Community Wildfire Protection Plan

Squamish-Lillooet Regional District – Electoral Area B

August 2016 Update

R.P.F. Signature and Seal

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Date: Sept 30/16

SQUAMISH - LILLOOET
REGIONAL DISTRICT

Submitted by
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Landscope
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CERTIFIED BOARD RESOLUTION

From the minutes of a meeting of the Squamish-Lillooet Regional District Board, held on August 24, 2016, in the Squamish-Lillooet Regional District Boardroom, 1350 Aster Street, Pemberton, BC:

It was moved and seconded:

THAT the SLRD Board adopt the Electoral Area B Community Wildfire Protection Plan (CWPP) Update - inclusive of recommendations therein - prepared by Landscope Consulting for Electoral Area B and finalized in August 2016;

THAT the SLRD Board support SLRD applications for FY2016/17 grant funds from the Union of British Columbia Municipalities' Strategic Wildfire Prevention Initiative to pursue CWPP recommendations for Electoral Area B, using select funds previously set aside by the Electoral Area B Director for that purpose; and

THAT the Chair and/or the CAO be authorized to sign any grant applications, and/or contracts that arise from grants received, from the Union of British Columbia Municipalities' Strategic Wildfire Prevention Initiative to pursue CWPP recommendations for Electoral Area B.

CARRIED

September 26, 2016

I hereby certify the foregoing to be a true and correct copy of the Squamish-Lillooet Regional District Board resolution regarding this matter as passed unanimously by the Board at its meeting of August 24, 2016.

Kristen Clark, Secretary and
Director of Legislative and Corporate Services

Members: District of Squamish, Resort Municipality of Whistler, Village of Pemberton, District of Lillooet, Electoral Areas A, B, C, and D

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Executive Summary

The Squamish-Lillooet Regional District - Electoral Area 'B" is located in the hot, dry transitional coast-to-interior and rain shadow region of the Coast Mountains, an area where wildfires are a natural part of the landscape. Wildfires occur frequently, generally every 4 to 50 years in any given location. Changing conditions in our climate and forests mean that wildfires are posing a greater risk to communities than ever before. The wildfires experienced in 2003 were some of the most catastrophic in recent British Columbian history. The Okanagan Mountain fire destroyed over 200 homes and resulted in the emergency evacuation of tens of thousands of residents. Closer to the Electoral Area 'B' communities, the 2009 Mt. McLean fire and 2009 Seton Portage fire burned 3,696 hectares and 1,381 hectares respectively, resulting in the evacuation of the entire communities of Lillooet, Sekw'el'was, Xwisten, and T'ít'q'et, and Tsal'alh.

To address the issue of safety within the Wildland-Urban Interface (WUI), the provincial government has provided program funding for communities to develop Community Wildfire Protection Plans (CWPP), and to implement operational treatments to reduce forest fuel loading in priority locations. The existing CWPP for the Squamish-Lillooet Regional District was produced in November 2006, and the Regional District has completed 122.8 hectares of fuel management treatments in Electoral Area 'B' since then.

The purpose of the Community Wildfire Protection Plan (CWPP) is to guide the Squamish-Lillooet Regional District in the management of wildfire risk on provincial crown land within the Electoral Area 'B'. It provides a prioritized list of treatment areas for fuel management work. Through the implementation of this plan, the Squamish-Lillooet Regional District strives to create more fire-resilient communities within the Electoral Area 'B'.

There are six (6) CWPP WUI Areas delineated within Electoral Area 'B': Fountain Valley (2 areas), Pavilion Lake, Seton Portage, Texas Creek and Yalakom Valley. They include lands within a 2 kilometre radius of a community core. It includes regional district land, private land, reserve land and provincial crown land. Forests are primarily made up of Ponderosa pine and Interior Douglas-fir ecosystems with varying aspect and topography. Ladder fuels exist throughout the forest, including shrubs, partly fallen trees, and low-hanging branches. In the event of a wildfire, ladder fuels bring surface fires into the crowns of trees. Impacts from the Mountain Pine Beetle in many areas of Electoral Area 'B' have increased the fuel load of dead standing and fallen trees, and increased ignition potential and risk of severe wildfire activity.

From the Provincial Strategic Threat Anaylysis (PSTA) – 2015 Wildfire Threat Component it was determined that 59% of the Electoral Area 'B' WUI Area land base falls within the C-7 Fuel Type and 84% of the WUI Area land base is of a high-extreme wildfire threat, meaning the majority of the forest is of a fuel type that will support continuous crown fires and that the wildfires will be severe enough to directly impact a community at a catastrophic level. Extreme wildfire hazard occurs in challenging terrain that is adjacent to communities within Electoral Area 'B', which can make fire suppression efforts extremely challenging.

A field study (including the establishment of wildfire threat plots) was completed to identify the wildfire threat rating in forests within the CWPP WUI areas. Using a standardized provincial

method, information was gathered at each plot to determine a wildfire threat rating of low, moderate, high or extreme. Information gathered included duff depth, species of understory vegetation, amount of logs and twigs on the forest floor, continuity of the forest canopy, topographic information, climatic conditions, and information about nearby buildings. The results of this study informed the prioritization of areas for fuel reduction activities.

A Treatment Plan prepared for the Squamish-Lillooet Regional District CWPP for Electoral Area 'B' identifies areas that are recommended for reduction of forest fuels on provincial crown land. The Treatment Plan includes area (polygon) maps and a proposed treatment budget. For each area (polygon) within the Treatment Plan, the following recommended activities include:

- Mark boundaries of Treatment Areas in the field,
- Develop a Forest Fuel (Stand) Management Prescription for each Treatment Area,
- Remove trees that are hazardous to workers,
- Thin out trees to the extent identified in the Prescription,
- Remove understory brush and debris on the forest floor,
- Prune branches of trees remaining after thinning,
- Dispose of excess slash and debris resulting from thinning, brushing and pruning,
- Implement a Maintenance Program for treated areas.

Within the Treatment Plan, thirty-one (31) new polygons totaling 456.6 hectares have been proposed for reduction of forest fuels on provincial crown land within the Electoral Area 'B'.

A list of recommendations is included which will assist the Squamish-Lillooet Regional District in it's goal of making the Electoral Area 'B' communities more fire-resilient. The recommendations include:

- The implementation of the CWPP 2016 Treatment Plan as soon as possible to take advantage of funding sources such as the Strategic Wildfire Prevention Initiative (SWPI) and upcoming application intake dates,
- The implementation of regular monitoring and potential follow-up maintenance treatment of previously-treated areas (through funding sources such as the SWPI program), especially those of high-risk adjacent to critical structures,
- Engaging the FireSmart Communities Program by contacting a local FireSmart representative with FireSmart Canada,
- Pursuing funding through the SWPI FireSmart Communities Program to allow the Squamish-Lillooet Regional District to develop, advance and support local planning efforts within the Electoral Area 'B' to mitigate risk from wildfire, and to support Electoral Area 'B' communities in their effort to achieve and/or maintain FireSmart Community Recognition status,
- Promoting the implementation of FireSmart Principles within the Electoral Area 'B' communities,
- Promoting the FireSmart Canada Community Recognition program within the Electoral Area 'B' communities,
- Completing the comprehensive re-development of the Squamish-Lillooet Regional District Emergency Management Plan (including community-specific Hazard

Vulnerability Risk Assessments), referencing the updated CWPP for Electoral Area 'B' where necessary,

- Contacting BC Hydro vegetation management staff to work with the Squamish-Lillooet Regional District and continue their program of clearing the power lines of hazard trees, slash and other vegetation within the Electoral Area 'B',
- Evaluating the existing road access for fire service, wildland fire suppression, structural protection and emergency vehicles to the various community cores within the Electoral Area 'B',
- Evaluating the existing water sources, capacity and supply for fire suppression and structural protection in the various community cores within the Electoral Area 'B'. Consider supporting the establishment of above and below ground storage tanks in those areas to supply greater volumes of more readily-accessible water for fire suppression purposes, as well as access points to existing water sources, and
- Considering hiring a post-secondary student to visit, engage and support the Electoral Area 'B' community residents in their efforts to become FireSmart, and survey the communities regarding fire services and water supply.

It is recommended that the Squamish-Lillooet Regional District pursues full-scale implementation of this updated CWPP within Electoral Area 'B' in order to reduce the wildfire threat to the communities and protect the safety of its residents.

1.0 Introduction

The Electoral Area 'B" is the northeastern-most area in the Squamish-Lillooet Regional District (SLRD), located in the transitional coast-to-interior and rain shadow region of the Coast Mountains, an area with complex topography, an arid and windy climate, and dry, open forests. It encompasses 361,464 hectares of land base within the Fraser Canyon, Bridge River and Fountain Valleys, Seton Lake, Pavilion Lake and Marble Canyon and includes the Municipality of Lillooet, Seton Portage as well as the Upper St'át'imc First Nation communities of Sekw'el'was, T'ít'q'et, Tsal'alh, Ts'kw'aylaxw, Xaxli'p and Xwisten. From the 2011 Census it is reported that the population of Electoral Area 'B' is approximately 780 people, excluding those in First Nation communities.

The history of wildfire in the region can be seen on the landscape as a mosaic of young and old forests. Due to recent catastrophic wildfires in the region, the Electoral Area 'B' communities are acutely aware of the risks of wildfire to homes and infrastructure. During fire season, the area sees average wind speeds of 35-40 km/hr, sustained temperatures of 25-30 ºC, and low relative humidity and precipitation levels. Recent large fires include the 2014 Botanie fire and 2015 Cisco Road fire, each of which burned over 2,000 hectares of forest land, resulted in the evacuation of hundreds of people, and destroyed barns, garages, and outbuildings. The closeness of these fires to homes heightened the requirement for reduction of fuels around communities.

A 2009 report by the Wildfire Management Branch titled "Review of the 2009 Fire Season" recognized the importance of fuel management activities in reducing the loss of homes to wildfire:

> "The 2009 fire season demonstrated the value of fuel management. Two major interface fires occurred in fuel treated areas: one in the Glenrosa area near Kelowna, and the other near Alexis Creek. Fuel treatment was credited with reducing fire intensity, thus helping to reduce fire losses, allowing for safer evacuations and supporting safer and more effective suppression activities."

The purpose of this document is to guide activities to reduce the risk of catastrophic wildfire within and surrounding the residences within Electoral Area 'B', resulting in the communities being more fire-resilient. Specific objectives of this document include: a description of the area, including forest types, jurisdiction, forest health issues, and fire history; a description of resource values to be considered within the CWPP WUI areas; a section outlining the wildfire threat rating and ways to reduce the wildfire threat; a treatment plan including maps and a budget; and a list of recommendations.

Through this CWPP, the Squamish-Lillooet Regional District aims to treat more areas around community infrastructure on provincial crown land within Electoral Area 'B'.

2.0 Goals and Objectives

The overarching goal of the CWPP is to assist the Squamish-Lillooet Regional District in managing wildfire risk to the communities within the Electoral Area 'B'. Specifically, the CWPP will:

- Delineate the Wildland Urban Interface (WUI) Area around inhabited areas at risk of wildfire, including locations of homes and essential community infrastructure;
- Determine wildfire threat throughout the WUI Area,
- Identify priority areas within the WUI 100 (Zone 1) & WUI 500 (Zone 2) for forest fuel reduction treatments and develop a detailed Treatment Plan, including maps, treatment methods and proposed costs
- Provide recommendations to further the community efforts to be FireSmart and resilient,
- Provide a baseline to facilitate future landscape level planning processes within and beyond the WUI 2000 (Zone 3).

3.0 Description of the Plan Area

The Wildland Urban Interface (WUI) is the area surrounding a community (with homes, outbuildings, or other critical infrastructure) where combustible vegetation (forest fuels) is found. Under the provincial Strategic Wildfire Prevention Initiative, a CWPP WUI Area is defined as the area of wildland urban interface within 2 kilometres of a community core with a minimum density of 6 critical structures per square kilometre.

There are 6 individual WUI Areas that have been identified within the Electoral Area 'B' Plan Area (Figure 1): Fountain Valley (2 areas), Pavilion Lake, Texas Creek, Seton Portage and Yalakom Valley.

3.1 Fountain Valley WUI Areas

3.1.1 Existing Forest Stand Structure

The current forest stand structure within the Fountain Valley WUI Areas (Figures 2-7) are dominated by Douglas-fir with a small component of ponderosa pine, and open understories that are dominated by herbs and woody shrubs, including common snowberry, Saskatoon, tall Oregon-grape and kinnikinnick. The drier, more open south end of the valley has a higher component of Ponderosa Pine with Saskatoon and grasses. The summer months are warm and dry, and there are often substantial moisture deficits throughout the growing season.

