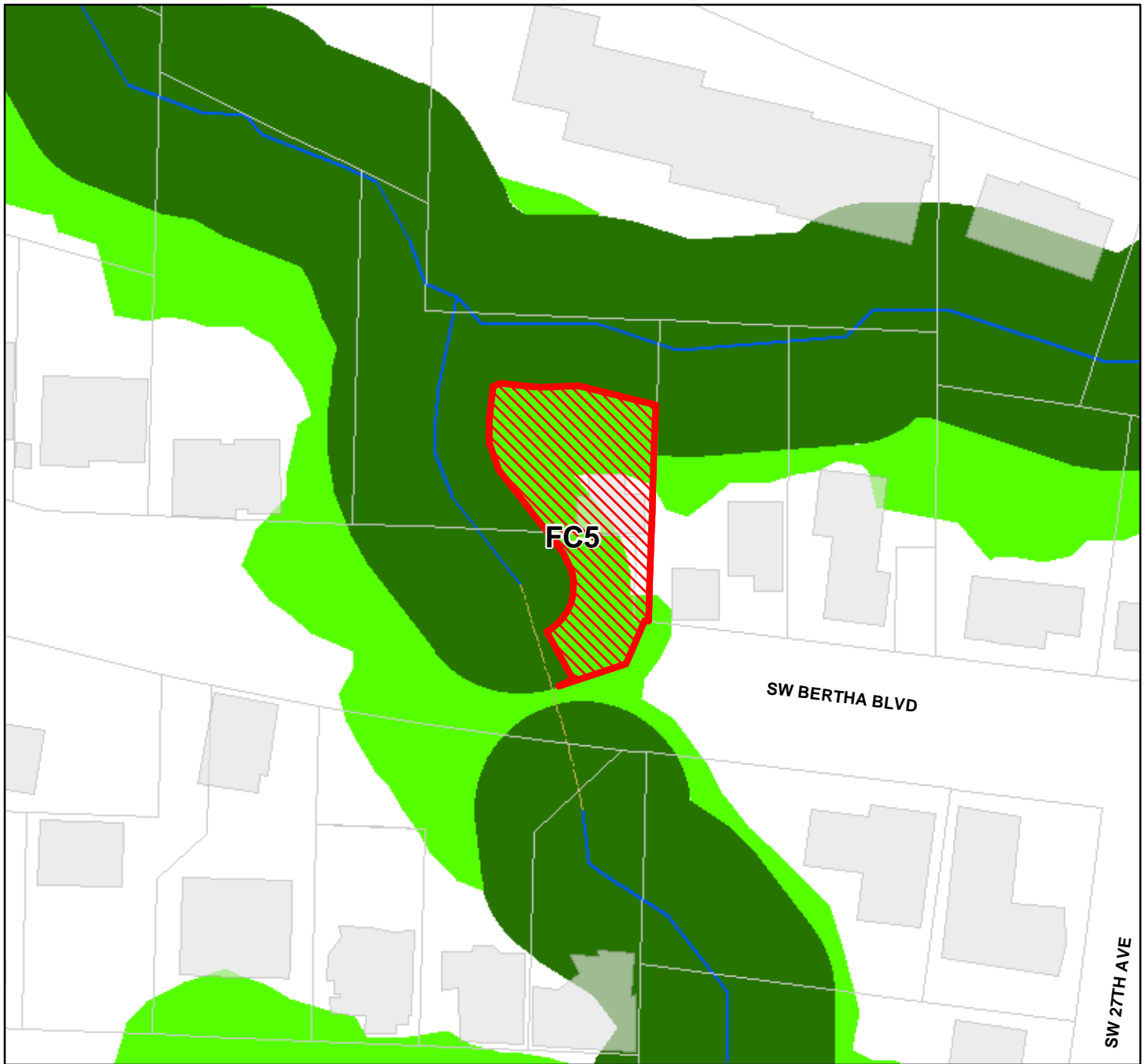


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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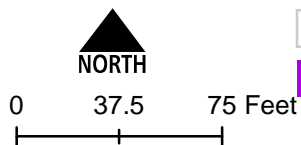


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable residential lot.**

**State ID  
1S1E17DA 2900**

Updated: October 2021

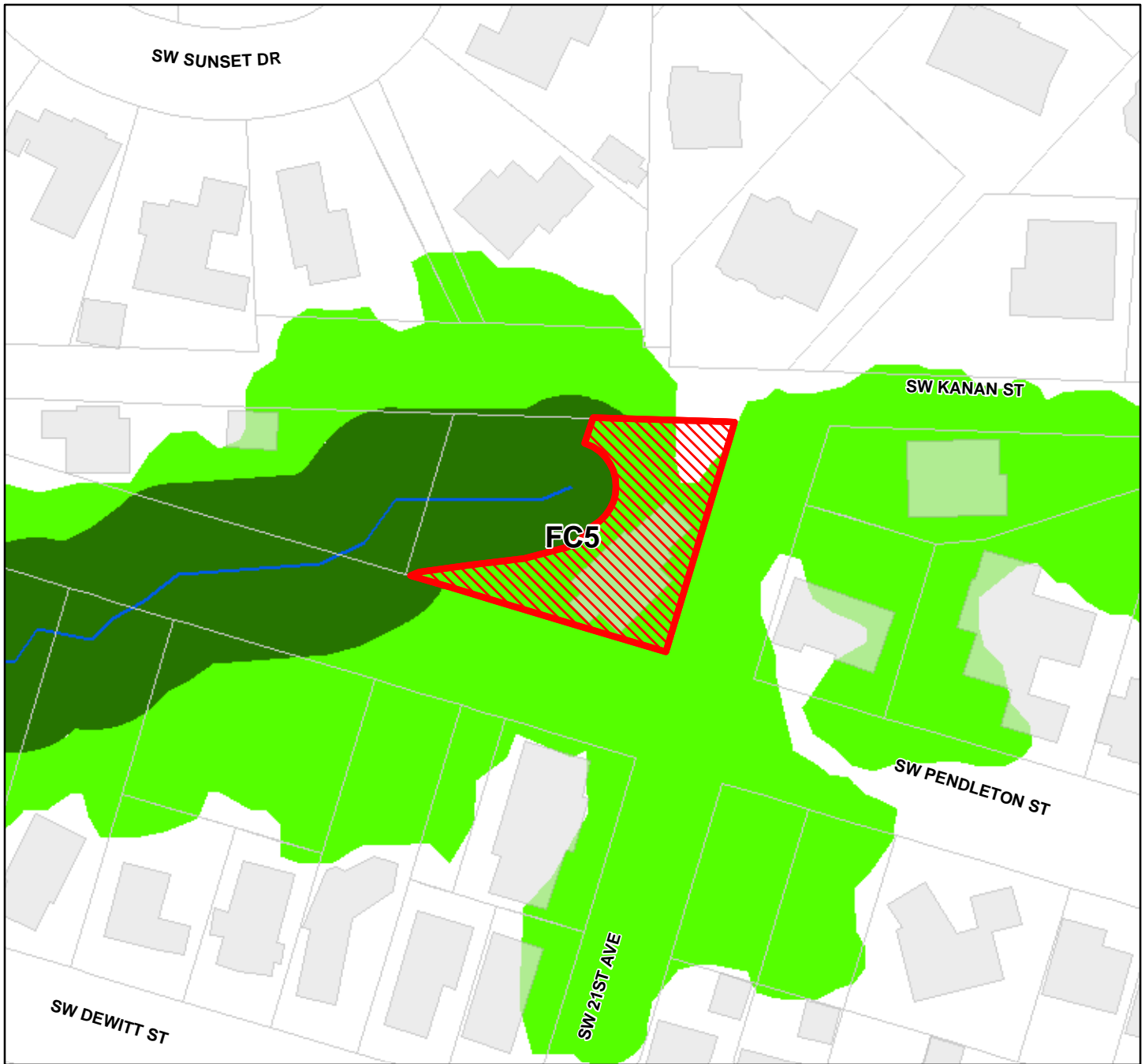


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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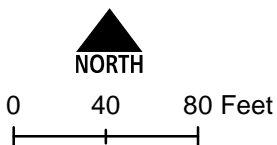


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable residential lot. Convert portion of lot outside riparian area.**

**State ID  
1S1E16CB 8000**

Updated: October 2021

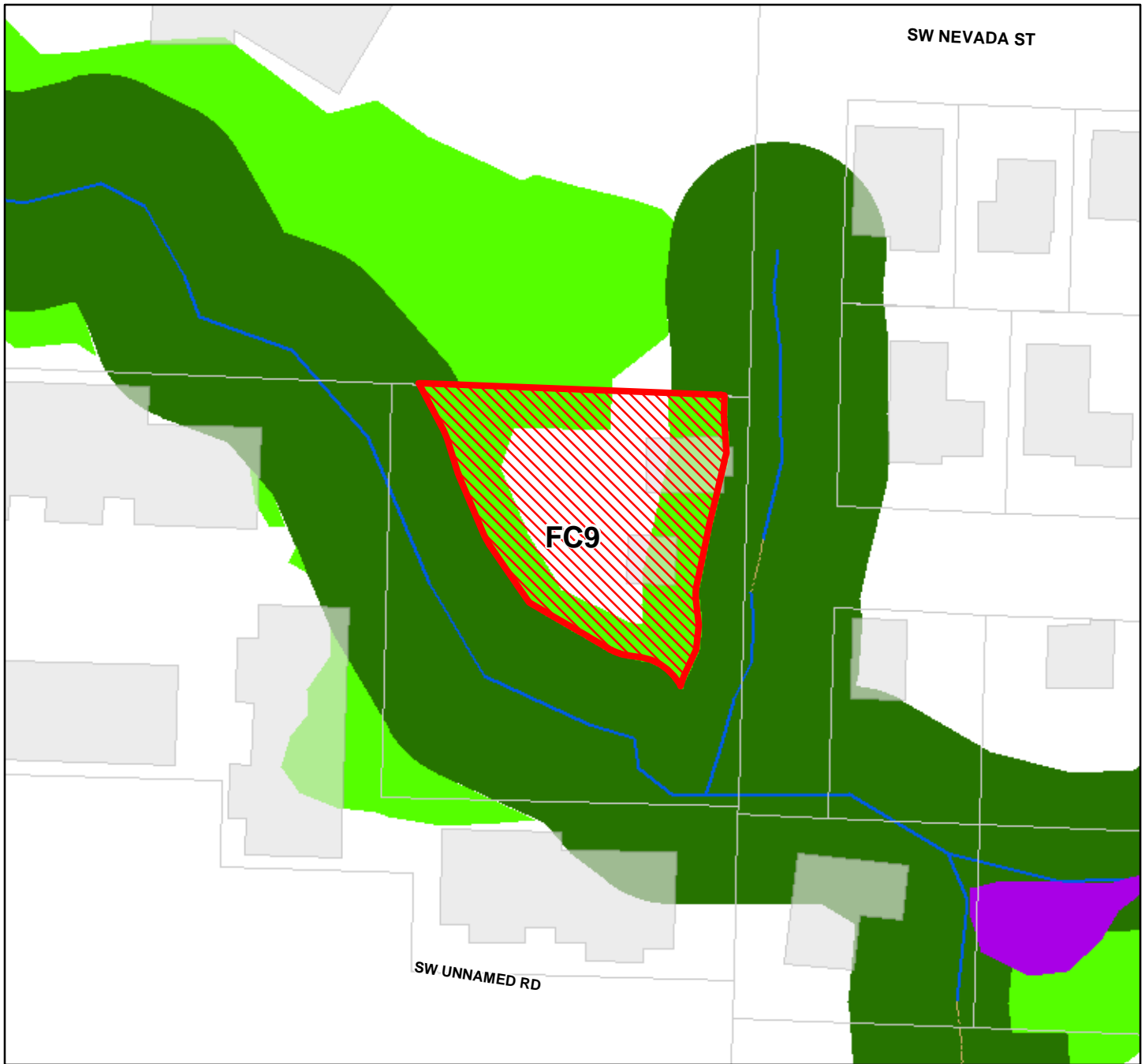


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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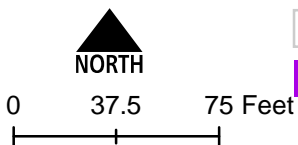


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable residential lot. Convert area outside stream riparian area.**

**State ID  
1S1E19AA 2300**

Updated: October 2021

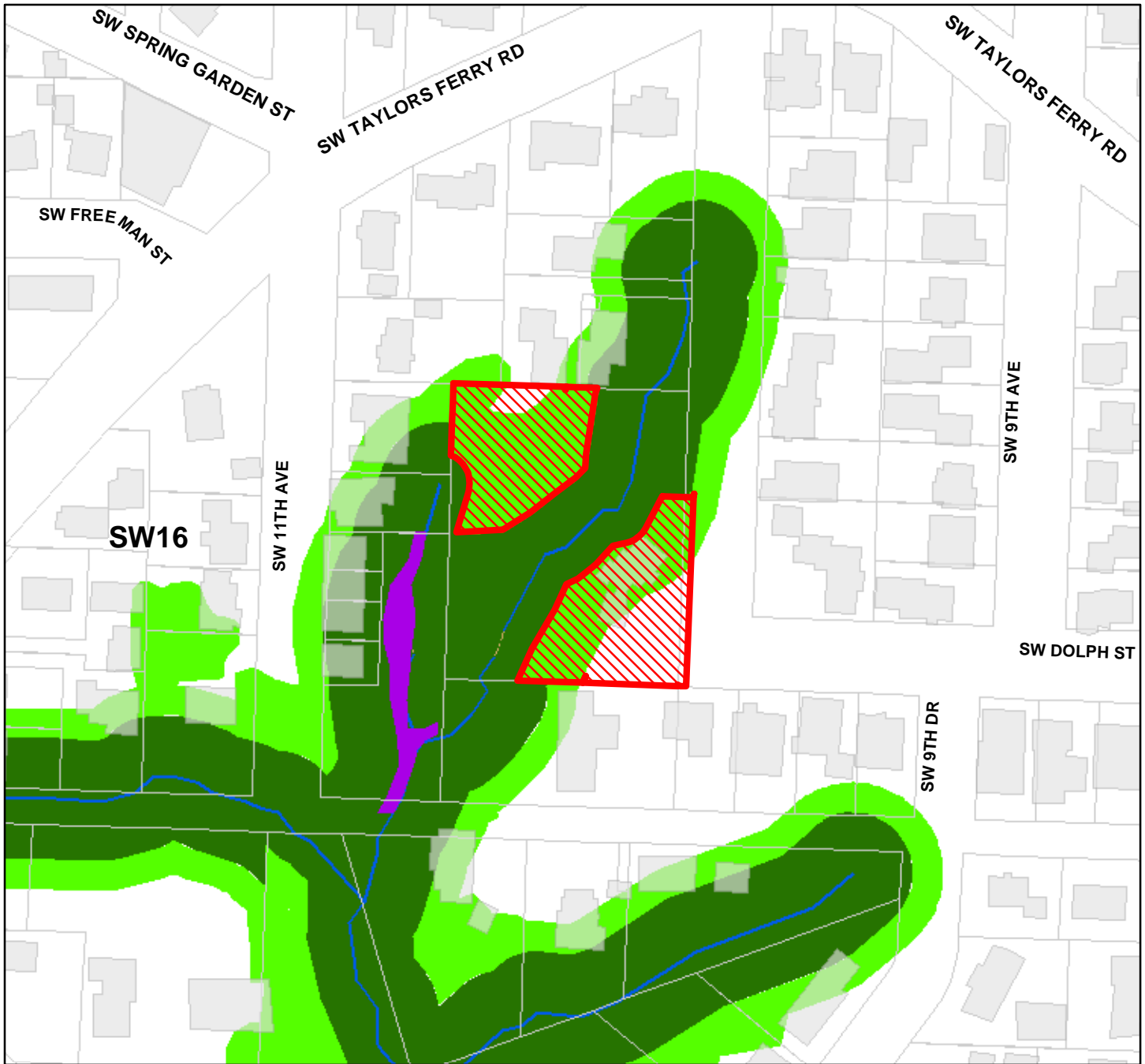


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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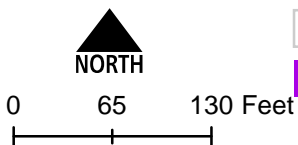













**'P' to 'C'  
Conversions**

**Conversion Description: Dividable residential lot. Convert area outside riparian zone.**

**State ID  
1S1E21DC 8900**

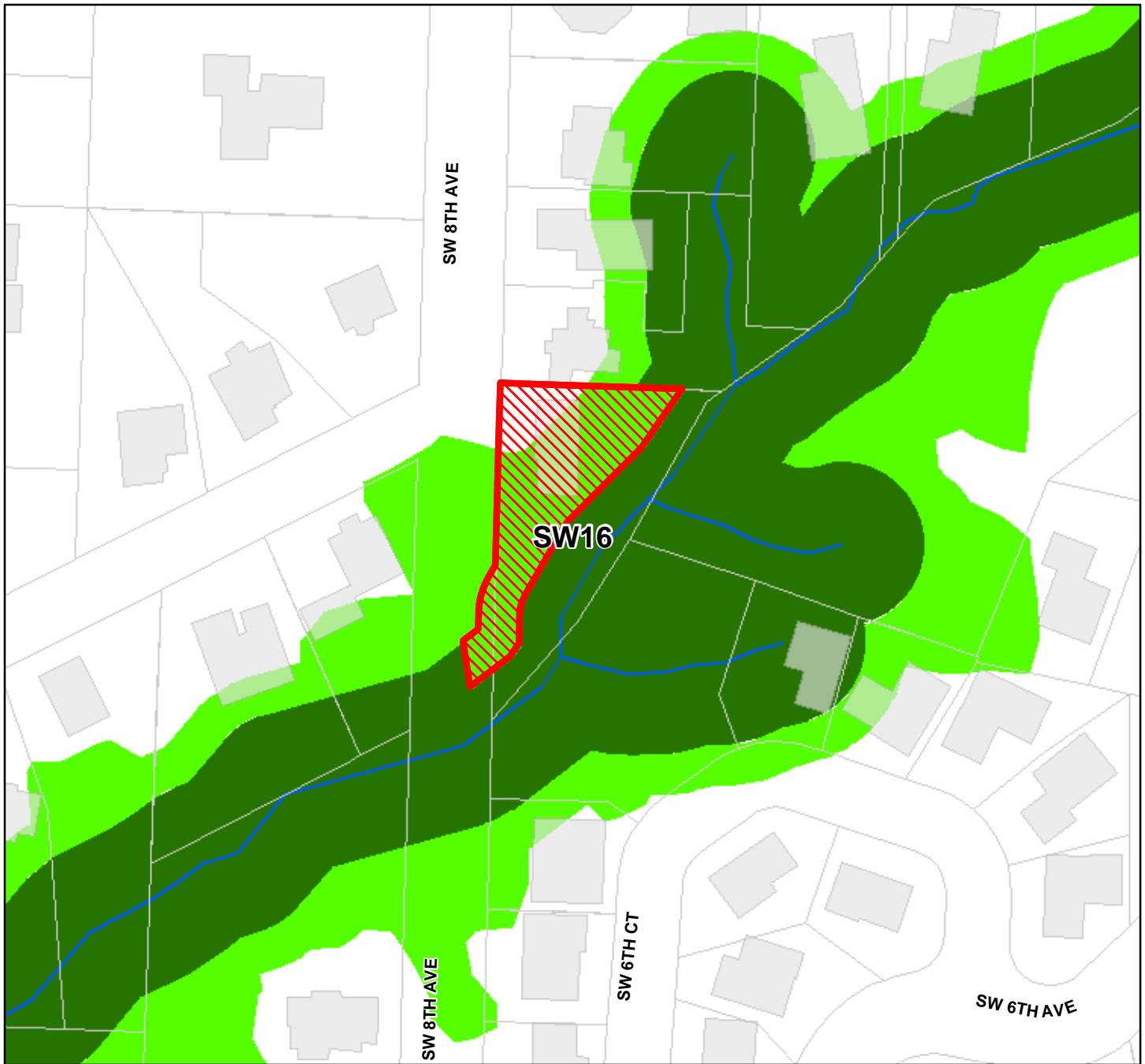
Updated: October 2021



-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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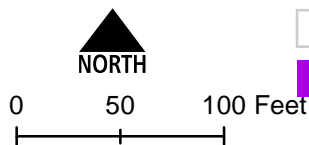













**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R7 lot. Convert area outside riparian zone.**

**State ID  
1S1E28AD 12300**

Updated: October 2021

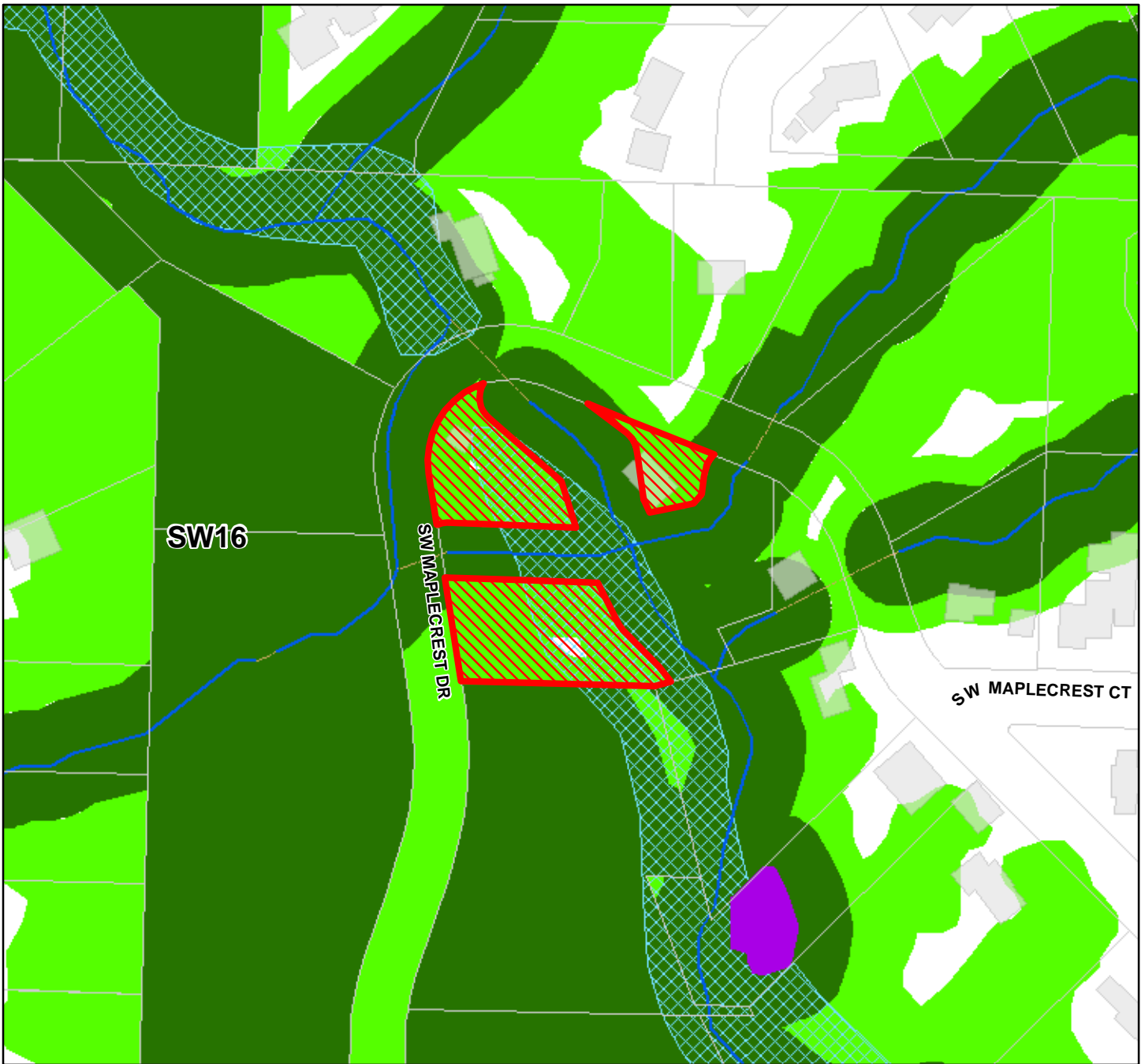


-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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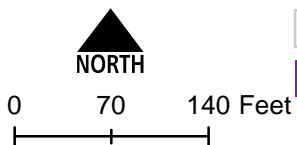


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Covert area outside riparian zone.**

**State ID  
1S1E28DB 4400**

Updated: October 2021



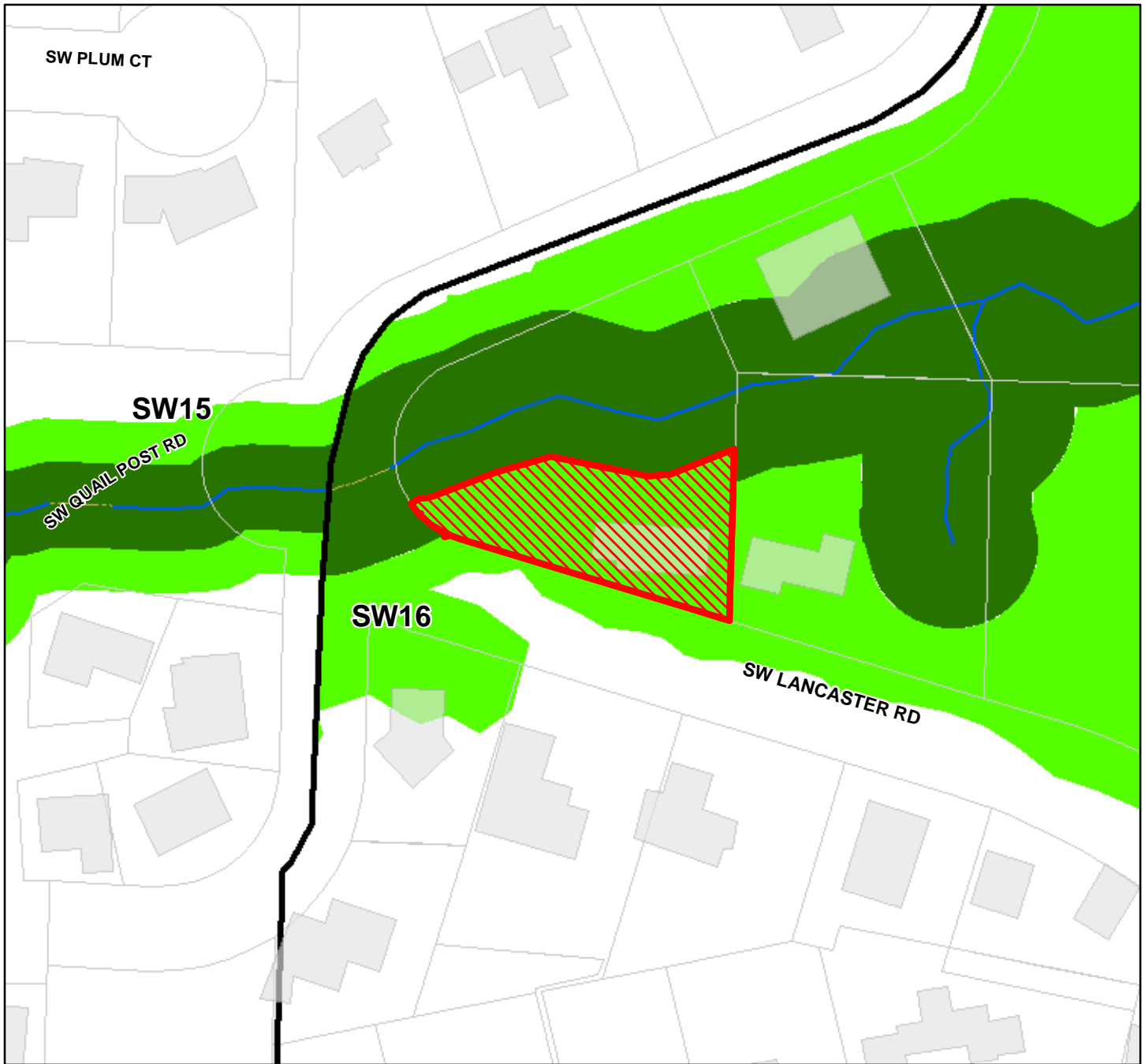
Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |



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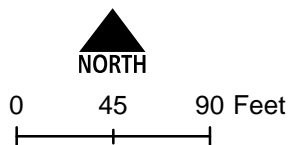


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area near existing development outside riparian zone.**

**State ID  
1S1E28BC 2100**

Updated: October 2021

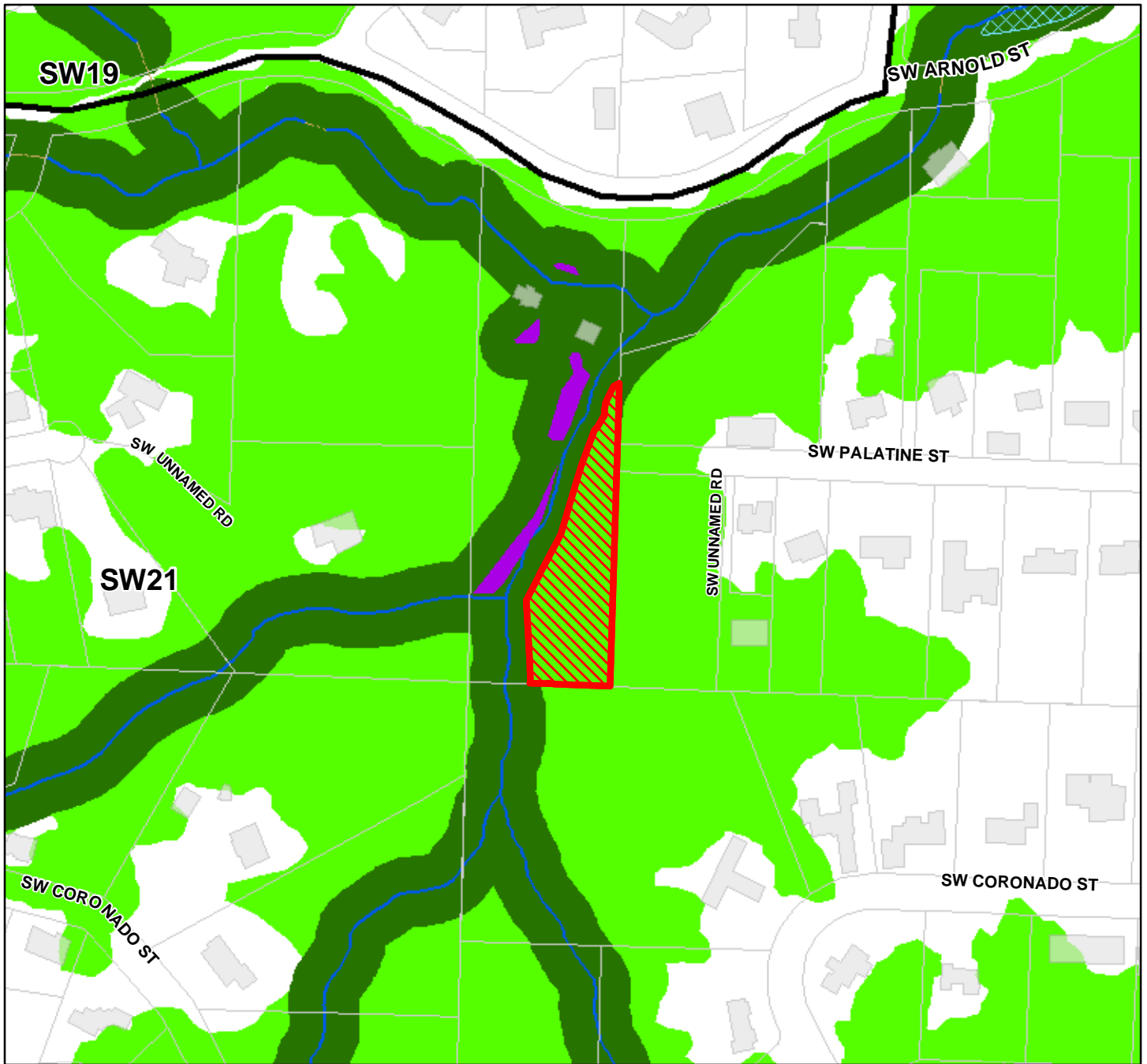


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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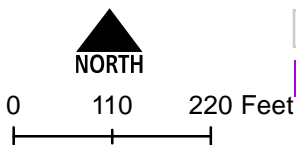


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R20 lot. Convert area that can be accessed from ROW for additional development.**

**State ID  
1S1E33AB 1300**

Updated: October 2021

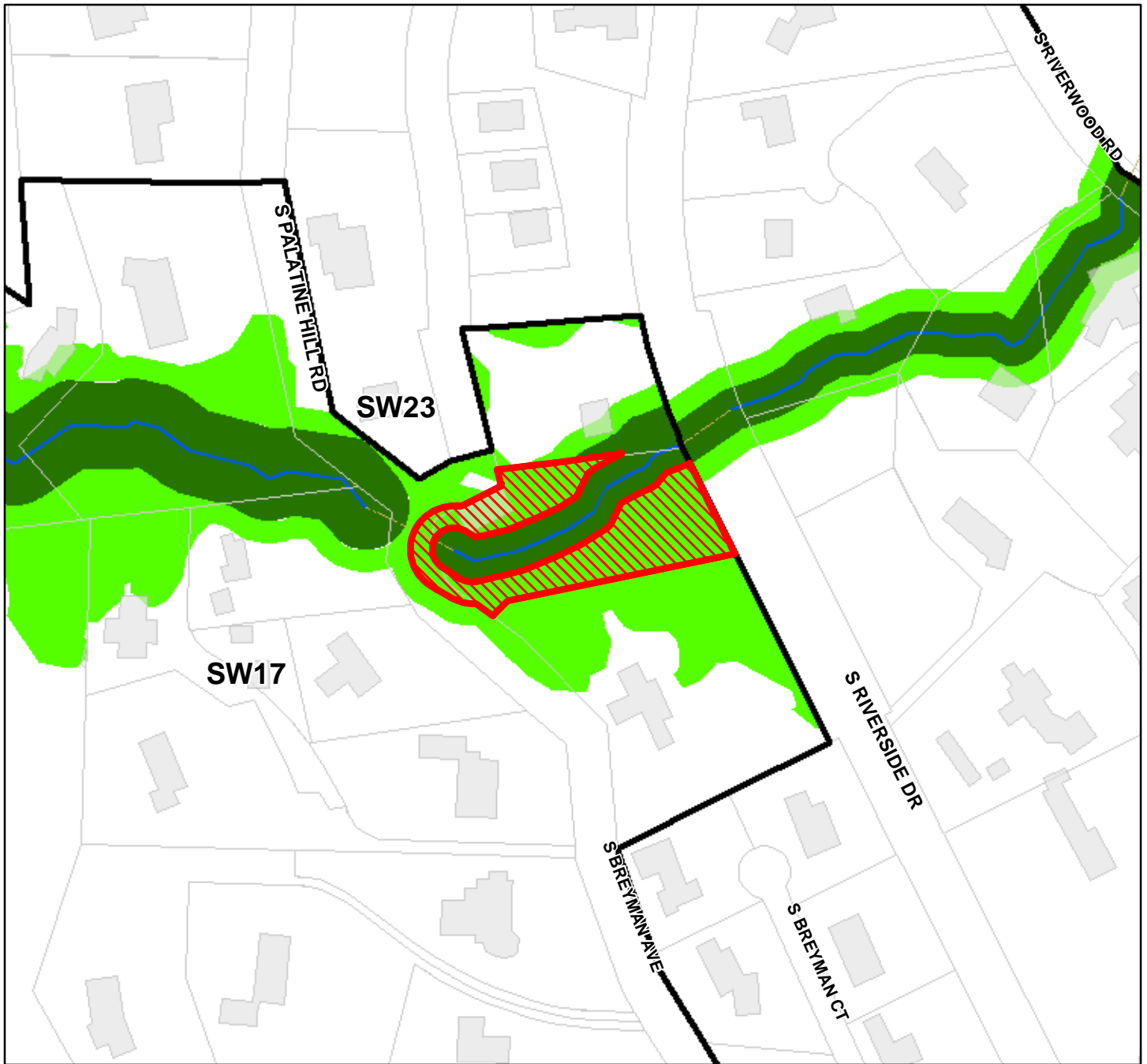


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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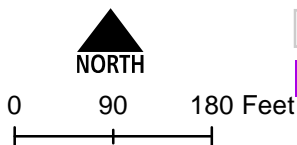


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R20 lot. Convert lot area that falls outside riparian zone.**

**State ID  
1S1E35BB 1600**

Updated: October 2021



Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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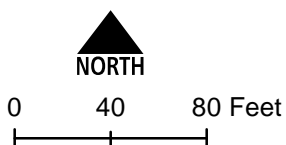


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R5 lot. Convert area near existing development that is outside riparian zone.**

**State ID  
1S1E15BB 5600**

Updated: October 2021



Recommended Draft

- |   |                        |   |                      |
|---|------------------------|---|----------------------|
|  | 'p' to 'c' Conversions |  | Open stream channel  |
|  | Resource Sites         |  | Piped Stream Segment |
|  | Urban Service Boundary |  | Flood Area           |
|  | Taxlots                |  | Draft C Zone         |
|  | Wetlands               |  | Draft P Zone         |
|   |                        |  | Draft S Zone         |














The information on the map was derived from digital databases. Care was taken in the creation of this map but it is provided "as is". The City of Portland ensures meaningful access to city programs, services, and activities to comply with Civil Rights Title VI and ADA Title II laws and reasonably provides: translation, interpretation, modifications, accommodations, alternative formats, auxiliary aids and services. To request these services, contact 503-823-7700, City TTY 503-823-6868, Relay Service: 711.