Prior to the implementation of the aggressive wildfire suppression, fire played a major role in the dry Douglas-fir forest ecosystems within Fountain Valley. Frequent, low to moderate-intensity fires maintained an open forest of scattered large trees with a sparse understory vegetation layer of fire-adapted species and grasses. Over time, the open forest has become occupied by dense stands of young trees with moisture needs far greater than the available amount of moisture on the site. As a result, the dense stands of young trees grow slowly and are in poorer health. The majority of old growth trees in the valley were also high-grade logged in the early part of the 20th century. The combination of these two factors has resulted in a forest stand structure that is overstocked and stressed.

The forested land within the valley also continues to show the impact from the past Mountain Pine Beetle outbreak (Figure 5) as well as scattered mortality from Western Spruce Budworm, Douglas-fir Tussock Moth, and root disease. This has resulted in an increased surface fuel loading and risk of severe wildfire activity in the area.

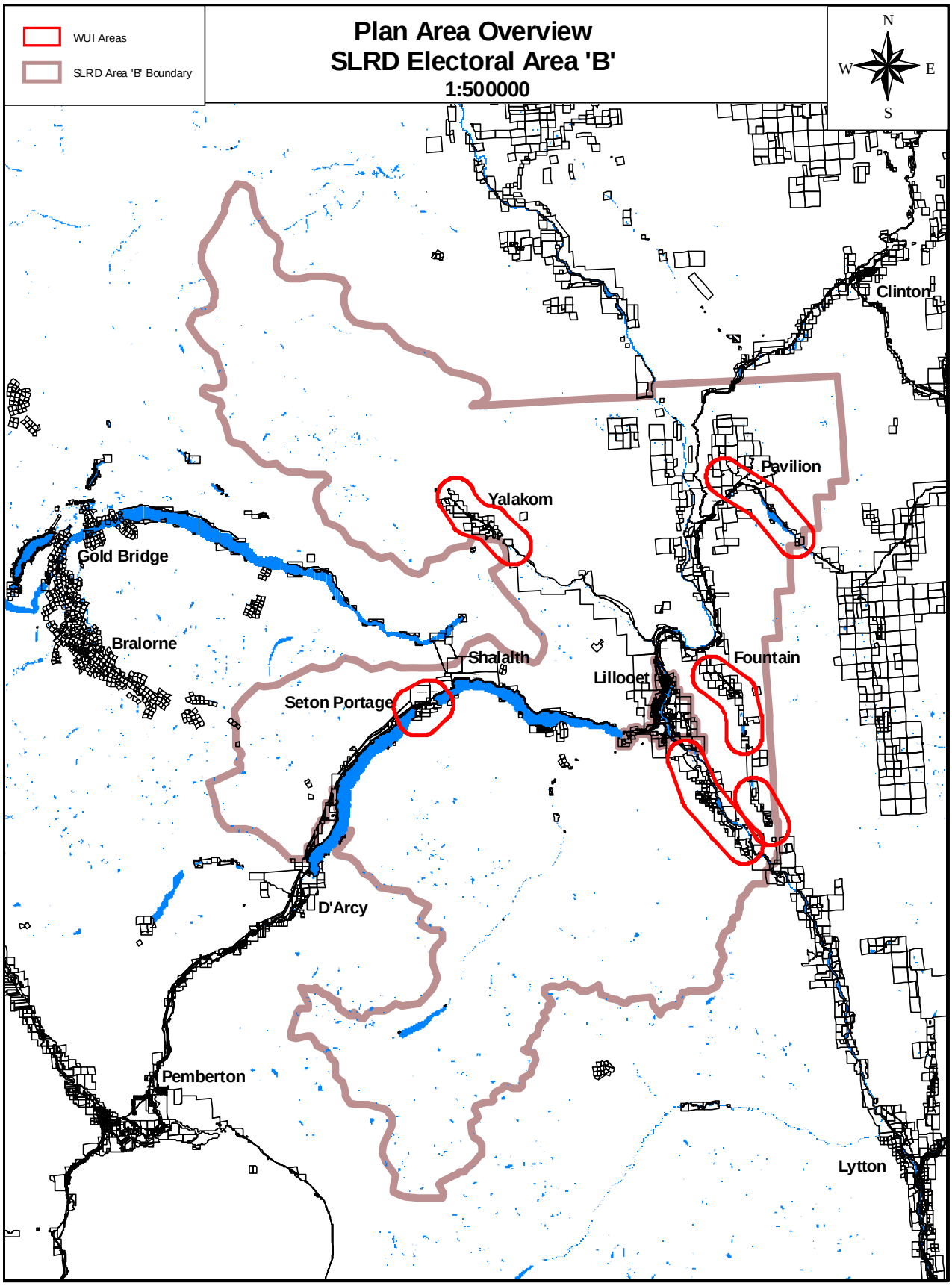

Figure 1: SLRD Electoral Area 'B' – Plan Area Overview.

Figure 2: Current stand conditions in the Fountain Valley WUI Areas, Frantzen Road.

Figure 3: Current stand conditions in the Fountain Valley WUI Areas, Frantzen Road.

Figure 4: Current stand conditions in the Fountain Valley WUI Areas, Fountain Lake.

Figure 5: Current stand conditions in the Fountain Valley WUI Areas, Fountain Lake.

Figure 6: Current stand conditions in the Fountain Valley WUI Areas, upper Kirby Flats Road.

Figure 7: Current stand conditions in the Fountain Valley WUI Areas, upper Kirby Flats Road.

3.1.2 WUI Area Land Designations

The 2 km Fountain Valley WUI Areas consist of a total land base of 7,022 hectares, of which 586 hectares is First Nations reserve land (538 hectares is Xaxli'p, 32 hectares is Lytton First Nation and 16 hectares is Ts'kw'aylaxw), 771 hectares of private land and approximately 5,665 hectares of provincial crown land (all of which overlaps the Xaxli'p Community Forest Agreement area). They encompass homes and structures within Fountain Valley from Fountain Flats to Fountain Lake, and Cinquifoil Lake south down the valley to Kirby Flats Road (Figure 8).

First Nations Reserve Land

A total of 586 hectares of reserve land is found within the two Fountain Valley WUI Areas, the majority being associated with the First Nation community of Xaxli'p (538 hectares). The remaining 48 hectares is attributed to a single Lytton First Nation reserve (IR #7 Fish Lake, 32 hectares) and a single Ts'kw'aylaxw First Nation reserve (IR #6 Ts'kw'aylaxw, 16 hectares) at the south end of the valley below Cinquifoil Lake.

The IR #1 Fountain/IR #8 Fountain Creek/IR #5 Fountain Lake reserve community core has over 37 homes and other structures situated on them including a pumphouse and an old church. The IR #4 Fountain reserve is uninhabited (the only structure is a hay shed).

The IR #7 Fish Lake reserve has a single house situated on it, while the IR #6 Ts'kw'aylaxw reserve is uninhabited with no structures.

Regional District Land

There are no Squamish-Lillooet Regional District-owned land parcels within the two Fountain Valley WUI Areas.

Private Land

A total of 771 hectares of private land is found within the two Fountain Valley WUI Areas. There are 57 structures (homes and associated buildings) situated on land parcels in the northern WUI Area (the vast majority being concentrated around Fountain Lake), with 24 structures (homes and associated buildings) situated on land parcels in the southern WUI Area (the majority being in the Fountain Valley Road/Kirby Flats Road area). Most of the individual land parcels are forested to some degree, containing a component of susceptible or Mountain Pine beetle-killed pine, along with Douglas-fir.

Parks and Protected Areas

There are no provincial parks or protected areas within the two Fountain Valley WUI Areas.

Crown Land

The remaining land base within the two Fountain Valley WUI Areas (5,665 hectares) is crown land, all of which falls within the boundary of the Xaxli'p Community Forest Agreement area.

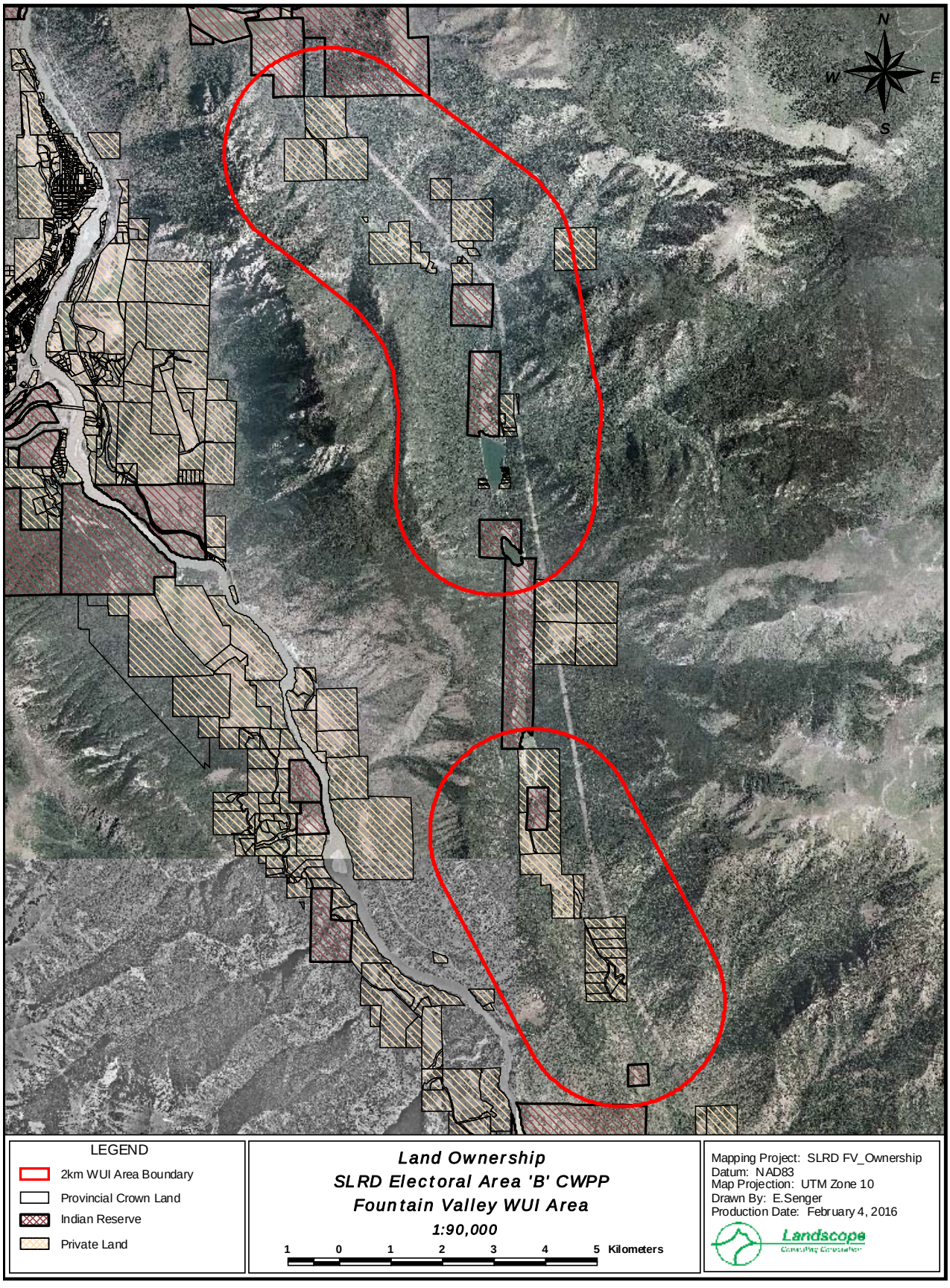

Figure 8: Land Ownership – SLRD Electoral Area 'B', Fountain Valley WUI Areas.

3.2 Pavilion Lake WUI Area

3.2.1 Existing Forest Stand Structure

The current forest stand structure in the Pavilion Lake WUI Area (Figures 9-14) varies from dry, open south-facing slopes consisting of bunchgrass, juniper, Saskatoon and a scattered layer of mature Ponderosa Pine and Douglas fir, to north-facing slopes of primarily mature Douglas-fir with a thrifty understory of the same species. Along the valley bottom, Douglas-fir and Ponderosa Pine are found with a deciduous component of Cottonwood and Trembling Aspen along the creeks and lakes, and in the wetlands and spring-fed areas.

The forested land in the valley continues to show the impact from the past Douglas-fir Tussock Moth outbreak (Figure 12) and Mountain Pine Beetle outbreak (Figure 14). Areas of Douglas-fir and Ponderosa pine mortality remain, with much of the dead pine having fallen down. This situation has resulted in an increased surface fuel loading and risk of more significant wildfire behaviour.

The forested area at south end of Pavilion Lake to Crown Lake also shows the impact from the wildfire that burned 138.5 hectares in May 2012. The fire remained mostly a surface fire on the valley bottom, but experienced areas of severe surface-to-crown fire on the steep north-facing slope.