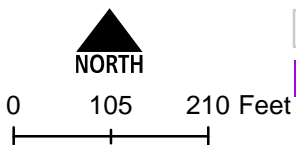
**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R7 lots. Convert area outside of riparian area.**

- State ID**  
 1N3E30BB 8000  
 1N3E30BB 8100  
 1N3E30BB 7900  
 1N3E30BB 7800

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

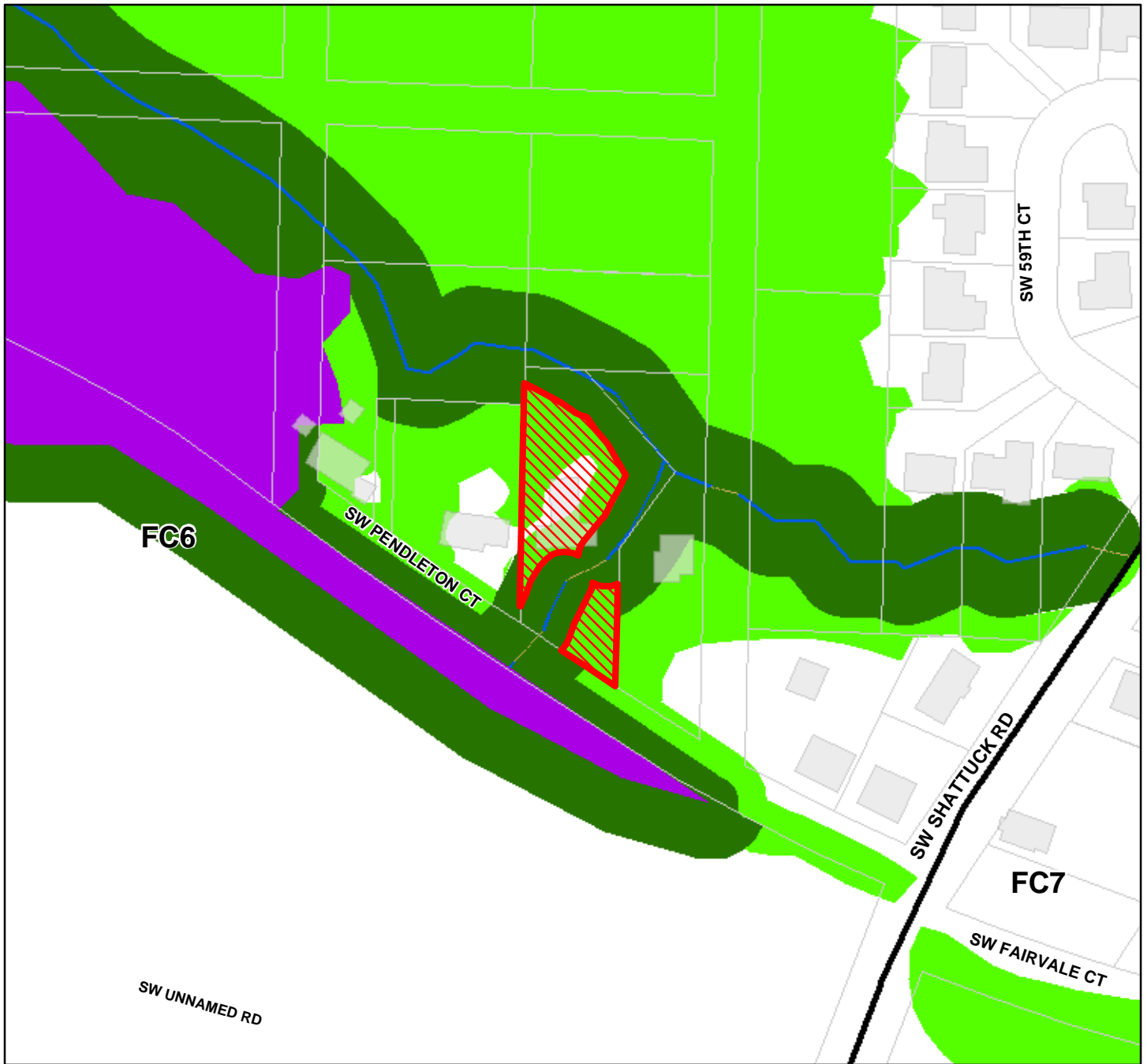
Updated: October 2021



Recommended Draft



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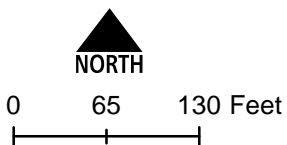


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert portion of lot outside stream riparian area.**

**State ID  
1S1E18CA 6700**

Updated: October 2021



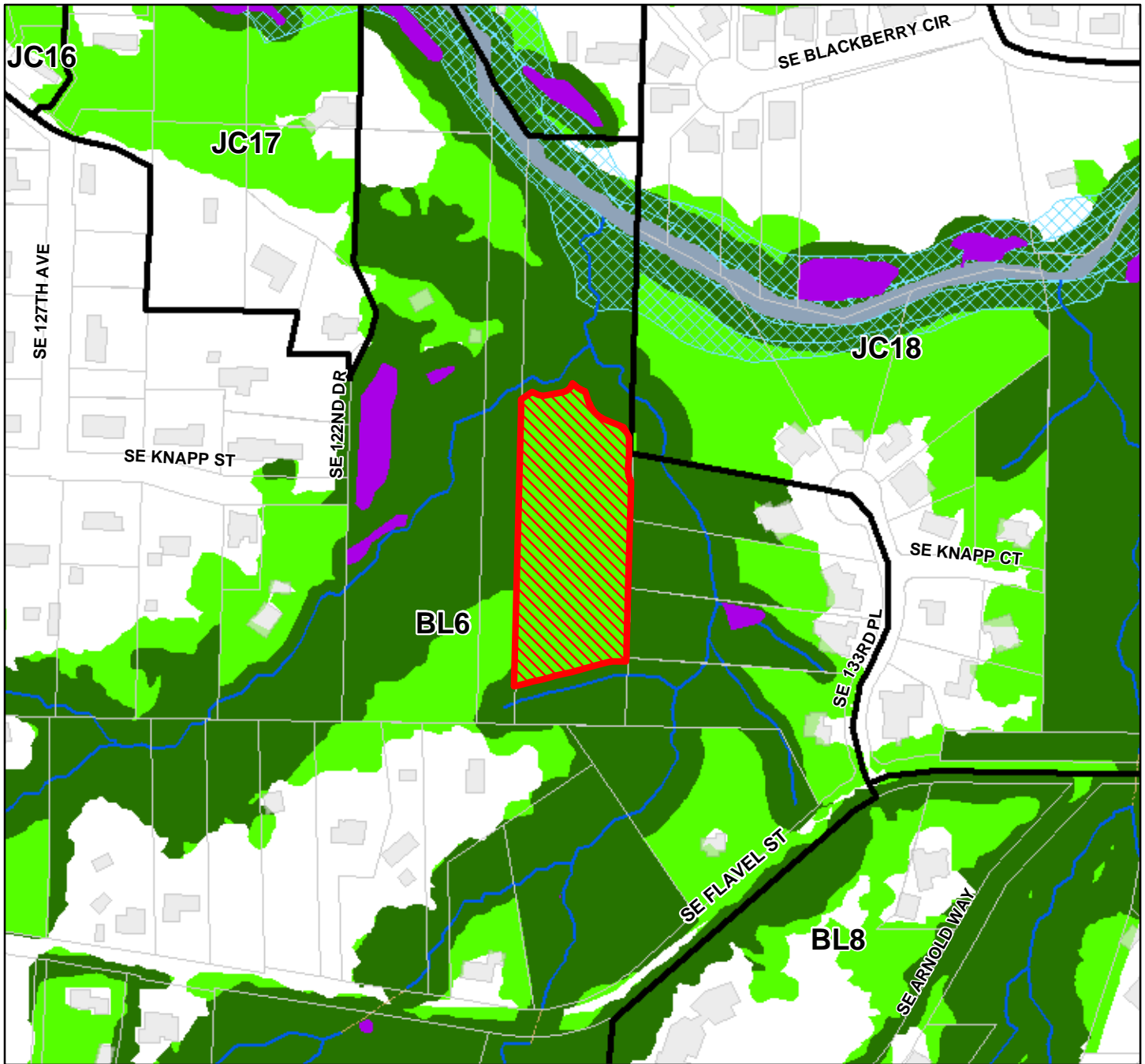
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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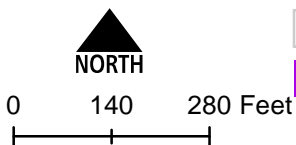


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert portion of lot outside riparian areas that could be developed.**

**State ID**  
1S2E23BD 1000

Updated: October 2021

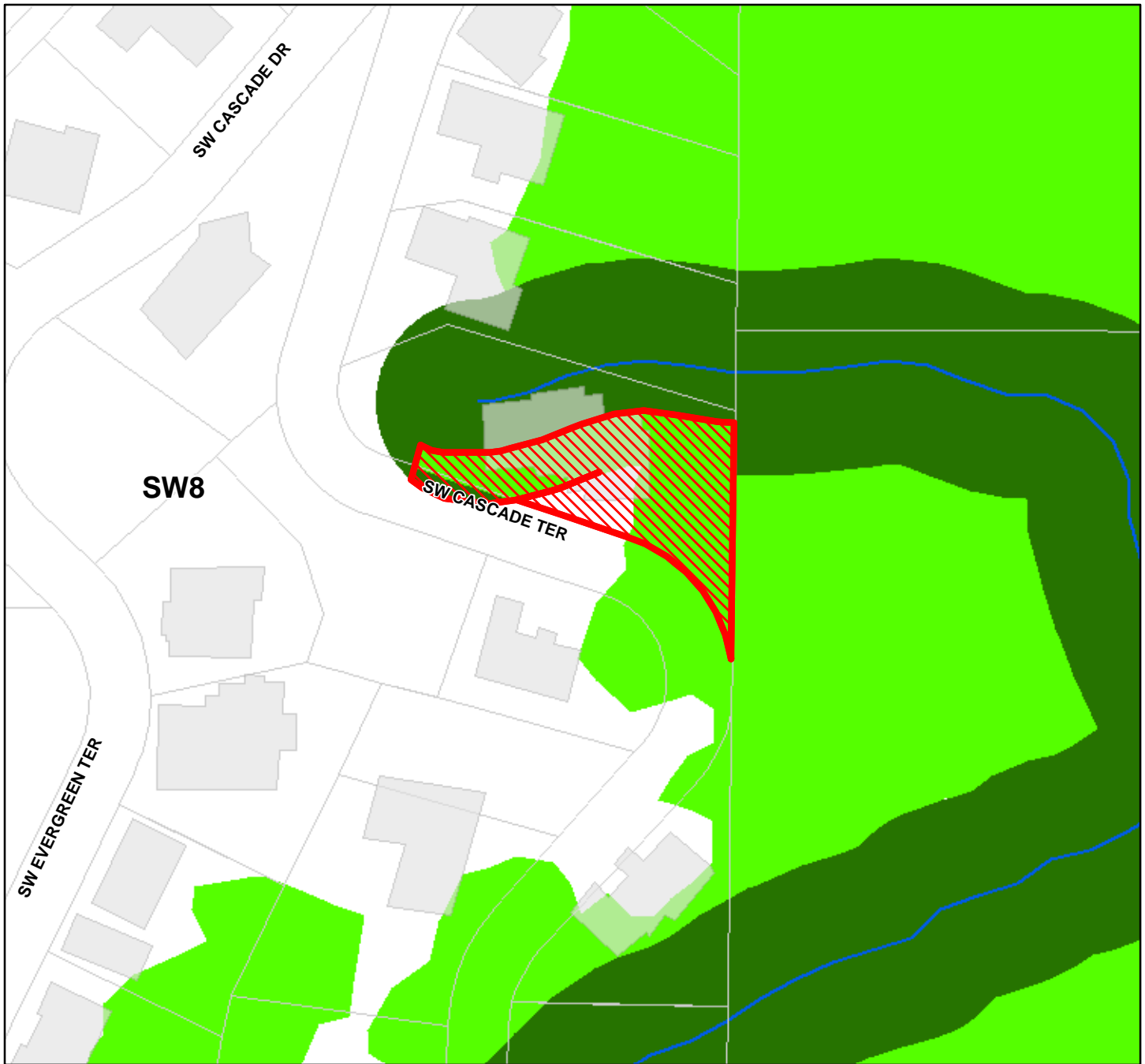


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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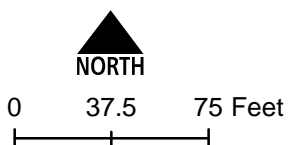


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R7 lot. Convert lot area near existing development.**

**State ID  
1S1E05AB 5600**

Updated: October 2021



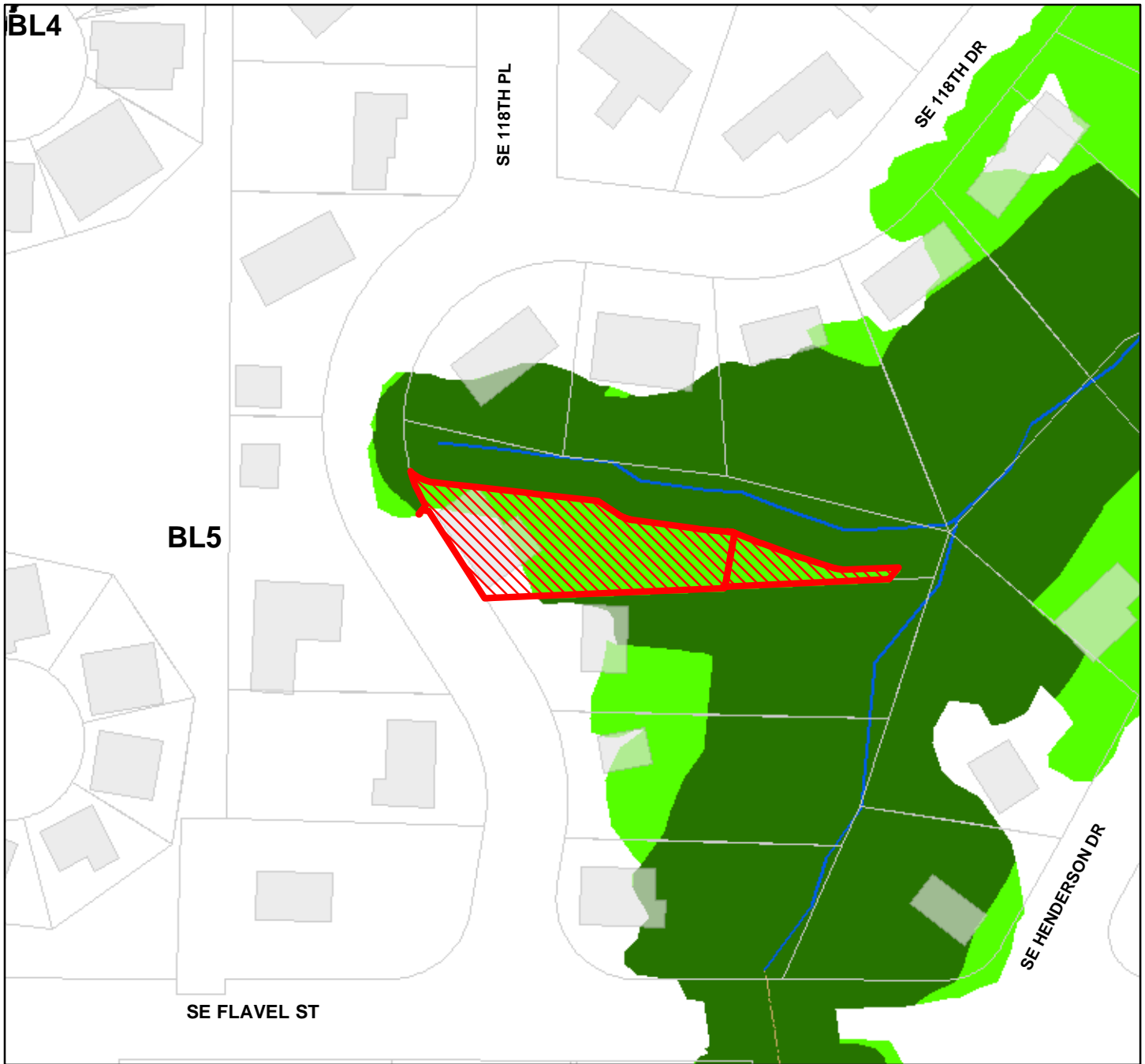
Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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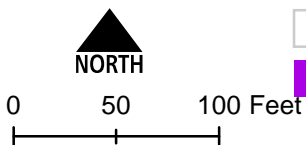
**'P' to 'C' Conversions**

**Conversion Description: Dividable R10 lot. Convert portion of lot outside riparian zone.**

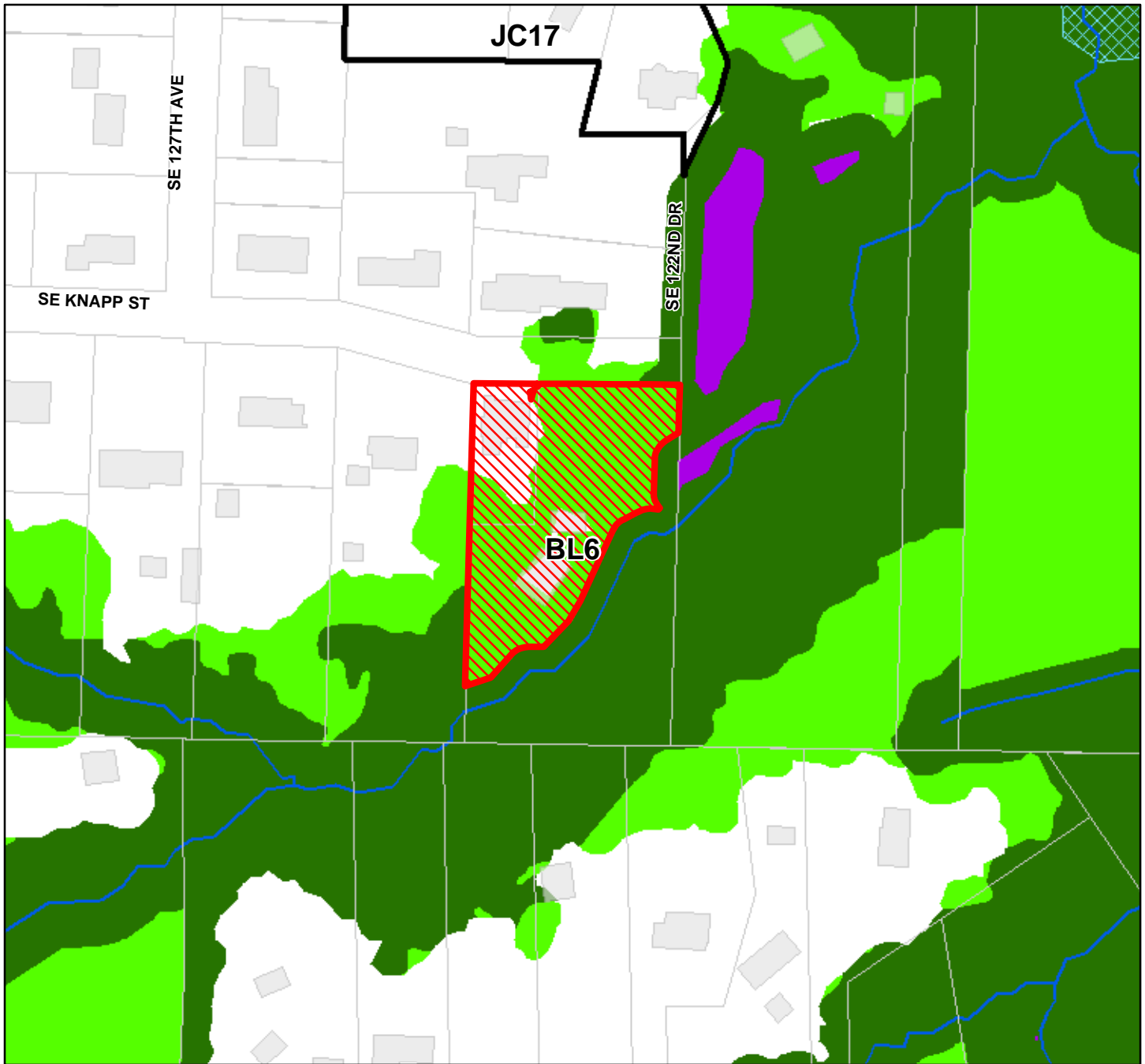
**State ID**  
**1S2E22AD 3900**

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021














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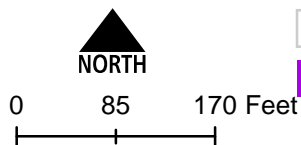
**'P' to 'C'  
Conversions**

**Conversion Description: Dividable R10 lot. Covert area outside riparian zone adjacent to existing development.**

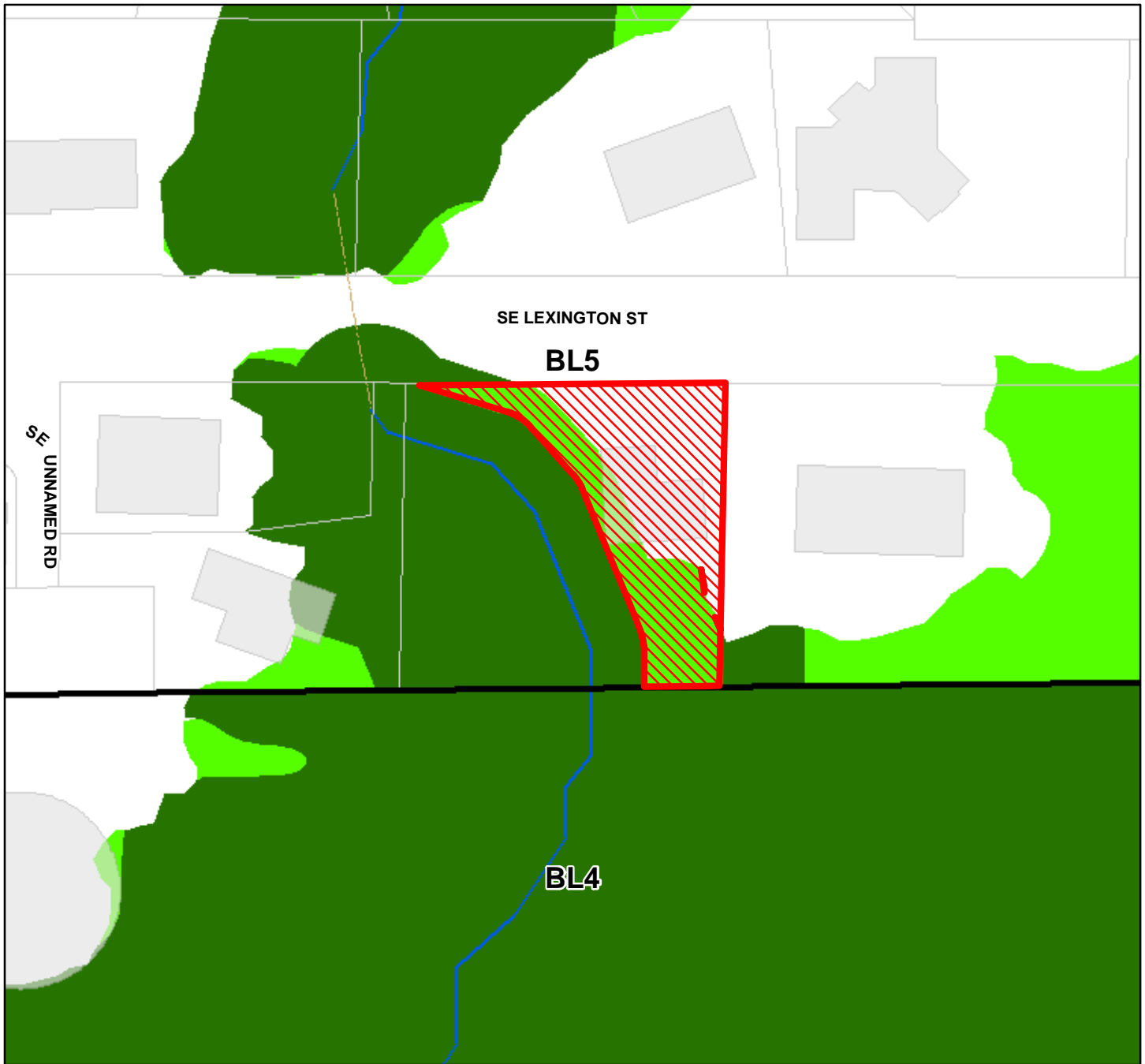
**State ID**  
1S2E23BD 2200  
1S2E23BD 2100

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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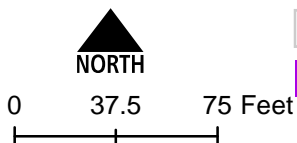


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R10 lot. Convert area outside riparian area.**

**State ID  
1S2E22DA 4600**

Updated: October 2021

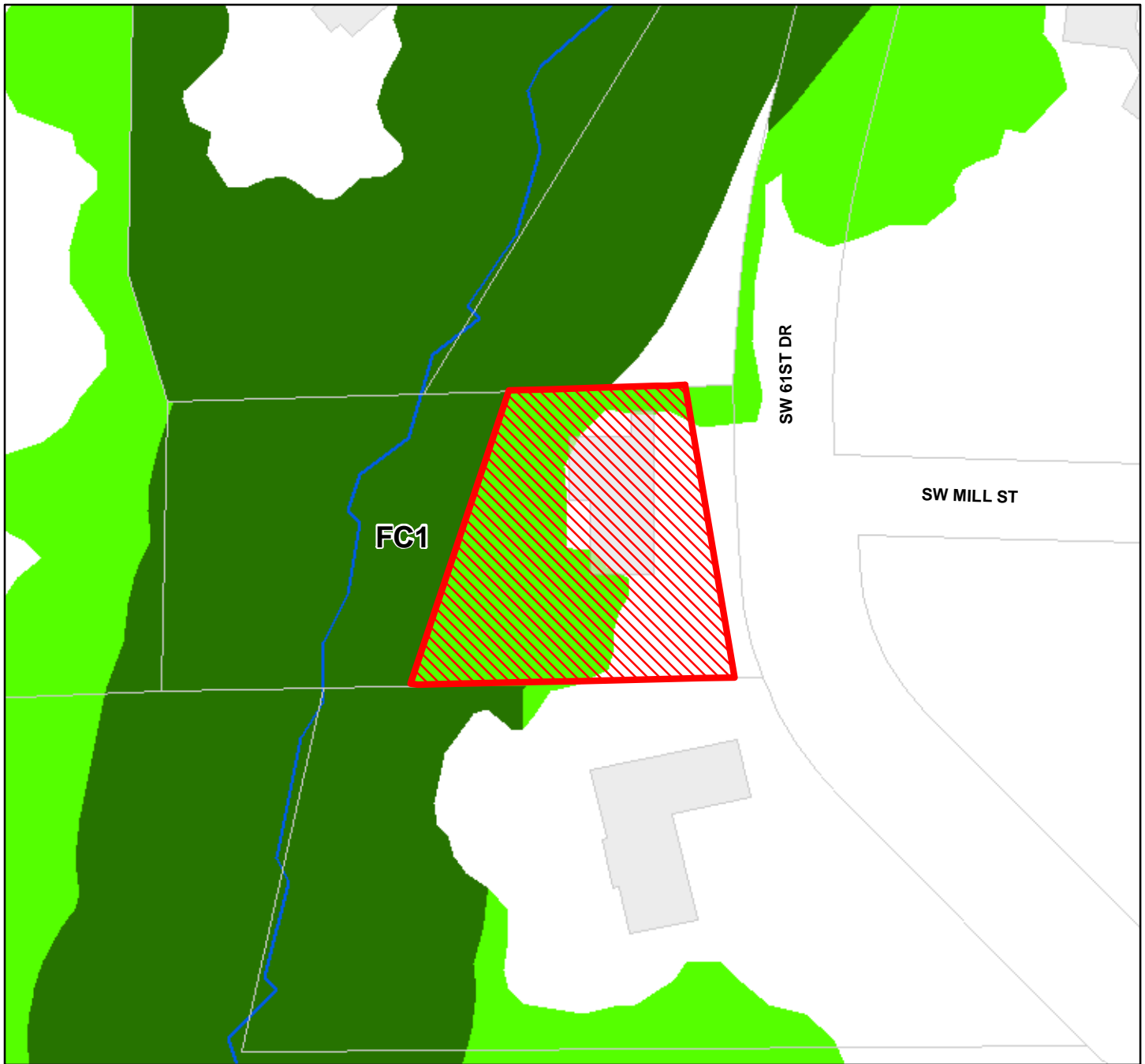


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone



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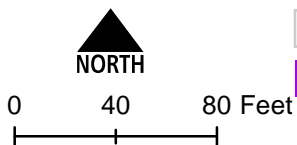


**'P' to 'C'  
Conversions**












**Conversion Description: Dividable R20 lot. Convert area outside riparian zone adjacent to existing development.**

**State ID  
1S1E06CB 1300**

Updated: October 2021

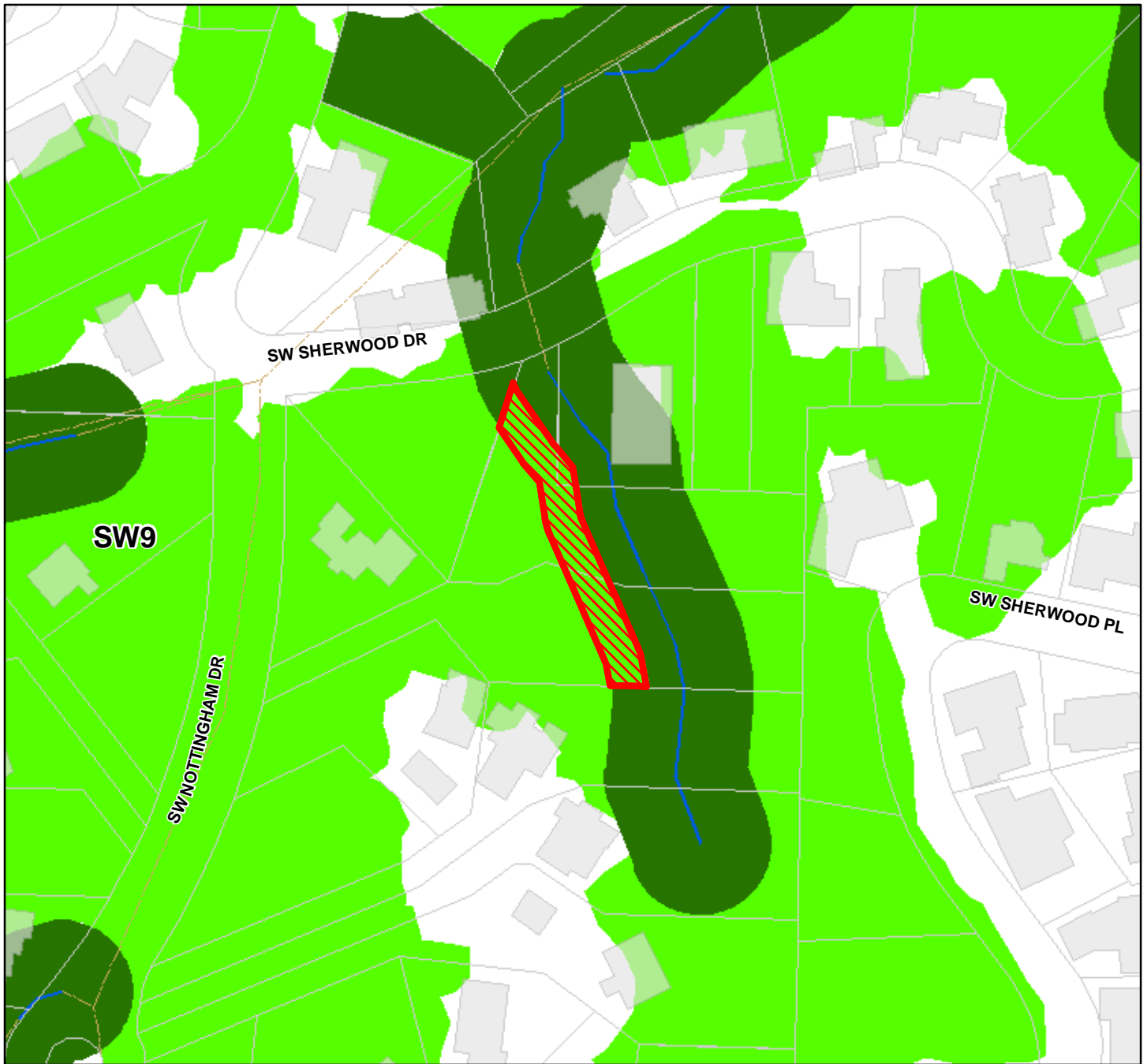


Recommended Draft

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone














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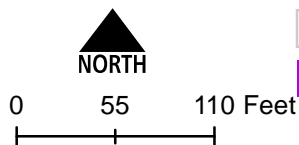
**'P' to 'C'  
Conversions**

**Conversion Description: Convert area that is >25' from stream to create developable space.**

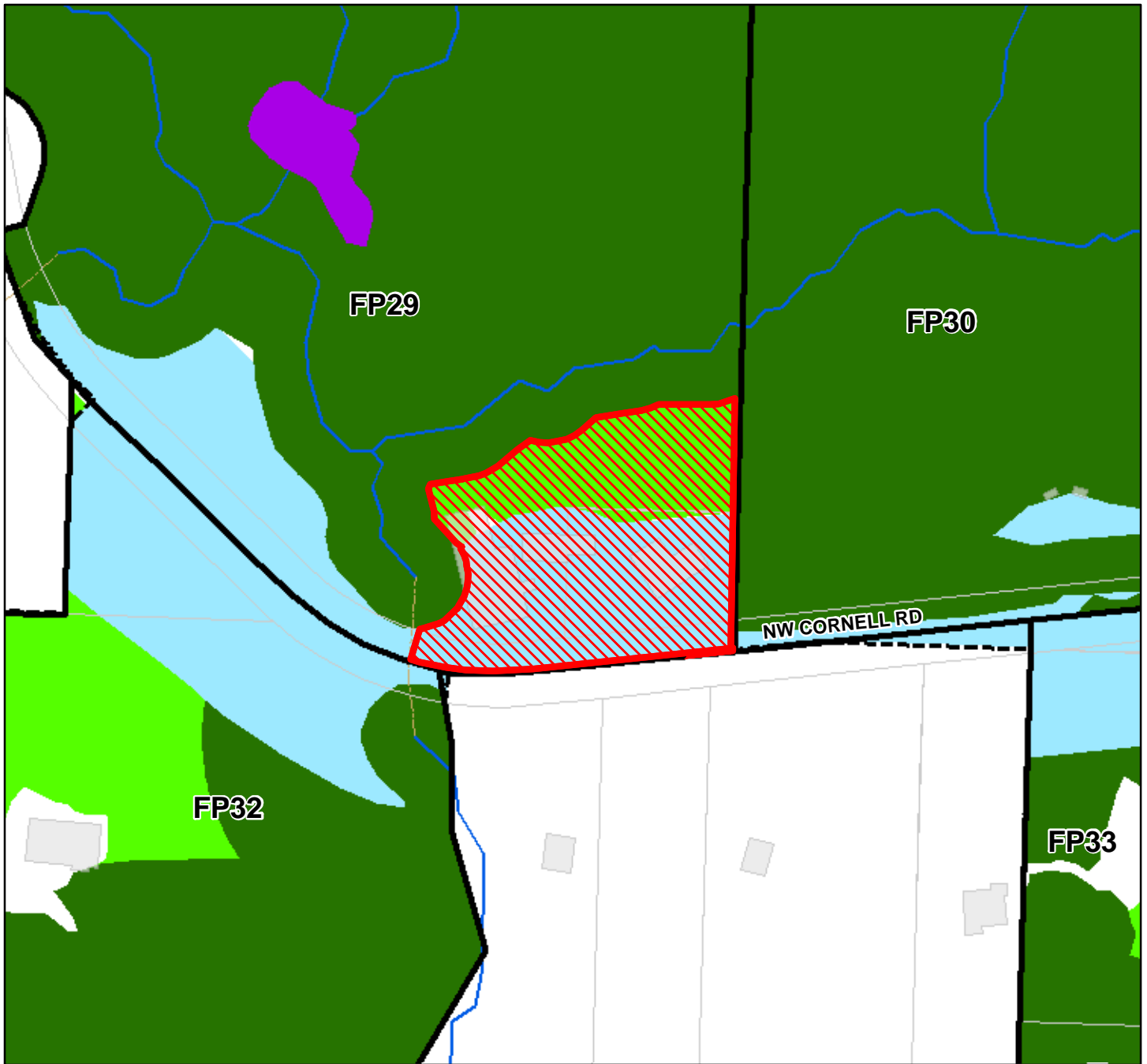
**State ID**  
1S1E09BC 5100  
1S1E09BC 5200  
1S1E09BB 10200

-  'p' to 'c' Conversions
-  Resource Sites
-  Urban Service Boundary
-  Taxlots
-  Wetlands
-  Open stream channel
-  Piped Stream Segment
-  Flood Area
-  Draft C Zone
-  Draft P Zone
-  Draft S Zone

Updated: October 2021



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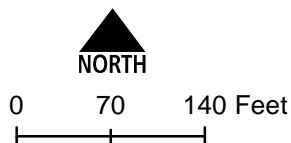


**'P' to 'C'  
Conversions**

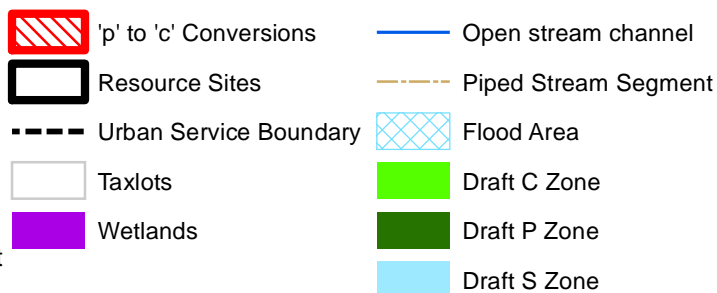
**Conversion Description: Amendment to Audubon property that was approved by the PSC.**

**State ID**  
1N1E31AC 600  
1N1E31AC 100

Updated: October 2021



Recommended Draft



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## Appendix C: Updated Wetland Mapping Protocol

The Natural Resources Inventory (NRI) was adopted in 2012 as factual basis for the Comprehensive Plan 2035 and was approved by Metro as being in substantial compliance with Title 13 of the Urban Growth Management Functional Plan. The NRI included the *Wetland Data Refinement Project*, which refined wetland maps throughout Portland based on a consistent methodology that relied heavily on existing wetland determinations or delineations completed as part of local or state permitting for development. Please see the 2012 Natural Resources Inventory for additional details.