Figure 9: Current stand conditions in the Pavilion Lake WUI Area.

Figure 10: Current stand conditions in the Pavilion Lake WUI Area.

Figure 11: Current stand conditions in the Pavilion Lake WUI Area.

Figure 12: Current stand conditions in the Pavilion Lake WUI Area.

Figure 13: Current stand conditions in the Pavilion Lake WUI Area.

Figure 14: Current stand conditions in the Pavilion Lake WUI Area.

3.2.2 WUI Area Land Designations

The 2 km Pavilion Lake WUI Area consists of a total land base of 4,988 hectares, of which 76 hectares is First Nations reserve land, 1,559 hectares of private land and approximately 3,353 hectares of provincial crown land (of which 1,693 hectares falls within Marble Canyon Provincial Park). It encompasses homes and structures on Pavilion and Crown Lakes, as well as along Highway 99N and Milkranch (Figure 15).

First Nations Reserve Land

A total of 76 hectares of reserve land is found within the Pavilion Lake WUI Area, all attributed to IR #1 Pavilion of the Ts'kw'aylaxw First Nation. While this reserve is inhabited and has homes and associated structures within the Pavilion residential area, there are no structures within the portion of the reserve that falls within the Pavilion WUI Area.

Regional District Land

There are no Squamish-Lillooet Regional District-owned land parcels within the Pavilion Lake WUI Area.

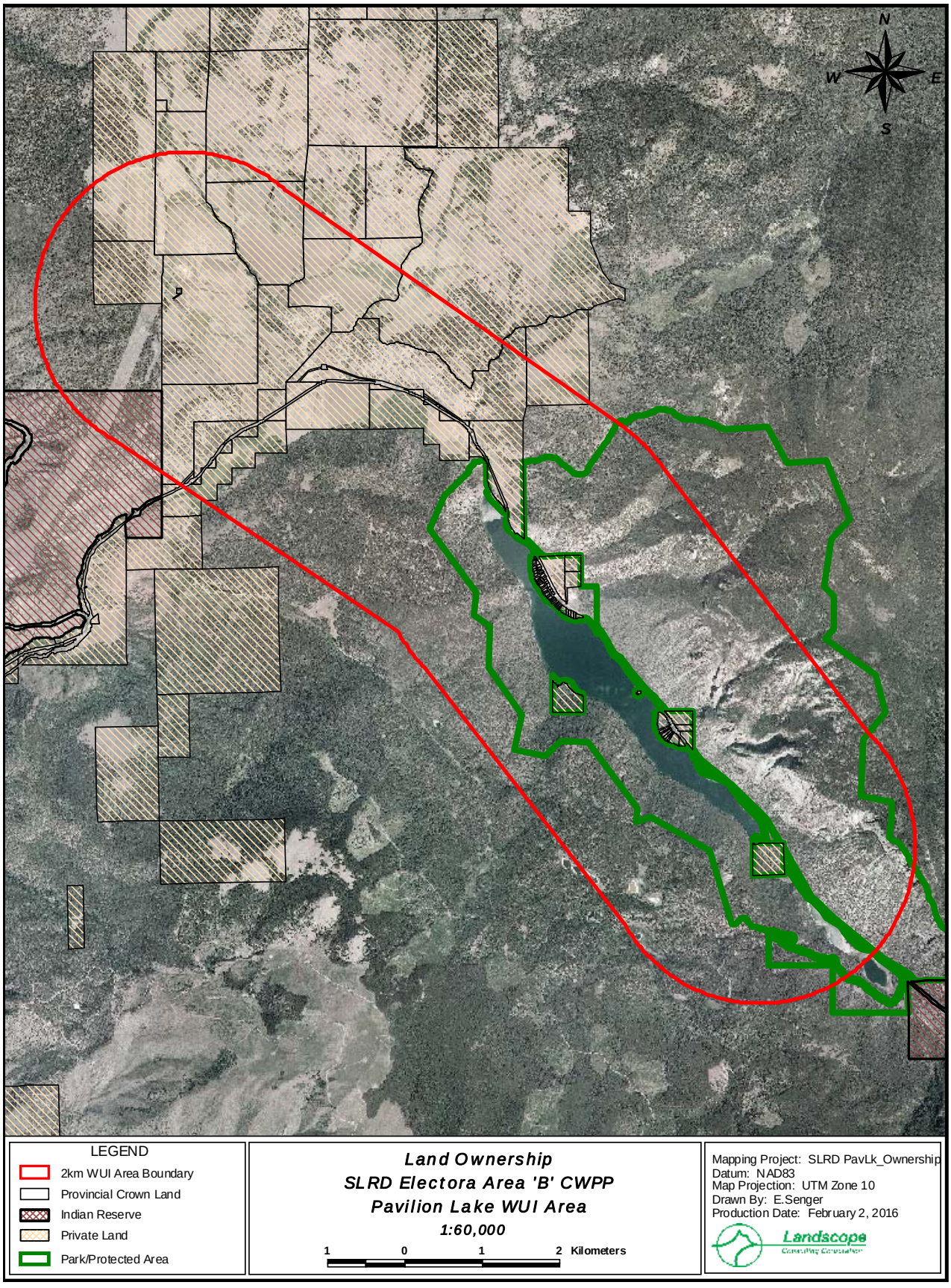

Figure 15: Land Ownership – SLRD Electoral Area 'B', Pavilion Lake WUI Area.

Private Land

A total of 1,559 hectares of private land is found within the Pavilion WUI Area. There are 10 structures associated with the upper homestead (Milkranch) portion of the Blue Goose Cattle Company properties, including homes, cabins, barns and sheds. In the Pavilion portion along Highway 99N there are another 10 structures (homes, cabins, barns and sheds) associated with the Blue Goose Cattle Company. In Marble Canyon there are over 75 homes, recreational cabins and associated structures on parcels along Pavilion Lake including the Sky Blue Resort. The individual land parcels in Marble Canyon are forested to some degree, containing a component of susceptible Ponderosa Pine to Mountain Pine Beetle and Douglas-fir susceptible to Western Spruce Budworm and Tussock Moth. The parcels in the northern portion at Pavilion and Milkranch are predominantly grassland, pasture and hay fields associated with the Blue Goose Cattle Company.

Parks and Protected Areas

The majority of the southern half of the Pavilion WUI Area (which includes Pavilion and Crown Lakes) falls within Marble Canyon Provincial Park. The 5,085 hectare Class A Park encompasses Marble Canyon along with Pavilion, Crown and Turquoise Lakes. A total of 1,944 hectares of the park falls within the WUI Area, and includes the Crown Lake provincial campground with outhouses and other structures associated with park amenities.

Crown Land

The remaining 1,409 hectares of land base within the Pavilion Lake WUI Area is provincial crown land.

3.3 Seton Portage WUI Area

3.3.1 Existing Forest Stand Structure

The current forest stand structure within the Seton Portage WUI Area (Figures 16-21) varies from hot and dry, more open-growing south-facing slopes consisting of pinegrass, Saskatoon, spiraea and layer of immature and mature Ponderosa Pine and Douglas fir, to the shoreline and floodplain of Seton and Anderson lakes consisting of predominantly deciduous trees and shrubs including oregon grape, poplar, birch and maple, and a component of immature and mature Douglas-fir and Western Red Cedar. The north-facing slopes consist primarily of immature and mature Douglas-fir and a minor component of Ponderosa Pine, with a mixed component of poplar, birch and maple and deciduous shrubs.

As shown in Figures 19 & 52, the forest to the south of Seton Portage also shows the impact from the wildfire that burned over 1,381 hectares in August 2009. The wildfire experienced areas of lower intensity surface fire and higher intensity surface-to-crown fire leaving a mosaic of forest types within the fire perimeter. Figure 19 shows the higher intensity area of the wildfire immediately south of the community.

Figure 16: Current stand conditions in the Seton Portage WUI Area, north slope.

Figure 17: Current stand conditions in the Seton Portage WUI Area, north slope.

Figure 18: Current stand conditions in the Seton Portage WUI Area, north slope.

Figure 19: Current stand conditions in the Seton Portage WUI Area, south slope.

Figure 20: Current stand conditions in the Seton Portage WUI Area, south slope.

Figure 21: Current stand conditions in the Seton Portage WUI Area, south slope.

3.3.2 WUI Area Land Designations

The 2 km Seton Portage WUI Area consists of a total land base of 2,356 hectares, of which 698 hectares is First Nations reserve land, 224 hectares of private land and approximately 1,434 hectares of provincial crown land (includes the 1.1 hectare Seton Portage Park). It encompasses homes and structures within the town of Seton Portage, as well as those on IR #1 Slosh, IR #1 Whitecap, IR #5 Mission and IR #6 Necait reserves of the First Nation community of Tsal'alh (Seton Lake Indian Band) (Figure 22).

First Nations Reserve Land

A total of 698 hectares of reserve land is found within the Seton Portage WUI Area, all attributed to Tsal'alh IR #1 Slosh, IR #1 Whitecap, IR #5 Mission, IR #5A Seton Lake and IR #6 Necait. The primary community residential area is found on IR #1 Slosh along the north and west shoreline of Seton Lake with over 25 homes and other critical structures including a school, health centre and elder's complex, and a gas station, as well as extensive BC Hydro transmission infrastructure. On IR #1 Whitecap, there is a campground with maintenance and information structures. On IR #5 Mission there are approximately 10 residences, and on the IR #6 Necait reserve there are approximately 10 residences and a church. IR #5A Seton Lake is uninhabited.

Regional District Land

There are two small Squamish-Lillooet Regional District-owned land parcels within the Seton Portage WUI Area totalling 0.6 hectares. Both are residential in size.

Private Land

A total of 224 hectares of private land is found within the Seton Portage WUI Area, the vast majority of which is found in the community of Seton Portage. There are over 110 homes and other critical structures including the volunteer fire hall, pub and restaurant, hotel, post office, general store and other businesses. While most of the individual land parcels within Seton Portage itself are residential size, those parcels outside of the core area of Seton Portage are quite large in size and heavily forested

Parks and Protected Areas

The 1.1 hectare Seton Portage Park is situated within the community of Seton Portage. There are no structures situated on the parcel attributed to the community park.

Crown Land

The remaining 1,433 hectares of land base within the Seton Portage WUI Area is provincial crown land.

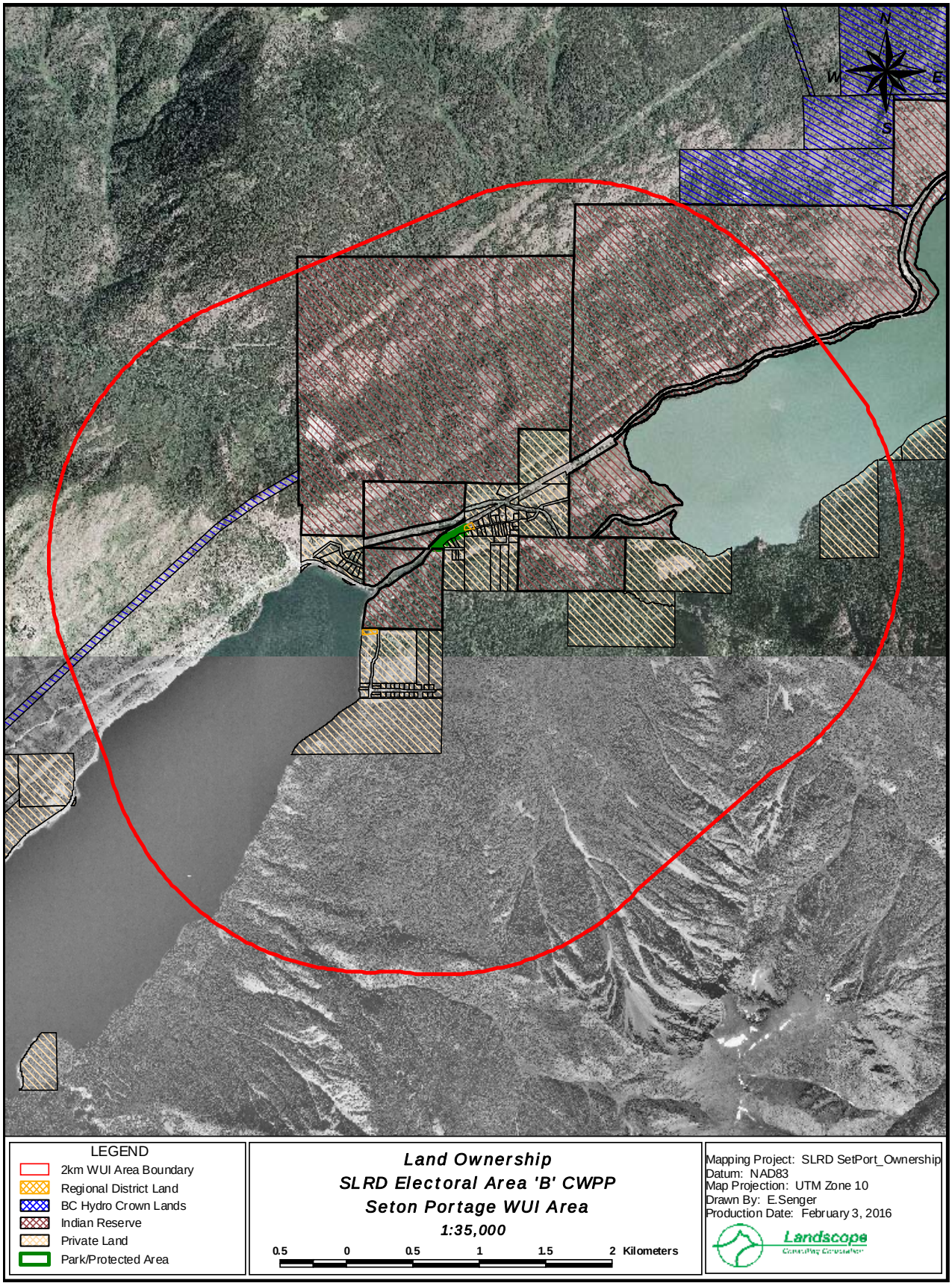

Figure 22: Land Ownership – SLRD Area B, Seton Portage WUI Area.

3.4 Texas Creek WUI Area

3.4.1 Existing Forest Stand Structure

The current forest stand structure within the Texas Creek WUI Area (Figures 23-28) varies from dry, open south-facing slopes and flat benches consisting of a sagebrush, bunchgrass, Saskatoon and a sparse layer of immature and mature Ponderosa Pine and Douglas fir, to east and north-facing slopes of primarily mature Douglas-fir and a minor component of Ponderosa Pine, with a thrifty understory of the same species along with areas of dense brush, shrubs and deciduous trees.

As shown in Figures 27 & 28, the forested land in several areas of the WUI Area continues to show the impact from the past Mountain Pine Beetle outbreak. Areas of significant Ponderosa pine mortality remain, with much of the dead pine having fallen down and increasing the surface fuel load and risk of more severe wildfire activity.

Figure 23 shows the wetland area surrounding the western end of Phair Lake. Western Red Cedar, cottonwood, birch and maple are also present with Douglas-fir. Extensive areas of horsetail mark the perimeter of the wetland.

Figure 23: Current stand conditions in the Texas Creek WUI Area.

Figure 24: Current stand conditions in the Texas Creek WUI Area.

Figure 25: Current stand conditions in the Texas Creek WUI Area.

Figure 26: Current stand conditions in the Texas Creek WUI Area.

Figure 27: Current stand conditions in the Texas Creek WUI Area.

Figure 28: Current stand conditions in the Texas Creek WUI Area.

3.4.2 WUI Area Land Designations

The 2 km Texas Creek WUI Area consists of a total land base of 5,499 hectares, of which 627 hectares is First Nations reserve land (205 hectares is Sekw'el'was, 165 hectares is T'ít'q'et, and 257 hectares is Lytton First Nation), 1,851 hectares of private land and approximately 3,021 hectares of provincial crown land (187 hectares of which is attributed to the Cwyn Maur Ranch Woodlot 365 tenure). It encompasses homes and structures along Texas Creek Road from the Sekw'el'was IR #2 reserve to the Lytton First Nation IR #6 Nesikep reserve on the west side of the Fraser River, and along Hwy 12 from the T'ít'q'et IR #4 McCartney's Flat reserve to the Lytton First Nation IR #6 Nesikep reserve on the east side of the river (Figure 29).

First Nations Reserve Land

A total of 622 hectares of reserve land is found within the Texas Creek WUI Area, associated with the First Nation communities of Sekw'el'was, T'ít'q'et and Lytton First Nation.

The Sekw'el'was 6 km Texas Creek Road and Pashilqua residential area on IR #2 Pashilqua falls within the Texas Creek WUI area, and includes 15 residences, a pumphouse and other structures as well as a graveyard.

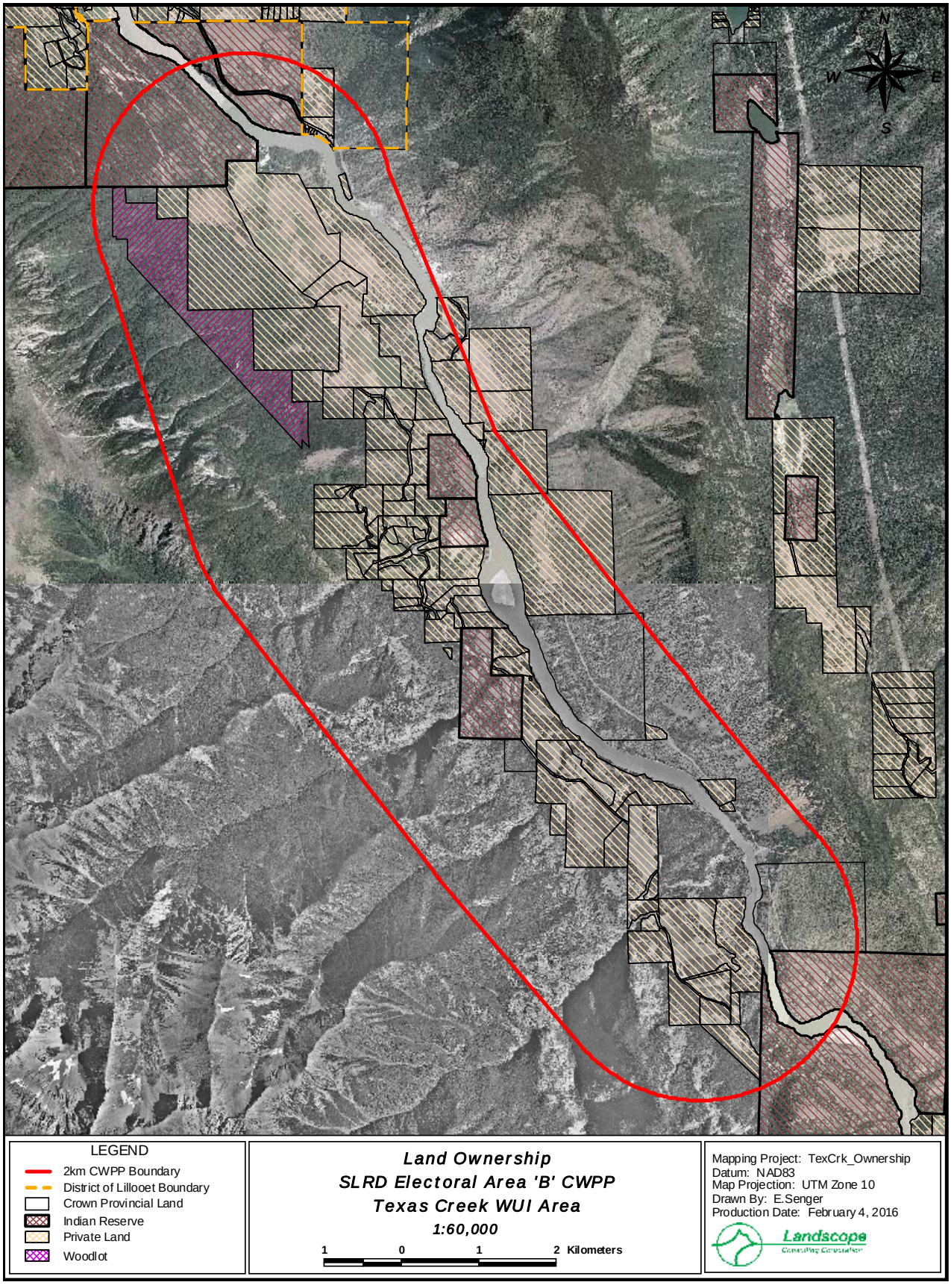

Figure 29: Land Ownership – SLRD Area B, Texas Creek WUI Area.

The T'ít'q'et IR #1B Riley Creek, IR #2 Towinock, IR #3 Kilchult and IR #4 McCartney's Flat reserves fall within the Texas Creek WUI Area. There are 3 homes and associated structures situated on IR #1B Riley Creek, 8 homes and associated structures on IR #2 Towinock, and 14 homes, an operations maintenance building and other associated structures on IR #4 McCartney's Flat (6-Mile). IR #3 Kilchult is inhabited.

There are no structures on the portion of the Lytton First Nation IR #6 Nesikep reserve that falls within the Texas Creek WUI Area. IR #6A Nesikep is uninhabited.

Private Land

A total of 1,851 hectares of private land is found within the Texas Creek WUI Area, the vast majority of which is situated on the west side of the Fraser River along Texas Creek Road. There are over 150 homes and other associated structures in this area, most of which are rural properties that are forested to a certain degree, and adjacent to land that is continuously covered by forest. Some of the land parcels are also quite large.

On the east side of the Fraser River, there are over 30 homes and associated structures spread across land parcels of varying sizes along Hwy 12.

Parks and Protected Areas

There are no provincial parks or protected areas within the Texas Creek WUI Area.

Crown Land

The remaining 3,021 hectares of land base within the Texas Creek WUI Area is provincial crown land, of which 187 hectares is Cwyn Maur Ranch Woodlot 365 tenure area (Wick and Chad Creeks).

3.5 Yalakom Valley WUI Area

3.5.1 Existing Forest Stand Structure

The current forest stand structure within the Yalakom Valley WUI Area (Figures 30-35) varies from dry, open south-facing slopes and flat benches consisting of a sagebrush, bunchgrass, Saskatoon and a sparse to moderately-thick layer of immature and mature Ponderosa Pine and Douglas fir (dominating the lower Yalakom River valley and Bridge River valley), to north-facing slopes of primarily mature Douglas-fir forest with a minor component of Ponderosa Pine (along the valley bottom), with a thrifty understory of the same species along with areas of dense brush, shrubs and deciduous trees in the wetter locations and creek draws.

As shown in Figures 30 & 31, the Ponderosa Pine forest types within the WUI Area continue to show the impact from the past Mountain Pine Beetle outbreak. Areas of significant Ponderosa pine mortality remain, with much of the dead pine having fallen down and increasing the surface fuel load and risk of more severe wildfire activity.

Figure 30: Current stand conditions in the Yalakom Valley WUI Area.

Figure 31: Current stand conditions in the Yalakom Valley WUI Area.

Figure 32: Current stand conditions in the Yalakom Valley WUI Area.

Figure 33: Current stand conditions in the Yalakom Valley WUI Area.

Figure 34: Current stand conditions in the Yalakom Valley WUI Area.

Figure 35: Current stand conditions in the Yalakom Valley WUI Area.

3.5.2 WUI Area Land Designations

The 2 km Yalakom Valley WUI Area consists of a total land base of 4,486 hectares, of which 240 hectares is First Nations reserve land (all Xwisten), 776 hectares of private land and approximately 3,470 hectares of provincial crown land (of which 693 hectares falls within Fred-Antoine Park and 245 hectares is attributed to the Barton Ranch Woodlot 364 tenure). It encompasses homes and structures within the lower portion of the Yalakom Valley and the portion of the Bridge River valley at the confluence of the Yalakom River and Bridge River (Figure 36).

First Nations Reserve Land

A total of 240 hectares of reserve land is found within the Yalakom Valley WUI Area, all attributed to the northern end of IR #1 Bridge River of the First Nation community of Xwisten. There is one home and shed situated on the reserve land adjacent to Antoine Creek.

Private Land

A total of 776 hectares of private land is found within the Yalakom Valley WUI Area, most of which are rural properties that are forested to a certain degree, and adjacent to land that is continuously covered by forest. Some of the land parcels are also quite large and also contain a component of susceptible or Mountain Pine beetle-killed pine, along with a component of Douglas-fir. There are over 40 homes and other associated structures (sheds & barns) in this area.

Parks and Protected Areas

A total of 693 hectares of the Yalakom Valley WUI Area falls within the Fred-Antoine Park. The 8,227 hectare Class A Park encompasses the Fred and Antoine Creek watersheds, from the Yalakom River up to the alpine.

Crown Land

The remaining 2,977 hectares of land base is provincial crown land, of which 245 hectares is Barton Ranch Woodlot 364 tenure area (LaRochelle Creek).

3.6 Biogeoclimatic and Natural Disturbance Type Zones

The landscape across British Columbia is classified according to biogeoclimatic (BEC) zones using vegetation, soils and climate. Dominant climatic climax vegetation is utilized to name each zone. These zones are used frequently in forest management to help determine the most appropriate management approaches and prescriptions based on the representative ecosystem types found in each different BEC zone. The zones found within and surrounding the SLRD Electoral Area 'B' WUI Areas are listed in Tables 1-5 and shown in Appendix 9.1 Figures 54-58.