The wetland mapping protocol outlined in this appendix builds on the *Wetland Data Refinement Project* to include additional mapping methodologies for performing on-site and off-site wetland determinations. Updates to the wetland data were led by staff from the Bureau of Environmental Services and their consultant.

The information as used to begin the wetland mapping updates included:

- A. Source Wetland Polygons:
  1. City of Portland (COP) GIS wetland shapefile
    - a. Each wetland polygon (i.e., feature) was categorized as *high*, *moderate*, or *low* confidence in mapping veracity based on the feature's source identified in the layer's attribute table. Sources labeled as *DSL Permit*, *Field Survey*, or *Land Use Review* were categorized as *high* confidence. Sources labeled as *LiDAR* or *Aerial Photo* were categorized as *moderate* confidence. Sources labeled as *<Null>* were categorized as *low* confidence.
  2. National Wetland Inventory (excluding features with riverine classification)
    - a. Categorized as *low* confidence
  3. Potential Wetlands. General areas identified by Bureau of Environmental Services and Portland Parks as potential wetlands based on existing knowledge and remote sensing data.
    - a. Categorized as *low* confidence
- B. Map Features Associated with Aquatic Resources:
  1. U.S. Department of Agriculture Natural Resource Conservation Service Soil Survey Hydric and Partially Hydric Soil Unit shapefile
  2. COP streams shapefile
  3. COP waterbodies shapefile
- C. Additional Map Features
  1. LiDAR Topographic Data
  2. Taxlot shapefile
  3. Public properties shapefile

## WETLAND DETERMINATION METHODS

Each source wetland polygon was assigned a unique number. All properties with source wetland polygons were sent a request for entry to perform a field determination. Priority was given to verifying source wetland polygons categorized as low or moderate confidence. Source wetlands categorized as high confidence were investigated in the field to the extent practical but were generally deferred. Hydric soil units, low topographic positions within partially hydric soil units, and COP stream and waterbody layers were investigated in the field to the extent practical. The presence or absence and approximate boundary of wetlands were then determined using the following determination methods:

1. Field-verified Determinations. Used for sites where property access was granted or where the site conditions are visible from a right-of-way or abutting property with granted access. Field determinations were performed by a qualified wetland scientist.
  - 1.1. Accessible areas.
    - 1.1.1. Corps wetland determination sample plot; *or*
    - 1.1.2. For small wetlands (less than ½ acre) in natural areas with hydrophytes contributing greater than 50% relative plant cover - referencing a sample plot at the same site, in a similar habitat and setting that exhibits the same wetland hydrology. Documented in GIS through notes and photos; *or*
    - 1.1.3. Observations of obligate (OBL) vegetation communities (e.g., cattails, skunk cabbage, water parsley, tule, spikerush, paleyellow iris, marsh seedbox). Documented in GIS through notes and photos. Does not include commonly planted OBL species such as slough sedge; *or*
    - 1.1.4. Observations of direct or indirect primary indicators of inundation or saturation and OBL to facultative wetland (FACW) vegetation communities. Documented in GIS through notes and photos.
  - 1.2. Inaccessible areas. Included areas where access was authorized but precluded thorough investigation due to State Historic Preservation Offices regulations, impenetrable vegetation, steep slopes, deep water, unauthorized camps, trash or contamination including sharps, or otherwise unsafe working conditions. This determination method also applied to areas where access was not authorized, but visual confirmation was possible from a right-of-way or abutting property with granted access.
    - 1.2.1. Any method for accessible sites; *or*
    - 1.2.2. Direct observations of inundation or saturation during normal climatic and hydrologic conditions *and* OBL to facultative (FAC) vegetation communities. Documented in GIS through notes and photos.



2. Offsite Determinations. When site access to perform a field-verified determination was not granted and visual confirmation was not possible from the right-of-way or abutting property with granted access, an offsite determination was performed by a qualified wetland scientist.
  - 2.1. Wetland Assumption. Wetlands were assumed to exist if any of the following conditions exist:
    - 2.1.1. Wetlands are shown on a map from a qualified source. Qualified sources include City of Portland land use and permit reviews and/or wetland delineations, Department of State Lands permits and/or concurrences, U.S. Army Corps of Engineers permits and/or concurrences, and environmental consultants' maps; *or*
    - 2.1.2. Wetlands are shown on the NWI or other wetland maps, *and* hydric soil or a soil with hydric soil inclusions is shown on the soil survey (i.e., NWI + Hydric/Partially Hydric Soil Units); *or*
    - 2.1.3. Hydric soil or a soil with hydric soil inclusions is shown on the soil survey, *and* site-specific information confirms hydrophytic vegetation, hydric soils, and/or wetland hydrology (i.e., Hydric/Partially Hydric Soil Units + Site-specific info confirms 1 criterion of a wetland); *or*
    - 2.1.4. Signs of wetland are detected by reviewing aerial photos; *or*
    - 2.1.5. Any combination of the above or parts thereof (e.g., vegetated wetland on NWI maps + signs of wetland on aerial photos)

## **Appendix D: Targeted Language Outreach and Examples of Public Mailings**

This appendix contains the following information:

1. Memo regarding a study to determine targeted language outreach for the Ezone Project
2. Ezone Project summary in English and five languages\*
3. Postcards sent to all affected property owners were sent between June 2018 and June 2019
4. Letters to all affected property owners were sent on November 15, 2019
5. Postcards to renters of properties affected as well as properties within 50 feet of proposed ezones were sent on November 21, 2019

\*The translated Ezone Project summary was used in social media including Facebook and Nextdoor announcements about the project. It was also sent to neighborhood coalitions for suggested use if the coalition received questions about the Ezone Project.



**Bureau of Planning and Sustainability**  
Innovation. Collaboration. Practical Solutions.

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## MEMO

**DATE:** September 18, 2019  
**TO:** Mindy Brooks  
**FROM:** Nick Kobel  
**CC:** Daniel Soebbing  
**SUBJECT:** Targeted Language Outreach for Ezone Update

---

### Background

The Ezone Map Correction Project is moving to the next phases of public engagement. Local, state and federal policies require serving speakers of other languages with limited English proficiency, specifically around outreach and communication. However, granular data about which languages are present in our community is extremely limited. Through a mix of data sources including ACS/Census data, Oregon Department of Education and taxlot ownership data, this memo attempts to provide strategic guidance for reaching the 49,000 LEP speakers in Portland.

### Recommendations

Based on the research outlined in the next section, I recommend the following strategic locations for targeting LEP speakers. Asterisk (\*) denotes higher priority based on overlapping data sources.

#### Chinese:

- Forest Park/Northwest Hills \*
- Pleasant Valley \*
- Kelly Butte \*
- South Portland/Marquam Hill
- Lents, south of Foster \*

#### Vietnamese:

- Pleasant Valley \*
- Rocky Butte \*
- Wilkes
- East Columbia/Bridgeton



City of Portland, Oregon | Bureau of Planning and Sustainability | [www.portlandoregon.gov/bps](http://www.portlandoregon.gov/bps)  
1900 SW 4th Avenue, Suite 7100, Portland, OR 97201 | phone: 503-823-7700 | fax: 503-823-7800 | tty: 503-823-6868

*Printed on 100% post-consumer waste recycled paper.*

- East Portland broadly

Ukrainian or Russian:

- Pleasant Valley \*
- Powell Butte
- Lents, east of 205
- East Portland broadly

Spanish

- Lents \*
- East Portland broadly

## Data sources and methods

Quality information on populations with a language other than English is lacking. Coordination across the City on improving this data gap is also lacking. However, the data sources below helped inform this targeted language access strategy:

- ACS 2013-17 data on languages and language groupings (Table C16001)
- [Portland LEP Factor 1 Analysis](#) (ACS 2008-12 data and Oregon Department of Education data)
- Taxlot data using owner name - visual scan of names as well as a python library ([ethnicolr](#)) with a predictive AI model to infer broad geographic origin of first and last names

## Limited English proficiency (LEP) population

The table below summarizes the LEP population in Portland.

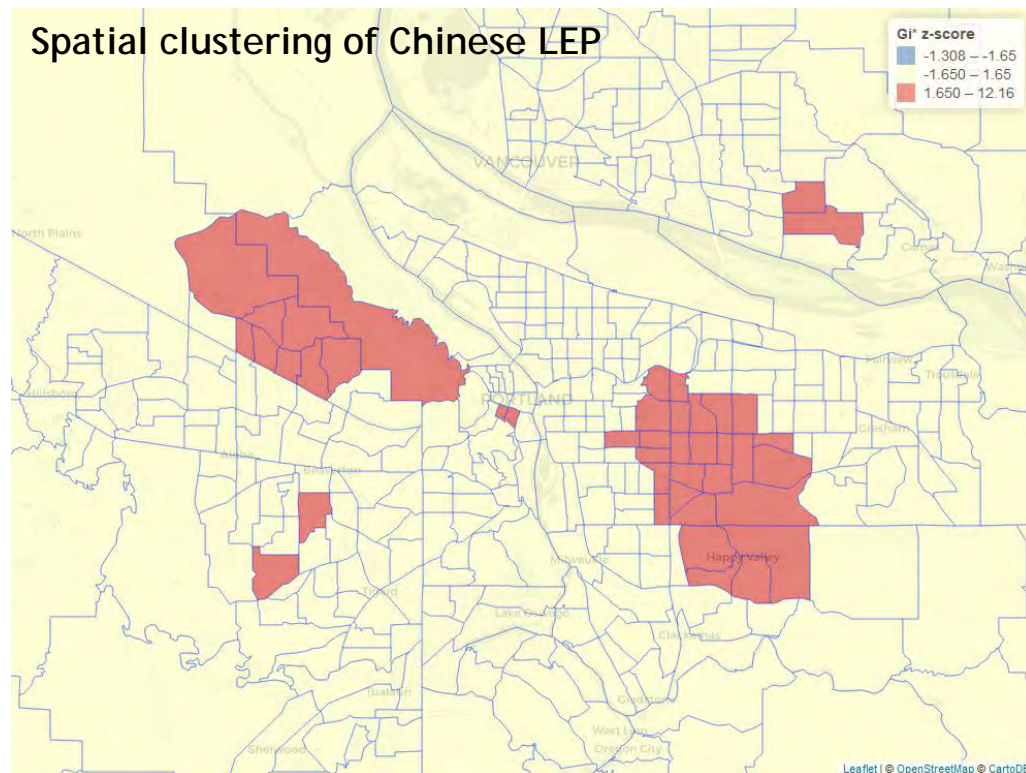
Language	LEP population	Share of LEP speakers	Share of total population
Spanish	15,431	32%	2.6%
Vietnamese	8,468	17%	1.4%
Russian Polish or other Slavic languages	6,128	13%	1.0%
Chinese (incl. Mandarin Cantonese)	5,768	12%	1.0%
Other Asian and Pacific Island languages	5,219	11%	0.9%
Other Indo-European languages	2,918	6%	0.5%
Other and unspecified languages	2,767	6%	0.5%
Arabic	639	1%	0.1%
Korean	605	1%	0.1%
Tagalog (incl. Filipino)	493	1%	0.1%
French Haitian or Cajun	319	1%	0.1%
German or other West Germanic languages	170	0%	0.0%
Total LEP speakers	48,925		8.2%
Total population 5 years or older	595,091		

Source: ACS 2013-17, Table C16001.



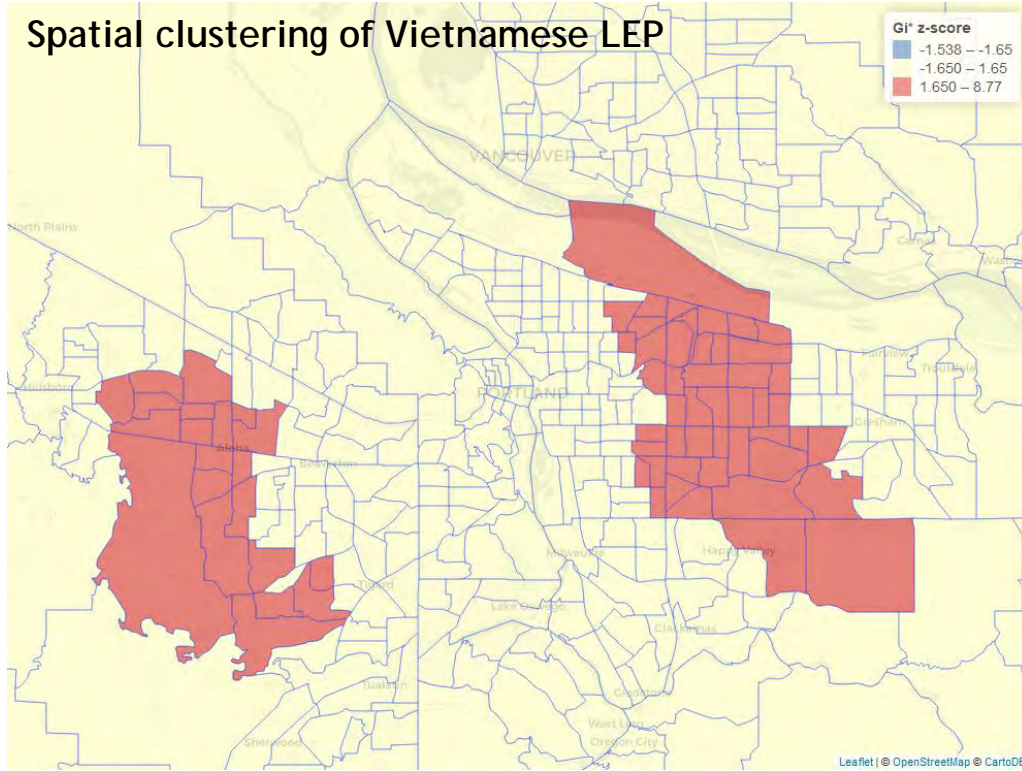
## Hot spots analysis

I conducted a hot spot analysis on the nominal value of LEP speakers of various languages available using the 2017 ACS. Hot spots (red) and cold spots (blue) show where there is statistically significant spatial clustering of speakers of other languages. Red and blue clusters are significant at a 90% confidence level. A hot spot analysis does not tell you where there are a high number of speakers. It tells you where there are spatially correlated clusters of speakers. While there is a high correlation between volume of speakers and spatial autocorrelation, they do not equate one another.

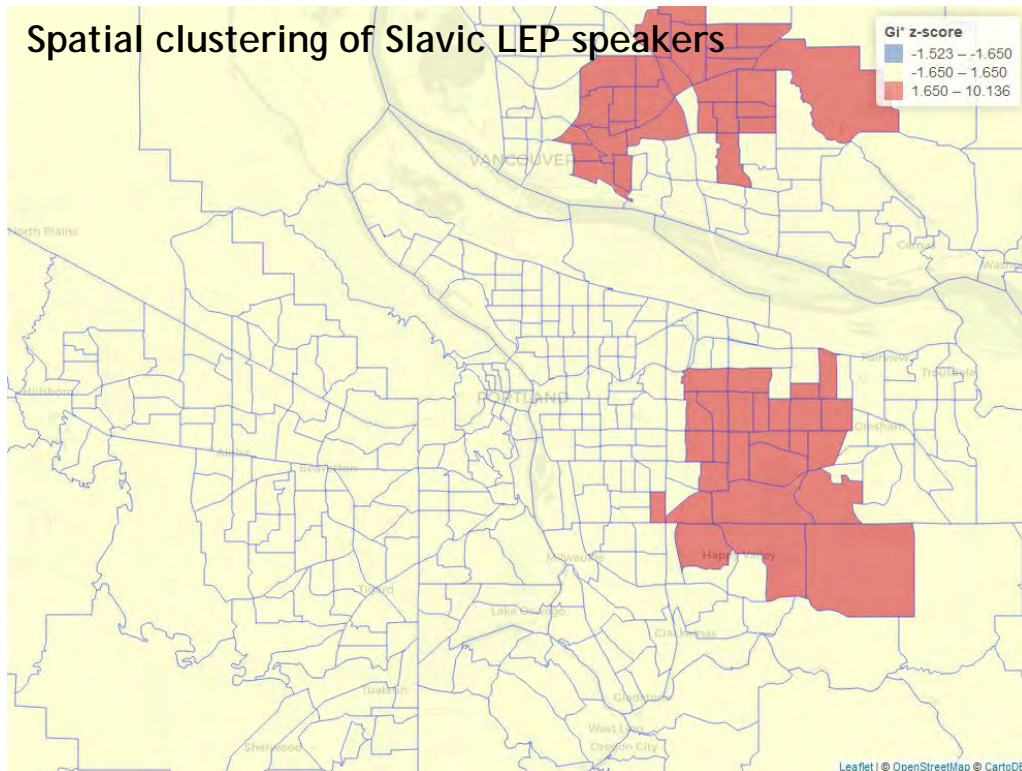


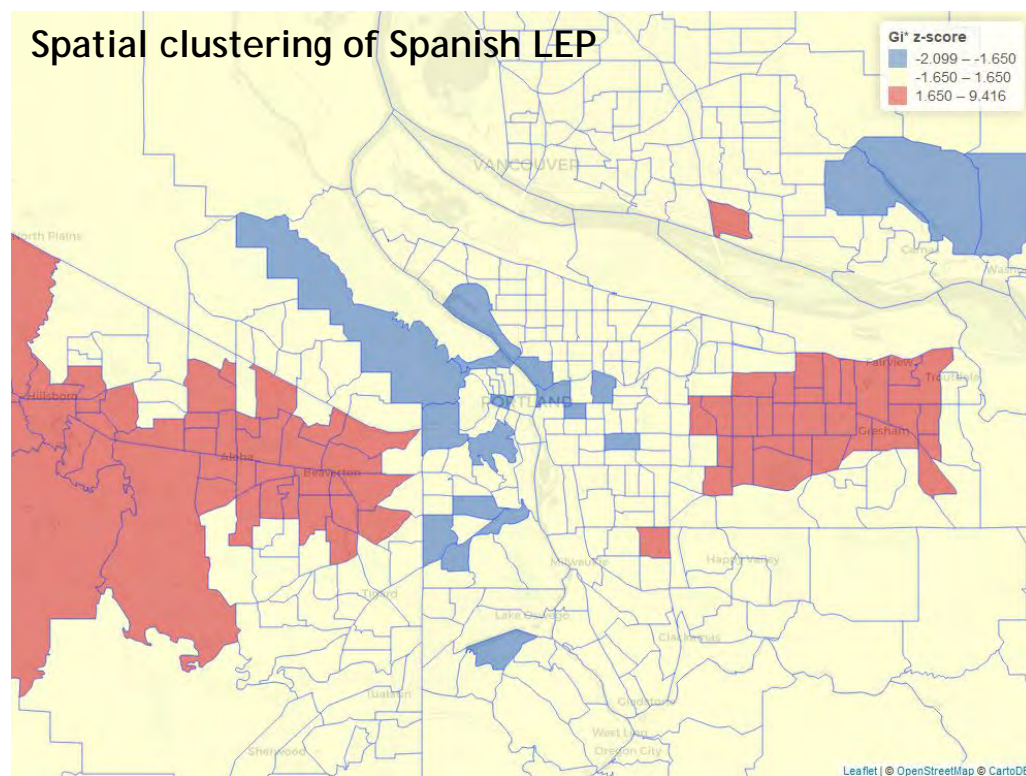


### Spatial clustering of Vietnamese LEP



### Spatial clustering of Slavic LEP speakers





### Tenure (owner/renter split)

Last, using taxlot information, I examined the tenure split in Ezones. First, I selected all taxlots that intersect a c- or p-zone. Then I joined this information to building footprints and to census tract FIPS codes. Next, I assigned each FIPS code a Portland Plan study area using PHB’s housing analysis areas tract crosswalk. Then I determined whether the owner address matched the site address. Finally, I summarized the total number of units (RES\_UNITS field in the building footprints layer) by Portland Plan area and by tenure.