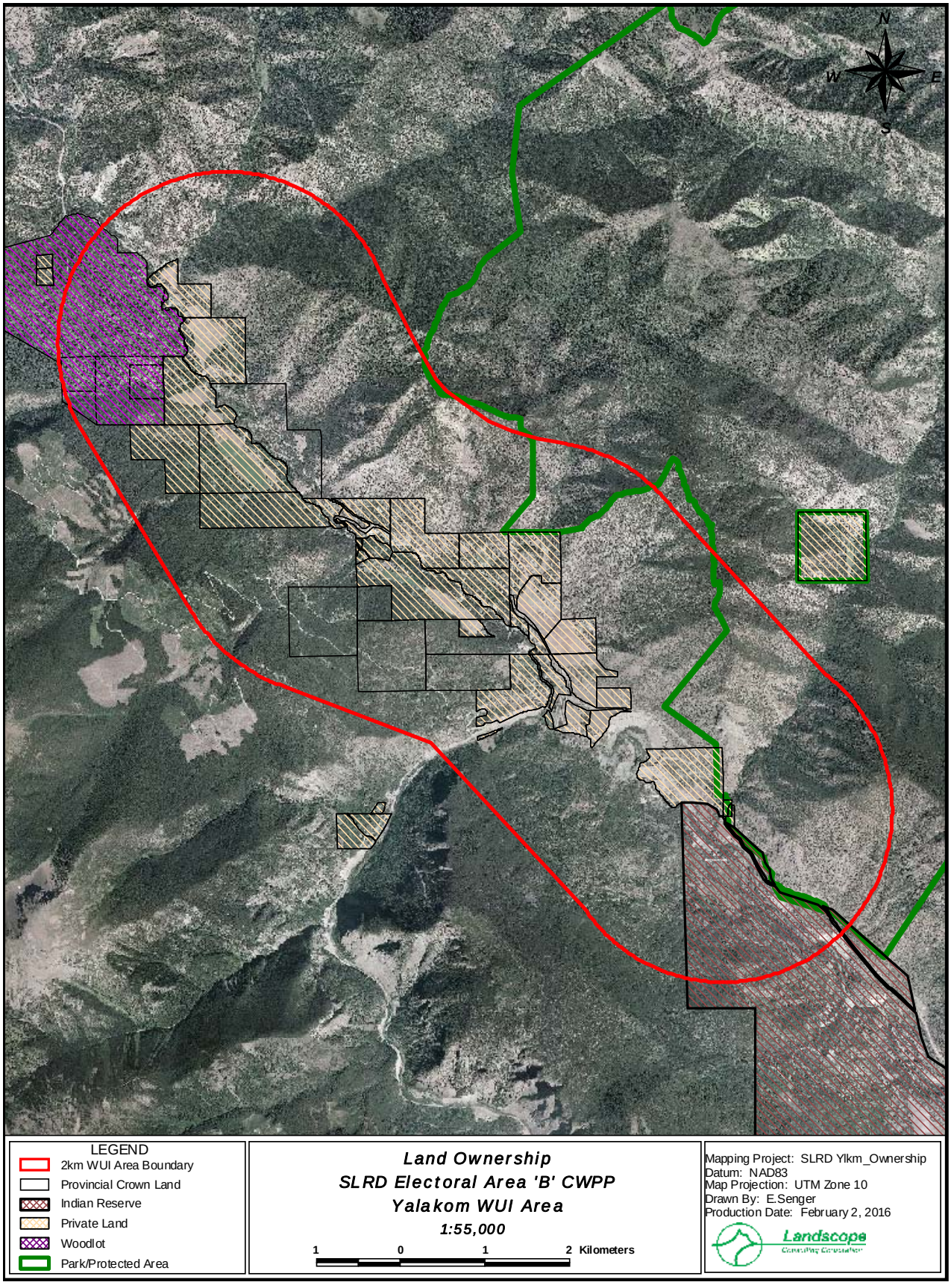

Figure 36: Land Ownership – SLRD Area B, Yalakom Valley WUI Area.

Table 1. Biogeoclimatic zones in the Fountain Valley WUI Areas.

Biogeoclimatic zones	Area (ha)	% of Total Area
Interior Douglas-fir (IDF)	6,708	94.5%
Ponderosa Pine (PP)	394	5.5%

Table 2. Biogeoclimatic zones in the Pavilion Lake WUI Area.

Biogeoclimatic zones	Area (ha)	% of Total Area
Montane Spruce (MS)	9	0.2%
Interior Douglas-fir (IDF)	5,231	99.8%

Table 3. Biogeoclimatic zones in the Seton Portage WUI Area.

Biogeoclimatic zones	Area (ha)	% of Total Area
Montane Spruce (MS)	37	1.3%
Interior Douglas-fir (IDF)	2,784	98.7%

Table 4. Biogeoclimatic zones in the Texas Creek WUI Area.

Biogeoclimatic zones	Area (ha)	% of Total Area
Engelmann Spruce - Subalpine Fir (ESSF)	13	0.2%
Montane Spruce (MS)	91	1.6%
Interior Douglas-fir (IDF)	3,564	61.5%
Ponderosa Pine (PP)	2,126	36.7%

Table 5. Biogeoclimatic zones in the Yalakom Valley WUI Area.

Biogeoclimatic zones	Area (ha)	% of Total Area
Interior Douglas-fir (IDF)	3,724	82.6%
Ponderosa Pine (PP)	783	17.4%

Five natural disturbance types (NDTs) are recognized as occurring in BC, which characterize areas with different natural disturbance regimes. Stand-initiating disturbances (e.g. wildfires and insect outbreaks) are those processes that largely terminate the existing forest stand and initiate secondary succession in order to produce a new stand. Disturbances such as the understorey ground fires that occur in the IDF and PP ecosystems characteristic of the NDT4 are vital to keeping the successional processes stable in these zones. The NDT zones found within and surrounding the SLRD Electoral Area 'B' WUI Areas are listed in Tables 6-10 and shown in Appendix 9.2 Figures 59-63.

Table 6. Natural Disturbance Type (NDT) zones in the Fountain Valley WUI Areas.

NDT zone	Disturbance Interval	Area (ha)	% of Total Area
NDT1	Rare, 250-350yrs		
NDT2	Infrequent, 200yrs		
NDT3	Frequent, 100yrs		
NDT4	Frequent, 4-50yrs	7,102	100.0%
NDT5	Rare, Alpine		

Table 7. Natural Disturbance Type (NDT) zones in the Pavilion Lake WUI Area.

NDT zone	Disturbance Interval	Area (ha)	% of Total Area
NDT1	Rare, 250-350yrs		
NDT2	Infrequent, 200yrs		
NDT3	Frequent, 100yrs	9	0.2%
NDT4	Frequent, 4-50yrs	5,231	99.8%
NDT5	Rare, Alpine		

Table 8. Natural Disturbance Type (NDT) zones in the Seton Portage WUI Area.

NDT zone	Disturbance Interval	Area (ha)	% of Total Area
NDT1	Rare, 250-350yrs		
NDT2	Infrequent, 200yrs		
NDT3	Frequent, 100yrs	37	1.3%
NDT4	Frequent, 4-50yrs	2,784	98.7%
NDT5	Rare, Alpine		

Table 9. Natural Disturbance Type (NDT) zones in the Texas Creek WUI Area.

NDT zone	Disturbance Interval	Area (ha)	% of Total Area
NDT1	Rare, 250-350yrs		
NDT2	Infrequent, 200yrs		
NDT3	Frequent, 100yrs	104	1.8%
NDT4	Frequent, 4-50yrs	5,690	98.2%
NDT5	Rare, Alpine		

Table 10. Natural Disturbance Type (NDT) zones in the Yalakom Valley WUI Area.

NDT zone	Disturbance Interval	Area (ha)	% of Total Area
NDT1	Rare, 250-350yrs		
NDT2	Infrequent, 200yrs		
NDT3	Frequent, 100yrs		
NDT4	Frequent, 4-50yrs	4,507	100.0%
NDT5	Rare, Alpine		

Nearly all of the forested land within the Electoral Area 'B' WUI Areas falls within very hot and dry ecosystems of IDF and PP biogeoclimatic zones. The Ponderosa Pine zone is generally found at low elevations along valley bottoms, is the driest of the forested zones in BC and experiences some of the highest summer temperatures. The Interior Douglas fir zone is generally found at the mid to low elevations above the Ponderosa Pine zone and experiences warm, dry summers and cool, dry winters, although in locations such as within Electoral Area 'B' the transition portion of the PP-to-IDF will also experience very high summer temperatures. In addition, nearly all forested land within the Electoral Area 'B' WUI Areas falls within the NDT4 disturbance type.

In general, the large insect outbreaks such as Mountain Pine Beetle are found in the NDT3 and NDT4 zones which contain BEC ecosystems with pine forest types of greater susceptibility including Ponderosa Pine and Interior Douglas-fir. The same zones also experience frequent wildfires which may be associated with similar cycles of insect outbreaks; therefore it is important to adopt a pro-active approach to managing the forest types within these zones in efforts to mitigate the catastrophic impacts from such stand disturbances as insect outbreaks and severe wildfires.

3.7 Forest Health Issues

Forest health factors such as insects and diseases are natural components of our forested ecosystems. When present below certain thresholds, native forest health factors are integral to healthy ecosystems, contributing to the food chain and biodiversity. What is considered an acceptable level for a certain forest health factor depends in part on the management goals and objectives for the area. At unacceptable levels damage can lead to economic instability through impacts to timber supply and associated revenues, increased risk and intensity of wildfires, disruption of long-term forest management planning, and negative impacts on recreation and aesthetic values, range, fish and wildlife resources, cultural heritage features, and watershed management.

The Mountain Pine beetle (*Dendroctonus ponderosae*) is the most destructive pest of mature pine in British Columbia, and continues to be the largest threat to BC forests in terms of timber loss, negative economic impacts, and environmental concerns including the associated threat of severe wildfire activity. The most extensive Mountain Pine beetle epidemic in recorded history is presently underway in British Columbia. The most recent Ministry of Forests and Range projection shows that approximately 54% of the mature pine in the BC interior could be killed by the year 2016, 27% locally for the Lillooet TSA. Beetle populations had been on the rise for several years, due to an abundance of mature pine and very favourable weather conditions.

For the Mountain Pine beetle, the latest susceptibility data available based on the Shore and Safranyik model (Safranyik *et al* 1992) was obtained from the Ministry of Forests and Range - Southern Interior Forest Region (spatial data – February 21, 2007). This system considers age, susceptible pine basal area, stand density and location. The model represents overall stand susceptibility, but does not necessarily represent individual tree susceptibility. In addition, provincial vegetation resource inventory data is used as the analysis dataset, therefore inaccuracies in areas being susceptible (or not), and to the degree they are susceptible may arise depending on the date, location, accuracy and completion of the source inventory data. It is for this reason that the susceptibility rating is considered another broad reference indicator but not an accurate operational management tool.

The area of susceptible forest types to the Mountain Pine Beetle is shown in Appendix 9.3 Figures 64-68 for the Electoral Area 'B' WUI Areas, as well as the actual area of beetle-killed pine as identified from the Ministry of Forests and Range aerial overview surveys completed in the years 2005 through 2015. The areas of beetle-killed Ponderosa Pine in all WUI Areas are of concern due to the significant amount of fuel loading in the areas of dead pine.

In response to the Mountain Pine Beetle epidemic in the BC interior, in April 2005 the BC government released the Mountain Pine Beetle Action Plan for 2005 – 2010 (updated Plan for 2006-2011 released September 2006) in effort to mitigate the impacts of the beetle on the forest values, communities and the economy in the short term, and to implement measures to ensure their sustainability in the long term. The five year plan presents seven (7) broad objectives which outline a government-wide effort of cooperation between the federal, provincial and municipal/local governments, agencies and societies, the forest industry and other impacted stakeholders. Objective #2 deals specifically with maintaining and protecting public health and safety, with priority action #3 "*Carry out fuel management and implement wildfire mitigation activities where necessary for public safety*."

The Western Spruce Budworm (*Choristoneura occidentalis)* is the primary defoliator of concern for interior Douglas-fir. Outbreaks of this budworm cause significant damage through larval feeding on the foliage, resulting in reduced seed production due to damaged cones, growth loss, topkill, formation of stem deformities and even mortality, particularly in the understory. The IDF biogeoclimatic zone is a high hazard zone for western spruce budworm in Douglas-fir stands. Incidence and intensity of budworm defoliation has increased with the current fire exclusion practices.