Identifying owner-occupied sites is easier than identifying renter-occupied sites. This is because the owner address may not match the site address for many reasons, potentially including PO boxes used by site owner or using trusts or LLCs as the recorded owner of a site for property tax purposes. For this reason, caution should be used in drawing conclusions on renter-occupied housing units in Ezones.

Portland Plan area	Owner-occupied	Not owner-occupied	Total
122nd-Division	22	12	34
Central City	19	30	49
Forest Park-Northwest Hills	412	112	524
Gateway	10	5	15
Hayden Island-Bridgeton	183	821	1,004
Hillsdale-Multnomah-Barbur	304	750	1,054
Hollywood	1	210	211
Interstate Corridor	12	2	14

5



Lents-Foster	56	269	325
Montavilla	4	27	31
Northwest	200	128	328
Parkrose-Argay	48	7	55
Pleasant Valley	367	79	446
Raleigh Hills	552	642	1,194
Roseway-Cully	53	132	185
Sellwood-Moreland-Brooklyn	9	378	387
South Portland-Marquam Hill	340	474	814
St. Johns	1	34	35
Tryon Creek-Riverdale	455	279	734
West Portland	307	163	470
Woodstock	286	261	547
<b>Grand Total</b>	<b>3,641</b>	<b>4,815</b>	<b>8,456</b>





## Ezone Map Correction Project Summary Language Translations December 22, 2020

### Original English

Natural resources like streams, wetlands, plants, trees, and flood areas help move water off private property, store water during flood events, hold hillsides in place, cool the air and provide habitat for wildlife. Protecting these natural resources protects houses, businesses and roads by reducing the risk of flooding and landslides. On some properties, natural resource protections could limit or restrict where new houses or structures may be built. To find out more about how the City is updating these rules and to see if your property is affected, visit [About the Ezones Map Correction Project | Portland.gov](#). City staff will brief the Planning and Sustainability Commission about the project on Jan. 26, 2021. You can watch the briefing on YouTube and learn more about the PSC briefing (learn more: [Events | Portland.gov](#)). To talk directly with staff, email us at [ezone@portlandoregon.gov](mailto:ezone@portlandoregon.gov) or call 503-823-4225. Interpretation is available.

### Spanish

El gobierno de la ciudad de Portland está actualizando las regulaciones de protección a recursos naturales. Los arroyos, los pantanos, la vegetación y las áreas con riesgo de inundación son importantes porque mantienen el agua fuera de la propiedad privada, almacenan agua cuando hay inundaciones, mantienen las laderas en su lugar, enfrían el aire y proporcionan un hábitat para la vida silvestre. Además, al cuidar estos recursos naturales también protegemos a casas, negocios y carreteras al reducir el riesgo de inundaciones y derrumbes. En algunas propiedades, las protecciones a los recursos naturales podrían limitar o restringir los lugares donde se puedan construir casas o estructuras nuevas. Para averiguar más sobre cómo el gobierno de la ciudad está actualizando las regulaciones y saber si su propiedad será afectada, consulte el sitio web [www.portland.gov/bps/ezones](http://www.portland.gov/bps/ezones). El personal le dará una introducción sobre el proyecto a la Comisión de Planeación y Sustentabilidad el 26 de enero del 2021. Usted puede ver la introducción en YouTube. Encuentre más información sobre la introducción y la Comisión de Planeación y Sostenibilidad en [www.portland.gov/bps/psc](http://www.portland.gov/bps/psc). Para comunicarse directamente con el personal, escríbanos por correo electrónico a [ezone@portlandoregon.gov](mailto:ezone@portlandoregon.gov) o llame al 503-823-4225. Hay servicio de interpretación disponible.

### Chinese

波特兰市正在更新保护自然资源的法规。溪流、湿地、蓄洪区以及植被都很重要，因为它们能够帮助私人物业设施排水、在发生洪水时蓄水、预防山体滑坡、使空气清新凉爽，并且为野生动物提供栖息之地。保护好这些自然资源，就能够减少发生洪涝和山体滑坡的风险，从而保护房屋、企业和道路。在一些物业区域，为了保护自然资源，可能会限制或禁止在此地修建新的房屋或建筑。要了解更多有关本市如何更新这些法规的信息，以及查看您的物业设施是否受到影响，请浏览网站 [www.portland.gov/bps/ezones](http://www.portland.gov/bps/ezones)。工作人员将在 2021 年 1 月 26 日的简报会上向规划及可持续发展委员会 (Planning and Sustainability Commission) 介绍本项目。您可以在 YouTube 上观看此简报会。要了解更多有关此简报会以及规划及可持续发展委员会的信息，请浏览 [www.portland.gov/bps/psc](http://www.portland.gov/bps/psc)。要想与工作人员直接交流，请发送电子邮件至 [ezone@portlandoregon.gov](mailto:ezone@portlandoregon.gov) 或致电 503-823-4225。可提供口译服务。

### Vietnamese

Thành phố Portland đang cập nhật các quy định bảo vệ tài nguyên thiên nhiên. Các con suối, đầm lầy, vùng ngập nước và thực vật rất quan trọng vì chúng chuyển nước ra khỏi bất động sản tư nhân, trữ nước trong các trận lũ, giữ cố định sườn đồi, làm mát không khí và tạo môi trường sống cho động vật

hoang dã. Bảo vệ các tài nguyên thiên nhiên này cũng là bảo vệ nhà cửa, doanh nghiệp và đường xá bằng cách giảm nguy cơ lũ lụt và sạt lở đất. Đối với một số bất động sản, các biện pháp bảo vệ tài nguyên thiên nhiên có thể giới hạn hoặc hạn chế nơi có thể xây dựng nhà hoặc công trình mới. Để tìm hiểu thêm về cách Thành phố cập nhật các quy định và để xem bất động sản của quý vị có bị ảnh hưởng hay không, vui lòng truy cập trang web tại [www.portland.gov/bps/ezones](http://www.portland.gov/bps/ezones). Nhân viên phụ trách sẽ thông báo tóm tắt cho Ủy ban Kế hoạch và Bền vững (Planning and Sustainability Commission) về dự án vào ngày 26 Tháng Một, 2021. Quý vị có thể xem cuộc họp trên YouTube. Tìm hiểu thêm về cuộc họp và Ủy ban Kế hoạch và Bền vững tại [www.portland.gov/bps/psc](http://www.portland.gov/bps/psc). Để nói chuyện trực tiếp với nhân viên phụ trách, vui lòng gửi email cho chúng tôi tại [ezone@portlandoregon.gov](mailto:ezone@portlandoregon.gov) hoặc liên hệ theo số 503-823-4225. Sẵn có dịch vụ thông dịch.

### Russian

Городское управление Портленда обновляет постановления о защите природных ресурсов. Водотоки, заболоченные земли, затопляемые земли и растительность имеют большое значение, так как они обеспечивают сток воды с территорий, являющихся частной собственностью, накопление и хранение воды во время паводков и наводнений, предотвращение оползней, охлаждение воздуха и поддержание среды обитания дикой фауны. Защита этих природных ресурсов способствует также защите домов, коммерческих предприятий и дорог посредством уменьшения риска подтопления и оползней. На некоторых участках мерами по защите природных ресурсов может ограничиваться или предотвращаться строительство новых домов или сооружений в некоторых местах. Для того, чтобы получить дополнительные сведения об обновлении постановлений Городским управлением и узнать, повлияет ли оно на вашу собственность, пожалуйста, посетите сайт [www.portland.gov/bps/ezones](http://www.portland.gov/bps/ezones). 26 января 2021 г. персонал проведет посвященный проекту брифинг для Комиссии по планированию и возобновлению ресурсов. Вы можете наблюдать за этим брифингом в режиме онлайн на сайте YouTube. Дополнительные сведения о брифинге и о Комиссии по планированию и возобновлению ресурсов можно найти на сайте [www.portland.gov/bps/psc](http://www.portland.gov/bps/psc). Для того, чтобы непосредственно связаться с персоналом, обращайтесь к нам по электронной почте ([ezone@portlandoregon.gov](mailto:ezone@portlandoregon.gov)), или по тел. 503-823-4225. Доступны услуги устных переводчиков.

### Ukrainian

Адміністрація міста Портленд оновлює постанови щодо захисту природних ресурсів. Струмки, болота, ділянки можливого затоплення та рослинність важливі, оскільки вони відводять воду з приватної власності, накопичують воду під час повені, утримують схили на місці, охолоджують повітря та забезпечують житлове середовище для дикої природи. Захист цих природних ресурсів також оберігає будинки, підприємства та дороги, зменшуючи ризик повеней та зсувів. Постанови щодо захисту природних ресурсів можуть обмежувати або забороняти побудову нових будинків або споруд на деяких ділянках. Щоб дізнатись більше про те, як адміністрація міста оновлює постанови та дізнатись, чи не вплине це на вашу земельну ділянку, відвідайте вебсайт: [www.portland.gov/bps/ezones](http://www.portland.gov/bps/ezones). Співробітники проведуть брифінг Комісії з питань планування та сталого розвитку щодо проекту 26 січня 2021 року. Ви можете переглянути брифінг на YouTube. Дізнайтеся більше про брифінг та Комісію з планування та сталого розвитку на вебсайті: [www.portland.gov/bps/psc](http://www.portland.gov/bps/psc). Щоб поговорити безпосередньо зі співробітниками, напишіть нам лист на електронну адресу: [ezone@portlandoregon.gov](mailto:ezone@portlandoregon.gov) або зателефонуйте за номером: 503-823-4225. Ми надаємо послуги усного перекладача.





**YOUR PROPERTY IS BEING EVALUATED FOR REMAPPING AS PART OF THIS COMPLIANCE PROJECT.**

Please visit [www.portlandoregon.gov/bps/e-zone](http://www.portlandoregon.gov/bps/e-zone) for more information or attend an information session — listed on the back — near you.



City of Portland, Oregon  
Bureau of Planning and Sustainability  
1900 SW 4th Avenue, Suite 7100  
Portland, Oregon 97201-5380

P276 RETURN SERVICE REQUESTED

Environmental Overlay Zones protect Portland's streams, wetlands, forests, steep slopes and wildlife habitat. This project will align the e-zones with the natural features adopted by the new 2035 Comprehensive Plan.

**LEARN MORE AT AN INFORMATION SESSION NEAR YOU:**

- Brentwood-Darlington Neighborhood Association Meeting  
August 2, 2018 at 7:00pm  
Brentwood-Darlington Community Center - 7211 SE 62nd Ave
- Lents Neighborhood Livability Association  
August 9, 2018 at 6:30pm  
KingsPins Chalet - 3550 SE 92nd Ave
- Pleasant Valley Neighborhood Association Meeting  
September 19, 2018 at 7:00pm  
Alice Ott Middle School - 12500 SE Ramona St

**CONTACT PROJECT STAFF, WE'RE HERE TO HELP:**  
503-823-4225 or [ezone@portlandoregon.gov](mailto:ezone@portlandoregon.gov)

The Bureau of Planning and Sustainability is committed to providing meaningful access. For accommodations, modifications, translation, interpretation or other services, please contact at 503-823-7700, or use City TTY 503-823-6888, or Oregon Relay Service 711.

Таддусион о Interpretation	Служба поддержки People Direct	翻譯或傳譯	Писменный или Устный перевод
Taduscioneau yau Interpretate	Писменный або Устный перевод	翻譯或傳譯	Tudimlindia ama Fasfaiadda
	الترجمة الشفهية أو المكتوبة	翻譯或傳譯	
	503-823-7700   <a href="http://www.portlandoregon.gov/bps/71701">www.portlandoregon.gov/bps/71701</a>		



<NAME>

<ADDRESS>

<CITY STATE ZIP>



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please contact at 503-823-7700 or use the City's TTY at 503-823-6868, or Oregon Relay Service at 711.

Traducción o interpretación	Chuyển Ngữ hoặc Phiên Dịch	翻译或传译	Письменный или устный перевод	Traducere sau Interpretare
الترجمة التحريرية أو الشفهية	Письмовий або усний переклад	翻訳または通訳	Turjumida ama Fasiraadda	ການແປພາສາ ຫຼື ການອະທິບາຍ

503-823-7700 | www.portlandoregon.gov/bps/71701

[www.portlandoregon.gov/bps](http://www.portlandoregon.gov/bps)



**Bureau of Planning and Sustainability**  
Innovation. Collaboration. Practical Solutions.



City of Portland, Oregon  
Bureau of Planning and Sustainability  
1900 SW 4th Avenue, Suite 7100  
Portland, Oregon 97201-5380 P514

**Environmental Overlay Zone Map Correction Project**

<OWNER NAME>  
<OWNER ADDRESS>  
<OWNER CITY STATE ZIP>

## Environmental Overlay Zone Map Correction Project

DRAFT Zoning Changes Proposed for Your Property

### Open House Events

**December 4, 6:30-8:30pm** at Riverdale Highschool, 9727 SW Terwilliger Blvd

**December 11, 5:00-7:00pm** at Skyline Memorial Garden, 4101 NW Skyline Blvd

**January 8, 4:30-6:30pm** at Taborspace, 5441 SE Belmont St

Project website: [www.portlandoregon.gov/bps/e-zone](http://www.portlandoregon.gov/bps/e-zone)



# Environmental Overlay Zone Map Correction Project

**This notice is in regard to property:** <SITE ADDRESS>

## What is the Environmental Overlay Zone Map Correction project?

This project is correcting the location of environmental overlay zones (ezones) to better align with rivers, streams, wetlands, flood areas, steep slopes, forests, and fish and wildlife habitat in Portland and urban unincorporated Multnomah County. A new draft of the maps and reports is available for your review on the project website: [www.portlandoregon.gov/bps/e-zone](http://www.portlandoregon.gov/bps/e-zone)

## Why are these changes being proposed? Why now?

The City of Portland has an existing environmental program, which was adopted between 1989-2002, to protect natural resources using environmental overlay zones (ezones). The ezones are intended to follow features like rivers, streams, wetlands, steep slopes and forests. The technology used to map natural resources has greatly improved. With the new Natural Resources Inventory in 2012 it became obvious that some resources that are supposed to be protected (like stream segments) are not, while other lands have regulations but no resources. This project will correct that.

The ezone update project is being done now because the newly adopted 2035 Comprehensive Plan directs the City to make sure regulations that protect natural resources are up to date. Most of the ezones have not been updated in nearly 20 years and do not match the resources they were intended to protect.

## How do these changes impact your property?

If your property is already developed with a house or business, there will be little impact on the existing development. The buildings, driveway, parking lot and yard can be maintained, repaired, and in most cases, be replaced. However, the ezones could impact if or where a new expansion, such as a new deck or a garage, is allowed.

If your property is vacant, the ezones allow a certain amount of development in the ezones to accommodate a new house or business. Please see the General Development Standards of zoning code 33.430.140.A-S. If a proposed development cannot meet these standards, Environmental Review is required as described in zoning code 33.430.210.

## When will these changes take effect?

Before any changes can be made, there will be public hearings so community members can share their feedback on the proposals. In spring 2020, a notice will be sent to property owners with information about when, where and how to provide testimony to the Planning and Sustainability Commission. After the PSC forwards its recommendations to City Council, there will be another chance to testify at City Council. Adoption of the zone changes is anticipated in Winter 2020 or Spring 2021.

## How can you find out more about the project?

- Attend an open house and speak with staff (see backside for dates and times)
- Get answers from our Ezone Helpline at 503-823-4225
- Email us at [ezone@portlandoregon.gov](mailto:ezone@portlandoregon.gov)
- Visit our website at [www.portlandoregon.gov/bps/e-zone](http://www.portlandoregon.gov/bps/e-zone)

## Interpretation Services:

Esto es un aviso público sobre los posibles cambios del uso del suelo que pueden afectar a su propiedad. Para obtener más información, por favor llame al 503-823-4225.

Официально уведомляем о возможных изменениях в землепользовании, которые могут коснуться Вашей собственности. За дополнительной информацией обращайтесь по номеру 503-823-4225.

Офіційно повідомляємо про можливі зміни в землекористуванні, які можуть стосуватись Вашого нерухомого майна. За додатковою інформацією звертайтеся за номером 503-823-4225.

Đây là một thông báo cho công chúng về những thay đổi trong sử dụng đất có thể sẽ ảnh hưởng tới nhà đất của quý vị. Để biết thêm thông tin, vui lòng gọi 503-823-4225.

本文为公共通知，旨在告知您土地使用的潜在变化可能会影响到您的房产。如需更多信息，请致电：503-823-4225。



ENVIRONMENTAL OVERLAY ZONE  
(c & p zones)

MAP CORRECTION PROJECT



Bureau of Planning and Sustainability  
Innovation. Collaboration. Practical Solutions.  
City of Portland, Oregon



## THE CITY IS UPDATING PROTECTIONS FOR NATURAL RESOURCES NEAR YOU

To see the proposed ezones, please visit [www.portlandmaps.com/bps/ezones/#/map](http://www.portlandmaps.com/bps/ezones/#/map)  
or attend an information session - listed on the back.



City of Portland, Oregon  
Bureau of Planning and Sustainability  
1900 SW 4th Avenue, Suite 7100  
Portland, Oregon 97201-5380

P276 RETURN SERVICE REQUESTED

Environmental Overlay Zones protect Portland's streams, wetlands, forests, steep slopes and wildlife habitat. This project will align the e-zones with the natural features adopted by the new 2035 Comprehensive Plan.

**FIND OUT MORE AT AN INFO SESSION NEAR YOU:**

**December 11, 2019**

5:00 to 7:00pm  
Skyline Memorial Garden  
4101 SW Skyline Boulevard

**January 8, 2020**

4:30 to 6:30pm  
Taborspace  
5441 SW Belmont Street

**CONTACT PROJECT STAFF, WE'RE HERE TO HELP:**  
503-823-4225 or [ezone@portlandoregon.gov](mailto:ezone@portlandoregon.gov)

The Bureau of Planning and Sustainability is committed to providing meaningful access. For accommodations, modifications, translations, interpretation or other services, please contact at 503-823-7700, or use City TTY 503-823-6868, or Oregon Relay Service 711.

Translation or Interpretation	Чувын Нугу хаакч Пхилн Дич	翻譯或傳譯	Писаванный или устный перевод
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	503-823-7700   <a href="http://www.portlandoregon.gov/bps/71701">www.portlandoregon.gov/bps/71701</a>		

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Metro

600 NE Grand Ave.  
Portland, OR 97232-2736

# Memo

Date: Wednesday, May 6 2020  
To: Mindy Brooks, City Planner, Bureau of Planning & Sustainability  
From: Tim O'Brien, Principal Regional Planner  
Subject: Ezone Map Correction Project

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This memo is intended to clarify some discussion points regarding substantial compliance with Title 13 that resulted from our meeting on April 23, 2020 with staff from the Department of Land Conservation and Development and the Department of State Lands.

As you know the city was determined to be in substantial compliance with Urban Growth Management Functional Plan Title 13: Nature in Neighborhoods on January 16, 2013. This determination of substantial compliance was based upon the city's broad natural resource protection package that includes a wide range of actions and programs from overlay zones, to plan districts, development regulations, restoration, acquisition, green streets and education/stewardship programs. The number of diverse programs and projects the city implements is by far the most comprehensive of any of the jurisdictions in the region.

Because the city is in compliance with Title 13 any changes to the overall natural resource protection program as a result of the current Ezone Map Correction Project will be evaluated based on the protection measures/programs the city originally adopted to meet the requirements of Title 13. As we have discussed and agreed upon, the city will group or package major changes to the maps together in an effort to facilitate the review of the proposed map changes.

Metro staff has always understood that the original Inventory and Habitat Conservation Area (HCA) Maps were completed at the regional (50,000 foot) level and local jurisdiction refinements of the mapped HCA areas based upon updated information and improvements in mapping technology is, not only expected but encouraged, as jurisdictions update their natural resource protection programs over time. This refinement process, using an updated natural resource inventory is consistent with the intention of the implementation alternatives for cities and counties under Metro Code section 3.07.1330(b)(2). In 2012 Metro staff utilized the city's 2012 request for compliance report as a basis for determining substantial compliance. Similarly, Metro staff will utilize the city's 2020 request for compliance report to evaluate whether the proposed changes substantially meet compliance with Title 13. Metro staff's review of this report along with on-going discussions with city staff is the method for documenting the determination of substantial compliance. Once again Metro will consider the city's wide range of actions and programs as outlined in the request for compliance report in determining substantial compliance.

It is my understanding that as a result of the updated natural resource inventory new wetland and riparian areas were identified. The city's proposed methodology for addressing these areas is to utilize the methodology for identifying habitat areas consistent with code section 3.07.1340(d)(4) and determining urban development value of the land consistent with code section 3.07.1340(e). Finally the confirmation of the HCA will be determined utilizing Title 13 Table 13.07-13a. The location of the city's conservation and protection overlay zones will then be updated to apply to the confirmed HCAs – Class I Riparian Areas, Class II Riparian Areas and Habitats of Concern. This is the same process the city used in meeting substantial compliance with Title 13 in 2013 and is appropriate for use in the Ezone Map Correction Project. Lastly, for Class III Riparian Areas and Upland Habitat which are not HCAs the city will demonstrate Compliance with Goal 5 OAR 660-023.

As I noted above, Metro expects and encourages local jurisdictions to refine their local natural resource inventories and protection programs with new data and mapping technologies and we believe this is consistent with the implementation component of Title 13 as outlined in 3.07.1330. Not allowing Portland or any other jurisdiction in the region to utilize better local data and only rely on Metro mapping that occurred almost 20 years ago would be inconsistent with the intent of Title 13 to conserve, protect and restore a continuous ecologically viable streamside corridor system. Portland as well as other cities in the region utilized local inventories to comply with Title 13 in the first place and we believe this approach is still valid for determining substantial compliance with Title 13.

## Appendix F. REGULATORY CONTEXT

The following are regulations, policies and goals that relate to natural resources protection and management within the City of Portland. The information is organized starting with the three programs that most directly relate to natural resource management in Portland: Oregon State Land Use Planning Program, Metro Urban Growth Management Functional Plan and City of Portland Comprehensive Plan. Following those explanations are summaries of other local, state and federal regulations, policies and goals related to natural resources. This is not an exhaustive list.

### 1. State, Regional and Local Land Use Planning Programs

Cities and counties in Oregon are required to comply with the State Land Use Planning Program and those jurisdictions in the Metro region are also required to comply with the Urban Growth Management Functional Plan. These two bodies of regulations set the framework for planning for natural resources in Portland. Portland complies with both programs by maintaining a Comprehensive Plan. All three programs are described below.

#### A. State Land Use Planning Program

Comprehensive land use planning was mandated by the 1973 Oregon Legislature, primarily in response to population growth pressures on valuable farm and forest land. Since 1975, cities and counties in Oregon have been required to comply with Statewide Planning Goals. Today there are 19 goals that Oregon cities and counties must comply with through the adoption and maintenance of local comprehensive plans. Portland adopted its first comprehensive plan in 1981 to satisfy the requirements of the state planning program. Portland's Comprehensive Plan was updated in June 2016. See below for more about the Comprehensive Plan.

Goals that relate to natural resources are Goals 5, 6 and 7.

- **Goal 5: Natural Resources, Scenic and Historic Areas, and Open Spaces** – Goal 5 addresses many types of resources. It establishes a process in which resources are inventoried and evaluated for significance. If a resource or site is found to be significant, the local government must evaluate the consequences of three policy choices: protecting the resource, allowing proposed uses that conflict with the resource, or establishing a balance between protecting and allowing uses that conflict with the resource. The local government must then adopt a program based on the results of this evaluation. Goal 5 does not apply to the area within the Goal 15 Willamette Greenway Boundary. However, local jurisdictions may use tools and approaches provided by Goal 5 to inform natural resources management within the Willamette Greenway Boundary.
- **Goal 6: Air, Water and Land Resources Quality** – This goal requires local comprehensive plans and implementation measures to be consistent with state and federal regulations on matters such as stream quality and groundwater pollution. Goal 6

provides guidelines for local jurisdictions, including buffering and separating those land uses which create impacts on air, water and other resources. Further, plans should consider the carrying capacity of the air, land and water resources within the planning area.

- **Goal 7: Areas Subject to Natural Hazards** – Goal 7 deals with development in places subject to natural hazards such as flooding, landslides or wildfire. It requires that jurisdictions apply “appropriate safeguards” (e.g., flood plain zoning) when planning for development.

## **B. Metro’s Urban Growth Management Functional Plan and Titles 3 and 13**

The 1973 Legislature granted expanded powers for the Columbia Region Association of Governments (now called Metro) to “coordinate regional planning in metropolitan areas” and to “establish a representative regional planning agency to prepare and administer a regional plan.” During the 1990s, Metro worked with local jurisdictions to develop Regional Urban Growth Goals and Objectives (RUGGOs) and the Urban Growth Management Functional Plan.

The Urban Growth Management Functional Plan provides a regional approach to growth management by tailoring several key Statewide Planning Goals, described above, to meet regional population growth expectations. This approach recognizes the interrelationship between housing, employment, clean air and water, natural resource protection, and transportation networks across jurisdictional boundaries. Metro developed the plan with input from the 24 cities and three counties within the Urban Growth Boundary at that time. The Urban Growth Boundary is one tool used to protect farms and forests from urban sprawl and promote efficient use of lands within the boundary. Uses of land within an Urban Growth Boundary support and are supported by urban services such as roads, water and sewer systems.

Nine titles in the Urban Growth Management Functional Plan are derived from or relate to Statewide Planning Goals and the rest are procedural. Title 3 and Title 13 pertain most directly to natural resources.

**Title 3** is derived from portions of Oregon Statewide Land Use Goals 6 and 7, and establishes regional requirements relating to water quality, erosion control and flood hazard management. In September 2002, the City of Portland completed the Title 3 Water Quality Compliance Report. The report explains how the City complies with Title 3 requirements through the existing Environmental Overlay Zoning program and newer regulations established by the Willamette River Title 3 Water Quality Compliance Project (adopted by the City Council in August 2002). Metro found the City in substantial compliance with Title 3 in December 2002.

**Title 13**, adopted by the Metro Council in September 2005, establishes the Nature in Neighborhoods program. The purpose of the program is to protect, conserve, and restore important riparian corridors and wildlife habitat areas in the region. Title 13 also serves as a supplement to Title 3 requirements relating to water quality, flood hazard and erosion

control. Title 13 establishes provisions intended to prevent impacts or ensure mitigation of unavoidable impacts on identified Habitat Conservation Areas within the region.

In January 2007, the Oregon Department of Land Conservation and Development acknowledged the new Title 13 program, finding it in compliance with Goals 5 and 6. This acknowledgement established new Goal 5 and 6 requirements for cities and counties in the Metro area. Metro did include the Willamette River and areas in the Willamette Greenway Boundary within the Title 13 program.

In October 2012, the Portland City Council adopted the citywide Natural Resources Inventory methodology and maps as part of the factual basis to inform the City's Comprehensive Plan update. In November 2012, the City Council approved the City's *Request for Metro Determination of Substantial Compliance with Title 13* for submittal to Metro. In December 2012, Metro staff determined that the City is in substantial compliance with Title 13 and the Metro Council accepted this determination in February 2013. The City and Metro entered into a voluntary Intergovernmental Agreement (IGA) that states the City's intent to complete a number of planning projects that will involve the development of area-specific inventory updates and evaluation of environmental program refinements based on the inventory findings and other new information.

### **C. City of Portland Comprehensive Plan**

All cities and counties in Oregon are required to have a Comprehensive Plan. The Comprehensive Plan addresses future development and land use in Portland. Portland adopted its first Comprehensive Plan in 1981. In May 2018, Portland completed periodic review and adopted 2035 Comprehensive Plan.

The 2035 Comprehensive Plan directs the City to “Weave nature into the city and foster a healthy environment that sustains people, neighborhoods, and fish and wildlife. Recognize the intrinsic value of nature and sustain the ecosystem services of Portland’s air, water and land.”

The specific environmental and watershed health are addressed by goals 7.A through 7.E and policies contained under those goals. The policies address environmental quality and quantity, ecosystem services, climate change, natural hazards, and habitat diversity and connectivity. The policies also direct the city to maintain inventories of natural resources and develop plans to protect and mitigate for unavoidable impacts to significant resources.

## **2. Local Environmental Regulations, Policies, Goals and Procedures**

In addition to the City of Portland Comprehensive Plan, there are other local regulations, policies and goals that relate to natural resource management.

### **A. City of Portland Title 11: Trees**

The Title 11 tree code went into effect in January 2015. The rules apply to trees that are not addressed through the environmental overlay zone regulations found in Title 33 of the zoning code. The tree rules encourage preservation of large healthy trees and replacement of trees that are removed, and ensure that trees are routinely planted as new development takes place.

<http://www.portlandonline.com/bps/index.cfm?a=350786&c=54923>

### **B. City of Portland Streamlining Agreement**

The City of Portland has a signed agreement with federal agencies that agrees to a shared and cooperative streamlining process for federal ESA consultations. This streamlining agreement process was extended to state and local agencies in 2006 to ensure better coordination and communication between all permitting and consulting agencies.

A Streamlining Team consisting of all participating federal, state and local agencies was created along with standard operating protocols with the purpose of sharing information needed by the agencies for their review and approval of the proposed activity. In addition to assisting City project teams, the procedures are designed to improve coordination and communication among the agencies. Through this approach, the hoped for outcomes are consistent decisions between the agencies and that agency decisions will occur within the same time period whenever possible.

The streamlining agreement was originally designed to facilitate the permitting of city sponsored projects. The process can be extended to private and other public entities whenever it is determined that the City has a strong interest or connection with a proposed development.

Projects that participate in the streamlining process must present a purpose and need statement and a range of alternatives to meet the project's goals, including looking at the practicable alternative with the least impacts to natural resources. If the selected option has unavoidable impacts to natural resources, mitigation requirements can also be identified early in the process.

### **C. City of Portland Stormwater Management Manual**

The Stormwater Management Manual (SWMM) is a technical document originally adopted in 1999 that outlines the City's stormwater management requirements to comply with the National Pollution Discharge Elimination System (NPDES) permit and Safe Drinking Water Act. The

SWMM was recently updated in 2010. The requirements defined in the manual apply to all development and redevelopment projects within the City of Portland on both private and public property. The SWMM applies to the following:

- Properties that propose new offsite discharges or new connections to the public system;  
or
- Projects that develop or redevelop over 500 square feet of impervious area.

The City's approach to stormwater management emphasizes the use of vegetated surface facilities to treat and infiltrate stormwater on the property where the stormwater is created. This approach provides a number of benefits related to protecting stormwater infrastructure and improving watershed health, including pollutant reduction, volume and peak flow reduction, and groundwater recharge. If an entity cannot meet the requirement for managing stormwater onsite to the maximum extent feasible, the City may allow the entity to either construct an offsite facility or compensate the City for the future development of offsite facilities through payment of a fee. In this case, a filing of "special circumstances" must be done by the applicant, which will be reviewed and approved by the City before an alternative approach would be allowed.

<http://www.portlandonline.com/bes/index.cfm?c=47954>

#### **D. Portland Watershed Management Plan**

The Portland Watershed Management Plan, adopted by City Council in 2005, describes the approach that will be used to evaluate conditions in the City's urban watersheds and implement projects to protect and improve watershed health. The approach is used by the Bureau of Environmental Services, other City bureaus, agencies, and citizens' groups that all share a common goal to protect Portland's natural resources, restore critical ecosystems, and implement stormwater management solutions that integrate the urban area with the natural environment. Its overarching theme is to improve watershed health through new watershed friendly (more sustainable) development and redevelopment, installation of new stormwater infrastructure, maintenance and retrofitting of existing infrastructure in new ways that will improve watershed health, and extensive restoration and rehabilitation of key habitats.

The Watershed Management Plan presents an integrated City response to local, state, and federal environmental requirements, providing the flexibility to respond to regulatory requirements in a manner that addresses the root causes of problems rather than the more traditional mandate-by-mandate approach that only addresses the symptoms. The Watershed Management Plan includes a description of a management system that is used to track City progress toward well-defined watershed health goals, and to help the City adapt their strategies as needed to maximize effectiveness. An annual report is developed that tracks the progress toward achievement of the watershed health goals.

<http://www.portlandonline.com/bes/index.cfm?c=38965>

#### **E. Urban Forestry Management Plan**

The Urban Forestry Management Plan (UFMP, last updated in 2004) provides direction for the maintenance and improvement of Portland's urban forest and makes recommendations to enhance and improve the urban forest now and for the future. Its three main goals are:

- Protect, preserve, restore and expand Portland's urban forest;
- Develop and maintain support for the urban forest; and
- Manage the urban forest to maximize benefits for all residents.

Specifically, it responds to recent environmental mandates, clarifies resource management and authority, better coordinates the roles of different agencies and bureaus, and provides canopy targets. It divides Portland's urban forest into five basic categories called Urban Land Environments (ULEs). Each ULE has particular physical characteristics and issues, provides various benefits and serves different needs. Each ULE is managed by different bureaus, agencies or individuals to achieve different results. The UFMP provides a description of each ULE, management goals, information about property owners/managers, and an analysis of the strengths, weaknesses, opportunities, threats and issues for the ULE. This is followed by specific objectives, recommended actions, and performance measures for assessing progress. An implementing document for the UFMP, the Urban Forest Action Plan, was developed by an interbureau committee and accepted by City Council in 2007 to ensure attainment of the goals and recommendations of the UFMP. The Action Plan describes the full array of benefits and services that trees provide across the urban landscape. The prioritized actions are those that can be done by City of Portland bureaus; achieving all of the UFMP's goals will require participation from private organizations, individuals, and other public agencies.

<http://www.portlandonline.com/parks/index.cfm?a=226238&c=38294>

## **F. Terrestrial Ecology Enhancement Strategy (TEES)**

The purpose of the TEES is to have a common body of information and agreed-upon priorities for conservation and restoration of terrestrial plant and animal species and habitats in Portland, within a regional and state context. The TEES is designed to help achieve the watershed health goals and objectives in the Portland Watershed Management Plan (PWMP).

The information assembled during the development of the TEES (updated June 2011) is available to BES watershed teams to supplement existing watershed characterizations, inform the selection and prioritization of actions, add value to projects and other actions, determine monitoring priorities, and support and inform the Grey to Green (G2G) project. The TEES work also supports and informs an array of other City programs, plans, activities, projects, and decision-making processes, including the Portland Plan update, environmental regulatory improvement, parks and natural area management, and local bond share land acquisition.

In addition, the TEES supports efforts of Metro (e.g., Nature in Neighborhoods, Intertwine and the Regional Conservation Strategy), the U.S. Fish and Wildlife Service, the Oregon Department of Fish and Wildlife (e.g., the Oregon Conservation Strategy), the Oregon Watershed Enhancement Board, and the Northwest Power and Conservation Council's sub-basin planning.



The main elements of the TEES include:

- Identification of plant and animal species and terrestrial habitats needing protection, conservation, and/or restoration (Special Status Species and Habitats)
- Identification of key management issues (e.g., invasive species)
- Articulation of watershed-specific objectives for terrestrial habitats and biological communities
- Identification and implementation of priorities and actions for the next 2 to 5 years, as well as identification of long-term actions
- Guidance to City bureaus and citizens for improving habitat and addressing plant and wildlife management issues
- Selection of species and habitats to be monitored over time to determine the health of biological communities in Portland's urban watersheds

<http://www.portlandonline.com/bes/fish/index.cfm?c=51052>

### **3. State Environmental Regulations, Policies and Goals**

In addition to the State Land Use Planning Program, there are other regulations, policies and goals that relate to natural resource management.

#### **A. Oregon Department of State Lands Removal-Fill Permit**

In Oregon, a state permit issued by the Department of State Lands (DSL) is required if activities involve filling or removing more than 50 cubic yards of material in waters of the state. In areas determined to be Essential Salmonid Habitat or a State Scenic Waterway a permit is required for any amount of fill or removal. DSL regulates all wetlands, including isolated or ephemeral wetlands.

Currently, DSL and the U.S. Army Corps of Engineers (USACE) use a joint permit application form, so that in many cases applicants need to prepare only one application to obtain both permits. However, all projects require separate authorizations (or permits) from DSL and the USACE, and each agency may request information in addition to the application.

The analysis for the permit must include a purpose and need statement and each alternative must meet the purpose and need. If the alternative chosen includes unavoidable impacts to natural resources, then the analysis includes an evaluation of how impacts can be minimized and if compensatory mitigation is necessary. Compensatory mitigation means activities conducted to restore, create or enhance wetland and waterway impacts (tidal and non-tidal) to compensate for the adverse effects of the project. The ecological functions (biotic and abiotic) that are impacted by the project must be replaced. In addition to determining which ecological functions should be replaced, DSL uses ratios for spatial considerations; ratios are specific to the restoration, creation, or enhancement types of compensatory mitigation.

DSL prefers mitigation within the same watershed; payment in lieu of mitigation or acquiring mitigation credits from a DSL approved mitigation bank may also be possible.

<http://www.oregon.gov/DSL/PERMITS/r-fintro.shtml>

## **B. National Pollutant Discharge Elimination System (NPDES)**

As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. In Oregon, the NPDES permit program is administered by Oregon Department of Environmental Quality (DEQ).

The NPDES 1200-C, 1200-CN and 1200-CA general permits apply to construction activities including clearing, grading, excavation, materials or equipment staging and stockpiling that will disturb one or more acres of land. These permits also apply to construction activities that will disturb less than one acre that are part of a common plan of development or sale, if the larger common plan of development or sale will ultimately disturb one acre or more. In addition, DEQ may require registration for any other construction activity based on the potential for contribution to an excursion of a water quality standard or potential for significant contribution of pollutants to waters of the state.