The Douglas-fir Tussock Moth *(Orgyia pseudotsugata)* is another destructive defoliator of interior Douglas-fir, with population infestation and resulting defoliation levels which have been on the increase in recent years. Since the larvae consume both old and new foliage on trees of all ages, one year's defoliation can result in top kill and tree mortality. Outbreaks tend to be cyclical and of short duration, but on a local scale can be significantly destructive to stands of Douglas-fir.

Pockets of root disease including Laminated Root Rot and Armillaria Disease are also found within the SLRD - Electoral Area 'B' WUI Areas.

3.8 Local Fire History and Fire Weather

As described in the preceding sections, the current landscape throughout the SLRD – Electoral Area 'B' is primarily influenced by it's location along the Fraser Canyon stretching north-south, and the Seton-Anderson Lake valley, Carpenter Lake-Bridge River valley and Marble Canyon stretching east-west. The narrow valleys can experience high and unpredictable winds blowing in from the west, out from the east, down from the north or up from the south, or combinations of the different directions that are experienced during the approach of a weather system or during severe thunderstorms. This is of great concern if a wildfire were to ignite in any of the areas. The extensive areas Mountain Pine Beetle-killed pine is another significant concern due to the dry fuels present in the dead stands of trees. During the summer months the area will also experience extended periods of little to no precipitation and sustained temperatures in the 25-30 degree Celsius range resulting in very dry conditions. These factors combined can lead to the potential for rapid spread of a severe wildfire - a hazardous scenario in the event a wildfire enters or is ignited in the valley (as witnessed with the Mt. McLean fire in 2009).

Although the area tends to receive the more extreme weather patterns during the summer months, there is a general correlation between amount of precipitation received and number of high to extreme fire days experienced, as shown in Table 11. Figures 37 through 40 show averaged precipitation, wind speeds, temperature and number of high/extreme fire days from

data collected at the Lillooet Forest Service weather station over a 5 year period (2010 – 2015). The data presented is for the months that are typically considered the 'wildfire season'. These graphs show a direct correlation between the months that experience the highest number of high and extreme fire danger days which directly corresponds with falling precipitation levels, increasing wind speeds and rising temperatures.

Table 11. Mean Annual Precipitation and High/Extreme Fire Danger Days – 2010-2015[1].

Weather Stn	Precipitation (mm)	High/Extreme Fire Danger Days
Lytton FS	348	569
Lillooet FS	308	549
Anderson FS	1,257	139
Haig FS	2,101	232
McLean's Lake	227	170

[1]- Fire weather data sourced from the BCWS Lillooet Fire Zone

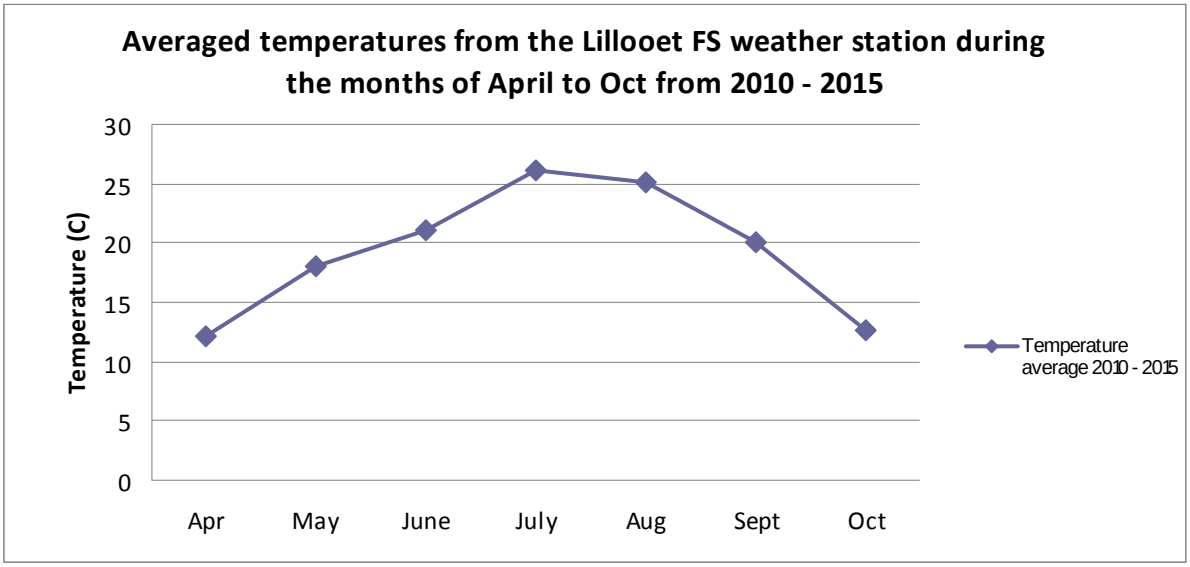

Figure 37: Average Monthly Temperatures

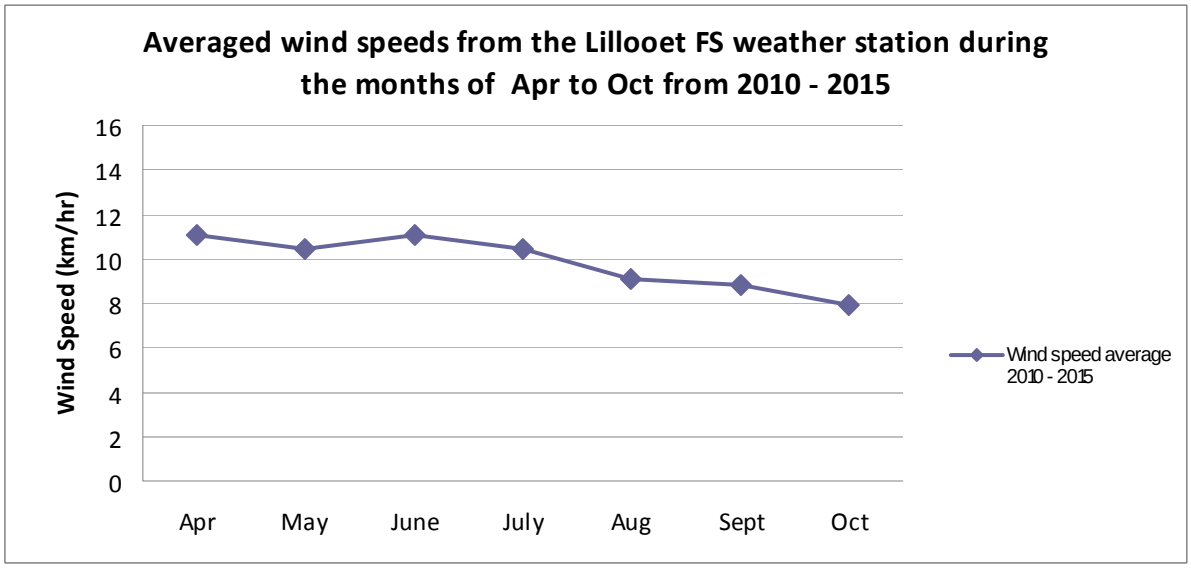

Figure 38: Average Monthly Wind Speeds

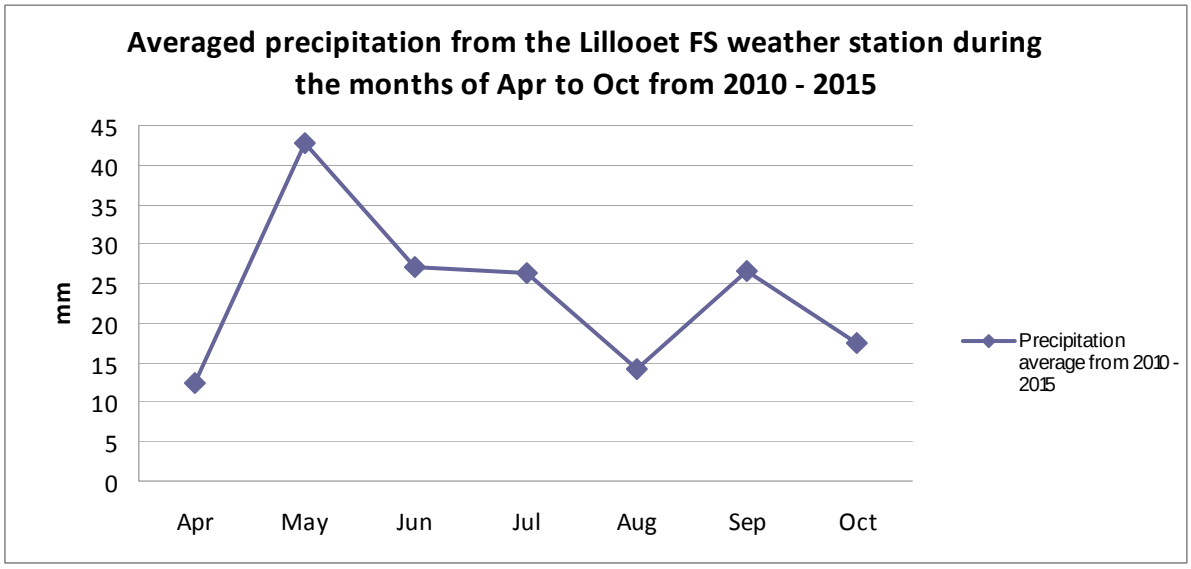

Figure 39: Average Monthly Precipitation

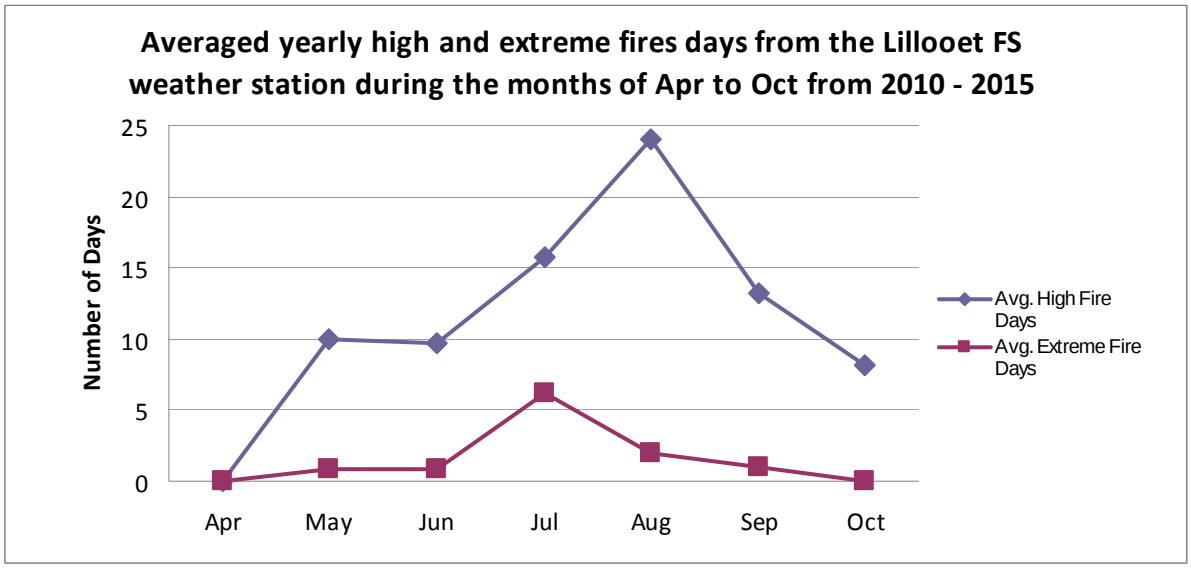

Figure 40: Average Monthly High and Extreme Fire Days

4.0 Resource Value Considerations

4.1 Higher Level Planning

As with any planning process, ground-based treatment plans must be consistency with governing higher level objectives that exist for proposed treatment areas. The following section details the sources of existing higher level objectives, strategies, guidelines and current plans that the Community Wildfire Protection Treatment Plan (and subsequent fuel management prescriptions) will take into consideration. Any applicable objectives developed in higher level planning processes that are introduced during the lifespan of this CWPP document will also be taken into consideration at that time.

4.1.1 Lillooet Land and Resource Management Plan (LLRMP)

Currently, in the Lillooet TSA, there are no legislated Higher Level Plans (HLP) in place. The Lillooet Land and Resource Management Plan (LLRMP) planning process was initiated approximately 20 years ago for the Lillooet TSA. In 2002, two proposed drafts of the LLRMP were completed, one version developed by the Lillooet community groups (forest industry, local citizens, and the local union groups) and the other version developed by conservation groups. The primary difference between the two initial plans was the amount of proposed protected area. Both versions of the plan were presented to the provincial government, with the requirement that only one option be chosen. The government at the time selected the conservation approach. Further revisions to the plan have been made by government over the last 13 years attempting to integrate new results-based regulations and policies, a better balance among economic, social and environmental components, a shorter and less prescriptive document and to support government's consultations with First Nations. Sections of the Plan have also been selected for Government Action Regulation (GAR) Orders including those for wildlife and at-risk species management, as well as many of the proposed protected areas becoming designated provincial Parks.