DEQ issues stormwater discharge permits to industries that discharge stormwater into rivers, lakes and streams from pipes, outfalls or other point sources at a site. Based on federal regulations, NPDES permit coverage is required for industrial facilities that discharge stormwater from their industrial areas to surface waters of the state, or to storm drains that discharge to surface waters. Examples of industrial activities that require a permit include manufacturing, transportation, mining, and steam electric power industries, as well as scrap yards, landfills, certain sewage treatment plants, and hazardous waste management facilities.

A municipal separate storm sewer system (MS4) is a conveyance or system of conveyances (e.g., roads with drainage systems, municipal streets, catch basins, curbs, gutters, manmade channels or storm drains) owned or operated by a governmental entity that discharges to waters of the state. Sources that need to obtain an MS4 permit are classified as either "Phase I" or "Phase II." Phase I MS4s are those with populations greater than 100,000, while regulated Phase II (or "small") MS4s serve populations less than 100,000 located within Census Bureau-defined Urbanized Areas.

<http://www.deq.state.or.us/wq/stormwater/stormwater.htm>

## **C. Oregon Waterway Authorization Program**

The Oregon Department of State Lands (DSL) is responsible for establishing rules controlling public use of submerged and submersible land underlying state-owned waterways. State-owned

waterways are navigable waterways below ordinary high water. Many uses of and structures occupying state-owned waterways require DSL's written approval. Types of uses that require authorization include but are not limited to:

1. Waterway Lease for commercial and non-commercial marina/moorages, industrial, non-marine uses, floating homes, and large (more than 2,500 square feet) non-commercial docks, and boathouses.
2. Waterway Structure Registration for non-commercial docks, and boathouses under 2,500 square feet.
3. Waterway Registration of a structure that is actively and exclusively used to accommodate ships, boats, or vessels engaged exclusively in the receipt and discharge of goods or merchandise, or in the performance of active government functions on the waterway.
4. Public Facility License for public agency owned, operated, and maintained docks/floats, boat ramps, boat landings, floating restrooms, navigational aids, and viewing structures with no, or a nominal, fee.

<http://oregonstatelands.us/DSL/NAV/index.shtml>

#### **D. Oregon Department of Fish and Wildlife – Fish Passage**

In Oregon, providing fish passage over man-made dams and diversions has been required since before statehood in 1859. Fish passage statutes have evolved over the past 150 years. In 2001, House Bill 3002 (HB 3002), which addresses fish passage at artificial obstructions, was signed into law.

As a state policy, upstream and downstream passage is required at all artificial obstructions in Oregon waters where migratory native fish are currently or have historically been present, except under certain clearly defined circumstances. Overwater structures, such as a dock or pier, would be evaluated under this rule.

HB 3002 requires the Oregon Department of Fish and Wildlife (ODFW) to complete and maintain a statewide inventory of artificial obstructions, which will be used to prioritize artificial barriers. The primary method for implementing this policy should be through active collaboration and cooperation between the ODFW and owners or operators of artificial obstructions. HB 3002 provides the Fish and Wildlife Commission with emergency authority to require installation of fish passage at the owner/operator's expense if a population of native migratory fish is adversely impacted.

The ODFW will review fish passage in consultation to the DSL permit. ODFW also establishes the in-water work windows.

<http://www.dfw.state.or.us/fish/passage/>

#### **E. The Oregon Conservation Strategy**

The Oregon Conservation Strategy (the Strategy) is a non-regulatory, statewide approach to species and habitat conservation. The Strategy provides a framework for limited conservation resources, to leverage investments in a more efficient and effective manner. The Strategy was developed by the Oregon Department of Fish and Wildlife (ODFW) in conjunction with a broad base of stakeholders, including, federal, state, and local agency personnel, biologists, citizens, and elected officials. A primary goal of the Strategy is to help recover currently listed species and prevent additional species listings. The approach taken by ODFW in the Strategy is to identify "Strategy Species" which include those most in need of conservation, and "Strategy Habitats" which benefit a broad suite of species and map Conservation Opportunity Areas (COAs) for those habitat areas where conservation activities would have the greatest benefit.

Actions recommended in the Strategy include protect and maintain priority habitats where they remain, restore and expand to improve conditions and value to fish and wildlife, protect and restore river floodplain interactions, and control invasive species.

<http://www.dfw.state.or.us/conservationstrategy/>

## 4. Federal Environmental Regulations, Policies and Goals

There are a number of federal regulations, policies and goals that relate to natural resource management.

### A. Clean Water Act (CWA) Section 404 Permit

CWA Section 404 establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Responsibility for administering and enforcing Section 404 is shared by the US Army Corps of Engineers (USACE) and Environmental Protection Agency (EPA).

Permit review and issuance follow a sequential process that encourages avoidance of impacts first, followed by minimizing impacts and, finally, requiring mitigation for unavoidable impacts to the aquatic environment. This sequence is described in CWA Section 404(b)(1). Only after avoidance and minimization criteria are satisfied can the USACE consider compensatory mitigation. The USACE or EPA has the right to require the developer to mitigate any unavoidable impacts on waters of the United States as a condition of an individual 404 permit. The developer can be required to enhance, restore, or create wetlands or aquatic habitat on or near the development site. In establishing mitigation requirements, the USACE must strive to achieve a goal of no overall net loss of functional values and functions, meaning a minimum of one-for-one functional replacement with an adequate margin of safety to reflect scientific uncertainty. Mitigation banking, using a mitigation bank that has been approved by EPA and the USACE for this purpose, is encouraged.

Common activities that take place in waters of the US and require a federal permit include:

- Excavation or dredging in waters of the US
- Channel changes, realignments or relocations;

- Construction of a dock, pier, wharf, seawall, boat ramp, intake or outfall structure;
- Placement of fill, riprap or similar material;
- Placing fill to construct levees, roadways and bridges; and
- Bank or shore stabilization projects including jetties and revetments.

A federal permit is required regardless of the amount of area affected by the activity and amount of fill used. Under the CWA, the EPA and USACE follow the mitigation framework set out in the Section 404(b)(1) guidelines to evaluate applications for Section 404 dredge and fill permits.

The issuance of this permit is a federal action that triggers consultation with National Marine Fisheries Services (NMFS) under the Endangered Species Act, tribal governments, US Fish and Wildlife Services (USFWS) and historic preservation delegated to the State Historic Preservation Office (SHPO). (See also Oregon Department of State Lands Removal-Fill Permit).

<http://water.epa.gov/lawsregs/guidance/wetlands/sec404.cfm>

## **B. National Environmental Policy Act (NEPA)**

In enacting NEPA, Congress recognized that nearly all federal activities affect the environment in some way and mandated that before federal agencies make decisions, they must consider the effects of their actions on the quality of the human environment. Under NEPA, the Council on Environmental Quality (CEQ) was established to work with agencies to balance environmental, economic, and social objectives in pursuit of NEPA's goal of "productive harmony" between humans and the human environment (42 U.S.C. §4331(a)). NEPA assigns CEQ the task of ensuring that federal agencies meet their obligations under the Act. CEQ NEPA regulations require an analysis of environmental impacts and, if necessary, identification of mitigation alternatives.

CEQs regulations (40 C.F.R. Parts 1500-1508) set the standard for NEPA compliance. They also require agencies to create their own NEPA implementing procedures. These procedures must meet the CEQ standard while reflecting each agency's mandate and mission. The NEPA analysis bears similarities with other federal agencies' review requirements and can be used to inform review under the Endangered Species Act and National Historic Preservation Act, Executive Orders on Environmental Justice, and other Federal, State, tribal, and local laws and regulations.

The NEPA process begins when a federal agency proposes to take an action, which may include rule making, regulations, plans, funding or specific projects (40 C.F.R. § 1508.18). For example, Department of Transportation funding for a bridge or rail improvement is an action that would trigger the NEPA process. The NEPA process is initiated when an action or project is at 10% design. A concept plan, which may not be the preferred design by which permits are acquired, is not considered a 10% design and the NEPA process would not start.

Under NEPA, the agency determines whether the action is a Categorical Exclusion (CE) or if additional analysis is necessary. To perform an analysis, the applicant must identify the purpose and need of the action and alternatives that meet the purpose and need. Through an Environmental Assessment (EA) or Environmental Impact Statement (EIS), the applicant identifies measures that will be taken to mitigate (avoid, minimize or compensate for) environmental impacts.

The EIS process includes a statement of purpose/need, identification of alternative solutions (including no action), and impacts of the preferred alternative. The Draft EIS is published for public review and comment for a minimum of 45 days. The agency must consider all substantive comments, conduct further analysis if necessary, and prepare a Final EIS, which is available for public review for 30 days. This review period must be completed before the agency makes a decision on the proposed action. The EIS process ends with the completion of a Record of Decision (ROD). The ROD explains the agency's decision, describes the alternatives the agency considered (including the environmentally preferred alternative), and discusses plans for mitigating potential environmental effects and monitoring those commitments.

<http://www.epa.gov/compliance/nepa/index.html>

### **C. Endangered Species Act**

NOAA National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) use the Federal Endangered Species Act (ESA) to protect species including many listed species found in the Willamette River. NMFS is responsible for protecting salmon and other ocean-migrating fish, as well as marine animals. USFWS is responsible for protecting wildlife, bird species and inland (primarily freshwater) fish such as bull trout and coastal cutthroat trout. Currently, 17 salmon species and trout are federally listed and present in the Central Reach.

Under Section 7 of the ESA, federal agencies must use their authorities to protect listed species and habitats that are critical to their survival. Section 7 also requires federal agencies to ensure that their actions, including any actions they authorize, fund or carry out, do not jeopardize listed species or destroy or adversely modify their critical habitat.

NMFS and USFWS designate "critical habitat" for species that are listed under the ESA. "Critical habitat" is the "specific areas within the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological considerations or protection." NMFS has designated critical habitat for most of their species that are listed under the ESA that may be found in the Central Reach. For several species, critical habitat extends 300' from the top of bank, for others to top of bank.

Section 7 requires all federal agencies, including the US Army Corps of Engineers (USACE), to assess whether federally listed threatened or endangered species and/or critical habitat may be affected by a project under their jurisdiction. The USACE requires the applicant to prepare a Biological Assessment to evaluate if such an effect is possible and, if it is, the applicant is

required to consult with USFWS and/or NMFS before approving a permit that might affect species in these ways. This process is called "consultation." This serves as consultation for the Magnuson-Stevens Act on Essential Fish Habitat (see E below).

If no impacts on federally listed threatened or endangered species and/or critical habitat are found to be associated with the proposed project, the USACE will be able to issue a permit without consultation.

If there will be adverse effects to listed species or critical habitat, consultation with NMFS is required. NMFS evaluates the project as proposed for its impacts to ESA listed species. If NMFS determines that the project will not result in jeopardy to the species it will issue an "Incidental Take Statement" that includes reasonable and prudent measures with terms and conditions to minimize incidental take. If NMFS finds that the project will result in jeopardy to the species it will provide a "reasonable and prudent alternative" that would not result in jeopardy.

If the project design and implementation plan are deemed adequate, the USACE issues a permit to the applicant. The permit may include conditions to avoid, minimize, and compensate for expected impacts of the project. Conditions are designed to protect water quality, fish and wildlife and their habitats, and adjacent properties.

Section 9 of the ESA states that no one may "take" an animal that is listed as endangered. "Take" includes the harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capture, or collection of any threatened or endangered species. "Harm" may include habitat modification that results in the death or injury of a listed species. This is referred to as a "take prohibition." For species listed as threatened, Section 4(d) of the ESA requires NMFS to issue rules that citizens, organizations and governments must follow in order to protect the species (referred to as the "4(d) rules"). The rules may include any or all of the general take prohibitions that apply to endangered species. By regulation, NMFS applies take prohibitions to all threatened species (except plants) at the time of listing or later. The ESA provides some exceptions to general take prohibitions and 4(d) rules, and under section 10 landowners can obtain permits for work that incidentally affects listed species (Incidental Take Permit). These permits can only be issued for:

- Scientific work;
- Projects designed to enhance the survival of the species; or
- Activities that may only incrementally take or harm species during the course of the work.

Incidental Take Permits require development of a Habitat Conservation Plan (HCP) that specifies how impacts to a listed species and its habitat will be minimized. In issuing Incidental Take Permits, USFWS and NMFS must comply with NEPA as well as state and local environmental laws. For these reasons, HCPs also require an Environmental Assessment or Environmental Impact Statement for the proposed activity.

<http://www.mrsc.org/Subjects/Environment/esa/esa-bioass.aspx>  
<http://www.nmfs.noaa.gov/pr/laws/esa/>



## **D. Federal Emergency Management Agency Flood Plain Management**

The Federal Emergency Management Agency (FEMA) manages the National Flood Insurance Program (NFIP) which includes floodplain mapping and mandates for floodplain development regulations meeting established criteria to qualify for federally-subsidized flood insurance. The NFIP floodplain management regulations (44 CFR 60) are implemented through local jurisdictions. The City of Portland's local floodplain ordinance is found in Portland City Code 24.50. FEMA identifies the Nation's floodplains and publishes Flood Insurance Rate Maps (FIRMs), which depict the floodplain data. FEMA maps the area that has a 1% chance of being flooded in any given year. This establishes the 100-year floodplain, which is the standard used by the NFIP and most federal and state agencies for floodplain management and to determine the need for flood insurance. FEMA most recently updated the FIRMs for the Willamette River in 2009.

The principal regulatory requirements for development in the 100-year floodplain include, but are not limited to, the following:

- Development within the Floodway is prohibited unless hydraulic engineering analysis demonstrates the development will result in no increase in 100-year flood elevations.
- Occupied or inhabited structures must be built at least one foot above the 100-year flood elevation. This is often achieved by placing fill within the 100-year floodplain to raise the ground elevation and allow development in that area. Other site improvements, such as parking or exterior storage, may be below the base flood elevation.
- Fill material placed below the 100-year flood elevation must be balanced with an equal or greater volume of excavation below the 100-year flood elevation such that the flood storage capacity of the floodplain is maintained; this is often referred to as flood storage compensation or "balanced cut and fill." (See also Metro Title 3.)

NMFS recently released a biological opinion about the impacts of NFIP on listed species in the Willamette River. FEMA will provide direction to local jurisdictions regarding the implementation of the reasonable and prudent alternatives identified in the biological opinion to avoid harm to listed species. FEMA's implementation of the biological opinion will likely require updates to local floodplain regulations. As a part of this effort, FEMA will update the FIRM of all streams containing listed species.

<http://www.fema.gov/plan/prevent/floodplain/nfipkeywords/permit.shtm>

## **E. Rivers and Harbors Act of 1899**

The Rivers and Harbors Act addresses projects and activities in navigable waters and harbor and river improvements. The USACE administers Section 9 and Section 10 of the Rivers and Harbors Act.

Section 9 of the Rivers and Harbors Act (33 U.S.C. 401) prohibits the construction of any dam or dike across any navigable water of the United States in the absence of Congressional consent and approval of the plans by the Chief of Engineers and the Secretary of the USACE. Section 9



also pertains to bridges and causeways; however, the authority of the USACE is transferred to the Secretary of Transportation under the Department of Transportation Act.

Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) prohibits the unauthorized obstruction or alteration of any navigable water of the United States. This section provides that the construction of any structure in or over any navigable water of the United States, or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters, is unlawful unless the work has been recommended and authorized by USACE. This work includes excavation or fill, which could contain contaminated sediments. (See also NPDES permits.)

[http://el.erdc.usace.army.mil/emrrp/emris/emrshelp5/rivers\\_and\\_harbors\\_acts\\_legal\\_matters.htm](http://el.erdc.usace.army.mil/emrrp/emris/emrshelp5/rivers_and_harbors_acts_legal_matters.htm)

#### **F. Marine Mammal Protection Act, 1972**

The Marine Mammal Protection Act (MMPA) is intended to conserve marine mammals. All marine mammals are protected under the MMPA. The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S.

The implementation of the MMPA is divided between two federal departments. The Department of Commerce, which NMFS is part of, is charged with protection of cetaceans and pinnipeds other than walrus. The Department of the Interior, USFWS, is responsible for all other marine mammals, including sea otter, walrus, polar bear, dugong and manatee.

<http://www.nmfs.noaa.gov/pr/laws/mmpa/>

#### **G. The Migratory Bird Treaty Act and the Urban Conservation Treaty for Migratory Birds Program**

The Migratory Bird Treaty Act (MBTA), passed in 1918, established the United States' commitment to implement four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The MBTA protects over 800 species of birds. Over 200 migratory bird species migrate through Portland every year, and Portland provides critical resting, feeding and nesting habitat for numerous types of migratory and resident birds.

The MBTA uses very broad language to prohibit at any time or in any manner the pursuit, hunting, taking, capturing or killing of any migratory bird. It does not have an incidental take permit or its equivalent. The unauthorized killing of any of approximately 800 identified migratory birds constitutes a violation of the MBTA. The MBTA has no specific mitigation requirements. It is enforced by USFWS, although its enforcement is viewed as somewhat selective because of MBTA's expansive scope. The MBTA's applicability to habitat modification and destruction is unclear; the definition of "take" in the MBTA does not include "harm" or "harass," unlike the ESA. Due diligence with MBTA requirements is typically done by providing

baseline studies and preconstruction surveys that document site characteristics and development of a protection plan for species known to be present.

Portland joined four other U.S. cities in 2003 in establishing a local commitment to help migratory birds and enhance their habitats within urban environments by participating in the Urban Conservation Treaty for Migratory Birds program. USFWS selected Portland as a pilot project city due to its location along the Pacific Flyway. The program was designed by USFWS in 1999 to help municipal governments conserve migratory birds that nest or fly through their cities. The Treaty sponsors public education and outreach projects to help increase public understanding of the importance of migratory bird conservation. It also helps finance the creation and restoration of city parks and greenways. Portland has developed guidelines for protecting migratory birds during construction activities.

<http://www.fws.gov/pacific/migratorybirds/mbta.htm>

<http://www.portlandonline.com/bes/index.cfm?c=51502&>

# **The *Environmental Overlay Zone Map Correction Project* plan documents:**

## **Volume 1: Project Overview, Zoning Amendments, Ezone Remapping**

The purpose of the Project Report is to document the overall project approach and methodology, summarize public engagement, and it includes all of the zoning code amendments. This document provides summary information on the mapping protocols that are used to map ezones, as well as maps of the proposed ezone mapping in each resource site.

## **Volume 2: Resource Site Inventory and Resource Protection Decisions**

For the geographies listed below, each document presents an inventory of natural resource features and functions, a site-specific Economic, Social, Environmental and Energy Analysis (if applicable) and the decisions regarding which natural resource should be protected.

**Part A1 – Forest Park and Northwest District, Resource Sites 1 – 20**

**Part A2 – Forest Park and Northwest District, Resource Sites 21 – 41**

**Part B – Skyline West**

**Part C – Tryon Creek and Southwest Hills East**

**Part D – Fanno Creek**

**Part E – East Buttes and Terraces**

**Part F – Johnson Creek**

**Part G – Boring Lava Domes**

## **Volume 3: Natural Resources Inventory, Compliance, and Appendix**

This volume contains a summary of the approach and methodology used to produce the citywide Natural Resources Inventory, documentation that demonstrates compliance with Metro Urban Growth Management Plan Title 13 for Habitat Conservation Areas and Oregon State Planning Goal 5 for significant natural resources that are not a Habitat Conservation Area, and appendices that provide background information on the Environmental Overlay Zone Map Correction Project.