4.1.2 Nxekmenlhkálha Iti Tmícwa (St'át'imc Preliminary Draft Land Use Plan)

In March 2004, the St'át'imc Land and Resource Authority completed the Nxekmenlhkálha Iti Tmícwa (St'át'imc Preliminary Draft Land Use Plan) for the St'át'imc Territory. The land use plan follows the St'át'imc Vision and Principles through an ecosystem-based planning process that focuses on what to leave behind on the land to sustain ecology and St'át'imc culture.

The St'át'imc Chiefs Council advised government agencies and resource users in the St'át'imc Territory that all plans, tenures and activities are to comply with the Nxekmenlhkálha Iti Tmícwa. This CWPP will adhere to St'át'imc Vision and Principles and be consistent with the management objectives for the Land Designations and Protection Areas presented in the Nxekmenlhkálha Iti Tmícwa, where they apply.

4.1.3 Provincial Acts and Regulations

Any pertinent guidelines for fuel management treatments outlined in the provincial Acts and Regulations will be incorporated into the fuel management prescription where applicable. The provincial Acts include (but are not limited to) the *Forest Act*, the *Forest and Range Practices Act* (FRPA), the *Land Act*, the *Heritage Act*, the *Environmental Management Act* and the *Wildfire Act*.

4.1.4 Designated Community Watersheds

There is only one designated community watershed that overlaps an SLRD Electoral Area 'B' WUI Area: the Fountain Creek Community Watershed with the Fountain Valley WUI Areas. Currently there is limited guidance for forest fuel management treatments within these designated areas. During the development of the treatment prescription, best management practices will be incorporated wherever possible to meet the objectives of the watershed designation.

4.1.5 Wildlife

Under section 7(2) of the *Forest Planning and Practices Regulation* and section 9(2) of the *Woodlot License Planning and Practices Regulation*, there are legal frameworks in place that apply to the Cascades Forest District, governing the indicators of amount, distribution and attributes of wildlife habitat required for the survival of regionally important wildlife and for the winter survival of the ungulate species listed below:

- Mule deer *(Odocoileus hemionus)*
- Bighorn Sheep *(Ovis canadensis)*
- Elk *(Cervus canadensis)*
- Mountain Goat *(Oreamnos americanus)*

All site specific management recommendations detailed in the section 7(2) and section 9(2) notices and within the provincial Integrated Wildlife Management Strategy as a whole will be incorporated into the stand management prescriptions if applicable.

4.1.6 Species at Risk

Under section 7(2) of the *Forest Planning and Practices Regulation* and section 9(2) of the *Woodlot License Planning and Practices Regulation*, there are legal frameworks in place that apply to the Cascades Forest District, governing the indicators of amount, distribution and attributes of wildlife habitat required for the survival of the species at risk listed below:

- Coastal Tailed Frog *(Ascaphus truei)*
- "Great Basin" Gopher Snake *(Pituophis catenifer deserticola)*
- Flammulated Owl *(Otus flammeolus)*
- "Interior" Western Screech-Owl *(Otus kennicottii macfarlanei)*
- Spotted Owl *(Strix occidentalis)*
- Spotted Bat *(Euderma maculatum)*
- Grizzly Bear *(Ursus arctos)*

All site specific management recommendations detailed in the section 7(2) and section 9(2) notices and within the provincial Integrated Wildlife Management Strategy as a whole will be incorporated into the fuel management prescriptions, if applicable. In addition, the Conservation Data Center (CDC) database and the BC Species and Ecosystems Inventory Web Explorer database will be accessed for any site-specific Species at Risk location data, with the applicable guidelines or objectives incorporated into the fuel management prescriptions. The regional wildlife/SAR biologist with the Ministry of Forests, Lands and Natural Resource Operations may be contacted to obtain input on site-specific wildlife and at-risk species management in the proposed treatment area(s).

4.2 Xaxli'p Land Use Planning in the Fountain Valley WUI Areas

4.2.1 Ecosystem-Based Planning for Xaxli'p Survival Territory

The Xaxli'p Ecosystem-Based Plan is an overarching approach to land use planning within Xaxli'p Survival Territory. The plan was completed and approved in 2001 by the Xaxli'p community as a guiding document for all land management within Xaxli'p Survival Territory.

The SLRD Electoral Area 'B' CWPP Treatment Plan (and subsequent fuel management prescriptions) will endeavor be consistent with the Ecosystem-Based Plan within the Fountain Valley WUI Area.

4.2.2 Xaxli'p Traditional Use Study

In 1996, Xaxli'p initiated Ntsuwa'lhkalha Tl'ákmen ("Our Way of Life"), the Xaxli'p Traditional Use Study (TUS). The purpose of this study was to conduct a community-based mapping initiative that helped represent the complex cultural system of how the Xaxli'p community used the land and resources. The TUS compiled Xaxli'p values and provides direction on how to protect and enhance these values for activities taking place within the Xaxli'p Survival Territory. Together with the Ecosystem-Based Plan, the TUS provides the foundation for the management of the Xaxli'p Community Forest.

4.2.3 Xaxli'p Landscape Restoration Plan

The Xaxli'p Landscape Restoration Plan was developed through community input from Xaxli'p Elders, the XCFC Board of Directors, and other Xaxli'p experts. The plan overlays information from the Traditional Use Study and the Ecosystem Based Plan in order to prioritize restoration areas in the Xaxli'p Survival Territory, and to provide a framework for carrying out restoration of the identified areas. It is comprised of a large map set that can be referenced when planning any type of forest fuel management activity within the Fountain Valley WUI Area.

4.2.4 Xaxli'p Community Forest Agreement and Forest Stewardship Plan

The Xaxli'p Community Forest Agreement (CFA) application was approved by the Ministry of Forests in January 2010. The application includes a statement of guiding principles and goals, the CFA Management Plan, and information about the CFA land base, community involvement, and the Xaxli'p Community Forest Corporation administrative structure. The subsequent Forest Stewardship Plan developed for the Xaxli'p CFA area provides strategies and results for conserving and protecting timber and non-timber resources. The goals of the Xaxli'p Community Forest include:

- ecologically and culturally sustainable land use
- restoration of water and ecosystems
- development of high quality timber products within Xaxli'p Survival Territory

The implementation of the SLRD Electoral Area 'B' CWPP within the Fountain Valley WUI Area will be consistent with the guiding principles and goals of the Community Forest Agreement.

4.3 Affiliated Community Wildfire Protection Plans

The First Nation communities of Sekw'el'was, T'ít'q'et, Tsal'alh, Ts'kw'aylaxw, Xwisten and Xaxli'p as well as the District of Lillooet all have existing CWPPs which overlap the SLRD – Electoral Area 'B' WUI Areas. All communities but T'ít'q'et are in the process of updating their current CWPPs . During it's implementation the SLRD – Electoral Area 'B' CWPP will endeavor to be consistent with the other overlapping CWPP areas, where they are applicable.

4.4 Biodiversity and Conservation within Marble Canyon Provincial Park

Forest fuel treatment activities being considered within Marble Canyon Park should be limited to only what is necessary to reduce the wildfire threat within the proposed area, and must be consistent with the Park Management Plan (November 1996) and BC Parks - Tree Removal Policy (August 2004). Fuel management prescriptions will acknowledge the values of the park and include management objectives that preserve and conserve the natural ecosystem biodiversity in the long term, the mandate of BC Parks. The results of fuel management activities should emulate natural levels of both species and structural diversity wherever possible, including the retention of a variety of vegetation types, heights and diameter classes (trees and shrubs), as well as a range of coarse and fine woody debris on the ground.

The following strategies are to be given special consideration during the development of a Fuel Management Prescription within Marble Canyon Provincial Park in effort to mitigate the impact upon Park values.

- Shrubs - All deciduous trees and shrubs should be retained without pruning or thinning. Juniper shrubs are of special importance and should only be pruned or removed if absolutely necessary if considered a ladder fuel and to break up the continuity in forest fuels.
- Access Management – No new motorized vehicle access routes will be created in a proposed treatment area within the Park. If recommended by BC Parks, consideration will be given to blocking access on existing routes in a proposed treatment area through the selective placement of large coarse woody debris (CWD), rocks and retention of vegetation.
- Large CWD should be left in as long a length as possible, preferably full tree length, and topped at 10cm. Where appropriate, branch stubs should be left on CWD to deter theft and to aid in securing the log to the slope. All retained CWD is to be dispersed evenly throughout the treatment area, preferably in areas that are hidden from view from access points that could be used by firewood cutters.
- Thinning and brushing activities should focus on breaking up the continuity of forest fuels and crown connectivity, and be limited to areas that contain significant surface and ladder fuels, a suppressed understory and/or continuous crown closure. In natural openings, the lower branches of trees should be retained where there is not continuity to crowns. This will contribute to structural diversity and will provide cover for small mammals.
- Consideration should be given to retaining danger trees and wildlife trees within undisturbed No Work Zones or biodiversity "islands" with minimum 4m wide fuel breaks surrounding them. The islands should be scattered throughout the treatment area (approximately 1 per hectare) in different sizes and shapes, be on average 10-15 metres wide, centred on the wildlife tree(s) and contain beneficial habitat characteristics that reflect the diversity of the treatment area, such as juniper shrubs and other vegetation species that may be removed through treatment activities. The islands will also be good wildlife shelters for small mammals.

4.5 Wildfire Management Planning

4.5.1 Fire Management Plans

The provincial Ministry of Forests, Lands, and Natural Resources Operations (MFLNRO) Policy 9.4 - Fire Management Planning requires that Natural Resource Districts prepare a Fire Management Plan (FMP) in advance of each fire season, and have the FMP signed by the

District and Fire Centre Managers. The purpose of the MFLNRO Fire Management Plan is to provide support to decision makers for integrated wildland fire response and resource management activities. These plans are intended to ensure collaboration between fire response and resource management agencies while working towards cost efficient and effective protection of resource values.

4.5.2 Landscape-Level Fire Management Planning

The impact of an extreme wildfire on a community can be mitigated though the implementation of fire management approaches at multiple scales. The wildfire management objectives within each WUI zone are varied given site-specific fire behaviour factors and other resource value considerations, however, the basic management approach is to implement more aggressive forest fuel treatments in closer proximity to the values at risk.

Wildfire management at the scale of private land and property (Zone 1 or "WUI 100m") can occur through the implementation of FireSmart Principles around homes and other critical infrastructure; at the community interface level (Zone 2 or "WUI 500m") wildfire management occurs through Community Wildfire Protection Planning; beyond the community interface (Zone 3 or "WUI 2000m") the impact of a severe wildfire can be further reduced through fire management planning at a landscape level. The objective of landscape-level fire management is to minimize the development of extreme or "mega" fires by creating fuel breaks through targeted vegetation management activities and utilizing alternative silviculture practices such as realigning cut block boundaries, widening road right-of-ways, or the use of prescribed fire.

To build upon the existing FMP process, the MFLNRO is encouraging industry, local governments and First Nations to participate in Landscape-Level Fire Planning and Management initiatives that have or are being introduced in Natural Resource Districts within the province, where wildfire management is considered at the landscape level (Zone 3). Landscape-level fire management planning processes that are initiated in the Lillooet TSA may have management implications for the SLRD Electoral Area 'B' WUI Areas, and would be taken into consideration.

4.6 Consideration of Traditional Uses and Non-Forestry Resources

During the implementation of this CWPP and subsequent development of treatment prescriptions, two broad levels of archaeological and cultural heritage reviews will be completed prior to any operational activities taking place. A general spatial review of the internal community cultural heritage data and the provincial archaeology database (RAAD) will be completed. Following the desktop review, a ground based reconnaissance by a community cultural heritage technician over the proposed treatment areas will be completed. If deemed necessary, an Archaeological Impact Assessment (AIA) may also be required. The results of the reviews and assessments are incorporated into the treatment prescriptions, where applicable, to ensure that any identified archaeological sites or cultural features are mitigated for during the operational treatments, which can include the establishment of No Work Zones if required.

The treatment of reducing forest fuels will also promote the growth of native plants and fungi that are traditionally used by the St'át'imc people (e.g. Saskatoon bushels, and morel mushrooms). Care must be taken to ensure that other important food sources or plant locations

are not impacted by treatments, are noted and appropriate recommendations are prescribed for their retention.

It is also important to preserve and maintain all existing trail networks and pathways used by the community and to ensure access to residences is not impeded. All fences and other structures round properties and those used for livestock on the private and reserve lands will be protected and not damaged by forest fuel management activities.

5.0 Wildfire Threat Determination and Threat Reduction Options

An important component of the Community Wildfire Protection Planning process is taking the broad management guidelines and objectives set forth in the CWPP and developing a successful operational program that implements the identified recommendations on the ground to reduce the wildfire threat. The following sections outline the general information utilized to determine wildfire threat rating and the preferred forest fuel management methods to reduce wildfire threat.

5.1 Provincial Strategic Threat Analysis (PSTA) Mapping

One of the key elements contained in the BC Fuel Management Strategy is the province-wide analysis, through applied GIS, of major factors that contribute to the potential threat of wildfires including ignition potential, fire occurrence history, forest fuels and fire intensity, and the potential for a fire to crown and spot a distance away from the head of the main fire. This analysis and associated mapping has become known as the Provincial Strategic Threat Analysis (PSTA).

The PSTA data for 2015 was provided by BC Wildfire Service prior to the development of this updated CWPP, and upon review was considered the best available information at the time for the purpose of preparing the CWPP. The following five (5) key base data components of the PSTA – 2015 WildFire Threat Analysis were incorporated into this CWPP, the maps of which are included as Figures in Appendix 9.2 for the SLRD Electoral Area 'B' WUI Areas:

- Fuel Type
- Historical Fire Density
- Head Fire Intensity
- Spotting Impact
- Wildfire Threat

As part of the CWPP data analysis for the SLRD Electoral Area 'B' WUI Areas, the ground-truth data gathered through the field reconnaissance and threat plot assessment work completed within the Zone 2 (WUI 500) community interface was evaluated against the initial PSTA Fuel Type and Wildfire Threat data for the same area. The final PSTA Fuel Type and Wildfire Threat data incorporated into the CWPP included any updates to the data within the Zone 2 community interface as a result of the evaluation, ensuring consistency with what was observed on the ground. The updated PSTA Fuel Type and Wildfire Threat data is provided to the BC Wildfire Service as part of the CWPP geospatial data submission.

Fuel is forest vegetation, viewed from the standpoint of how it affects fire behaviour. The burning of fuel generates energy and contributes to the intensity of a fire. For the purposes of

fire behaviour prediction, the Fire Behaviour Prediction (FBP) system categorizes fuel into 17 distinct types. Since fuel is the only fire behaviour driver that can be modified by people and is a critical input of the PSTA 2015 Fire Threat Analysis, considerable time has gone into classifying British Columbia's ecosystems according to FBP fuel types. These fuel types are listed below:

C-1 spruce-lichen woodland
C-2 boreal spruce
C-3 mature jack or lodgepole pine
C-4 immature jack or lodgepole pine
C-5 red and white pine
C-6 coniferous plantation
C-7 Ponderosa pine/Douglas-fir
D-1 leafless aspen
D-2 green aspen
M-1 boreal mixed wood – leafless
M-2 boreal mixed wood – green
M-3 dead balsam fir mixed wood – leafless
M-4 dead balsam fir mixed wood – green
S-1 jack or lodgepole pine slash
S-2 white spruce-balsam slash
S-3 coastal cedar/hemlock/Douglas-fir slash
O-1a matted grass
O-1b standing grass

The majority of the land base within the SLRD Electoral Area 'B' WUI Areas with "combustible" surface material (vegetation) falls within the C-7 Fuel Type (59%) and O-1a/b Fuel Type (25%) overall. The percentage by individual WUI Area within C-7 and O-1a/b Fuel Types is listed in Table 12 and shown in Appendix 9.5 – Figures 69, 74, 79, 84 & 89).

The 2015 Wildfire Threat Analysis integrated three distinct elements of fire threat or risk: fire occurrence (fire density), suppression difficulty and fire impacts (head fire intensity), and spotting impact. Areas rated in the Class 7 or higher (High-Extreme) are locations where the fire intensity, frequency and spotting risks can be severe enough to potentially cause catastrophic losses to values at risk. It is these areas within the CWPP WUI Area that are adjacent to homes and other critical infrastructure that are of priority for consideration in forest fuel reduction activities. From the 2015 WildFire Threat Analysis, 84% of the total forested land base in the SLRD Electoral Area 'B' WUI Areas falls within the High-Extreme fire threat classes overall. The percentage of area within High-Extreme fire threat classes by individual WUI Area is listed in Table 12 and shown in Appendix 9.5 – Figures 73, 78, 83, 88 & 93).

Table 12. Combustible Surface Area and High-Extreme Fire Threat Class by WUI Area.

WUI Area	Combustible Surface Area		Area of High-Extreme Wildfire Threat Class
	C-7 Fuel Type	O-1a/b Fuel Type	
Fountain Valley	70%	21%	96%
Pavilion Lake	45%	44%	67%
Seton Portage	63%	13%	86%
Texas Creek	54%	24%	83%
Yalakom Valley	60%	17%	84%

5.2 WUI Wildfire Threat Assessments

Plots to determine the wildfire threat ratings within the wildland-urban interface surrounding the SLRD – Electoral Area 'B' communities were established in the field between July 2015 and March 2016. The following information was collected at each plot in accordance with the guidelines outlined in the document "Wildland Urban Interface Wildfire Threat Assessments in B.C. (January 24, 2013)" to determine a low, moderate, high or extreme wildfire behaviour threat class and WUI wildfire threat class rating:

- Duff and litter depth
- Flammable surface fuels continuity
- Vegetation fuel composition
- Fine woody debris continuity
- Large woody debris continuity
- Live and Dead Coniferous and Deciduous crown closure
- Live and Dead Conifer crown base height
- Suppressed and understory conifers
- Continuous forest land and slash cover
- Forest health
- Biogeoclimatic zone
- Historical wildfire occurrence
- Aspect
- Slope
- Terrain
- Landscape/Topography
- Position of structure / community to rating area
- Type of development
- Position of assessment area

Each of these categories on the WUI wildfire threat assessment worksheet were assigned a numerical value and summed to produce a wildfire behaviour and WUI wildfire threat class rating for each established plot (refer to Appendix 9.4 for individual wildfire threat rating plot results for each WUI Area). The plot ratings were then incorporated into the evaluation of areas for potential recommended forest fuel modification treatments.

5.3 Additional Factors Considered in Determining Areas Recommended for Treatment

In addition to the information generated from the PSTA mapping and the ratings derived from plot data, several other factors were taken into account when evaluating areas to be recommended for some form of forest fuel modification. The additional factors included:

- Proximity to community structures (this was done on an individual plot basis, but the entire treatment area was evaluated for this factor as well).
- Ignition potential (the location of an area to public travel routes such as highways, roads, trails and railways).

- Prevailing wind direction (and the location of an area in relation to the community).
- Creation of a continuously-treated interface and defensible fire suppression zone around the community (such as areas where corresponding wildfire threat scores may not fall within High-Extreme).
- Local knowledge.

For any recommended treatment area where wildfire threat plot data was not available to directly represent the given polygon, threat rating data from plots immediately adjacent to the treatment area in similar forest type(s) was extrapolated to provide an interim threat rating for that area. It is expected that additional threat plots would be established in that area during the detailed site evaluation at the Prescription phase to confirm the threat rating, prior to being considered for operational treatment.

5.4 Forest Fuel Management - Ground Treatment Methods and Activities

The completed Community Wildfire Protection Plan identifies management objectives and strategies for forest fuel reduction measures. The following sections detail the operational actions and processes needed to successfully implement a program to reduce high hazard forest fuels around the community.

5.4.1 Layout of Treatment Areas and Development of a Fuel Management Prescription

The layout of each treatment area (polygon) will be completed by marking the boundaries with flagging tape for the fuel management work crew to follow, and GPS mapped to produce an accurate polygon map. Treatment area boundaries will be established where possible along existing openings (natural features or man-made such as roads or other land-clearings), along slope breaks, forest type changes, ridge crests, riparian ecosystems, or other natural features. All danger trees will be identified and mapped, and those assessed to be hazardous will be felled or a no work zone established if they are to be retained as a wildlife tree. An assessment for potential sites of cultural/spiritual significance will be completed and protected through the establishment of no work zones or modified treatment approaches. Riparian areas will be assessed for potential reserve / retention prescriptions if significant water courses are located or other values exist. Safe locations for pile and burn sites will be identified (e.g. away from power lines, and overhanging branches) for debris removal in all polygons. Areas that may require exclusion include slope stability concerns, slopes that are unsafe for crews to work on, or any other features found that may require protection from proposed treatments. A Forest Fuel Management Prescription will be completed by a Registered Professional Forester that outlines the forest management activities to be undertaken and provides measurable objectives and targets to be achieved on a site specific basis. Discussions with all other First Nations, local governments, agencies, ministries and stakeholders potentially impacted by the proposed forest fuel management activities will be done to solicit feedback. Lastly, all necessary approval permits and exemptions from the appropriate designating bodies will be applied for.

5.4.2 Danger Tree Assessment and Wildlife Tree Retention

Danger tree assessing and wildlife tree designation (for wildlife tree retention) is an important component of any fuel management program. Dead and dying trees with high wildlife value should be assessed by a qualified/certified Danger Tree Assessor as a candidate wildlife tree.

Suitable trees with high wildlife value will have at least two of the following characteristics:

- Internal decay (heart rot or cavities present)
- A sound, firm outer stem shell
- Crevices present (loose bark or cracks suitable for bats)
- Large brooms present
- Active or recent wildlife use (feeding, nesting, denning)
- Tree structure suitable for wildlife use (e.g., large nest, hunting perch, bear den)
- Large tree relative to other trees in the ecosystem, or veteran trees
- Favourably located for use by wildlife

Any tree that is assessed as "Dangerous" or unsafe that is also designated as a Wildlife Tree will be flagged accordingly and will also include a flagged No Work Zone for the safety of crews working in the area. A wildlife tree that is assessed as safe will not require a flagged No Work Zone. All dangerous/unsafe trees that are not retained as wildlife trees with be safely felled by a certified Danger Tree faller (or Certified Utility Arborist if near power lines) using the appropriate safety equipment and falling techniques required to bring the tree down without endangering crew safety or causing damage to nearby structures. The tree may be limbed, bucked and disposed of through chipping and/or burning or alternatively can be left as a contributor to coarse woody debris and/or as firewood to the local community.

5.4.3 Thinning/Brushing

Thinning of trees within the treatment areas will be done to reduce inter-tree competition and crown connectivity. Trees targeted for thinning include suppressed trees, intermediate trees and in certain forest types, codominant trees, to achieve the desired stand density and crown reduction. Dense thickets of suppressed and intermediate trees will be thinned, unless retained as a cluster or clump for biodiversity considerations. Retained trees being left on the site will promote species and genetic diversity. All brush and debris will be removed from under the crown of leave trees, and all other dead/dying vegetation that contributes to fuel loading will also be removed and disposed of.

WUI 100 (Zone 1)

Within the WUI 100m (Zone 1), thinning and brushing activities should be consistent with those set forth in the FireSmart Principles (Section 7.2.1, steps 4-6) by aggressively thinning out and spacing all trees and removing understory brush to a distance of 100m from structures. The objective is to create a combustible fuel-free zone in the first 10m, with the elimination of ladder fuels (brush and conifers) and opening up the forest canopy (thin trees to a minimum spacing of 3m) outside of the fuel-free zone so a wildfire would be unable to spread to the crowns of the trees, remain as a low intensity ground fire and be more easily extinguished through direct suppression action by fire crews.

WUI 500 (Zone 2)

Within the WUI 500m (Zone 2), thinning should continue to be aggressive by focusing on all trees <17.5cm dbh and spacing to a distance of a minimum of 3m (10ft) to 5m (15ft) or more to achieve the target stand-dependent density, ladder fuel removal and crown closure reduction as

specified in the Prescription. Thinning of mature trees >17.5cm may also be prescribed depending upon stand structure and site characteristics.

WUI 2000 (Zone 3)

Within the WUI 2km (Zone 3), the focus of thinning activities would be to reinforce or strengthen existing fuel breaks or create logical fuel breaks at a landscape level. This could be accomplished through timber harvesting operations, where cut block shape is specifically designed (both spatially and temporally) to tie the fuel break to natural openings and topographic features (water bodies, rock bluffs/cliffs, etc.) in effort to minimize the spread of a wildfire across the larger landscape.

5.4.4 Pruning

The objective of pruning actions will be to increase the base-to-crown height of mature and immature trees remaining after thinning by removing all dead and live branches from the ground to the target lift height. Any trees under 1.3 metres in height should not be pruned. Trees 1.3m to 3.0m in height should be pruned to 50% of the tree height. Trees 3.0 to 5.0 metres in height should be pruned to leave a minimum of 30% live crown remaining or 3 whorls. Trees 5.0 metres in height or greater should be pruned to a minimum of 3.0 metres; 5.0 metres or more is ideal for mature overstory trees. If the trees are located on steep slopes, the uphill side of the tree is pruned higher so that the target pruning height is achieved on all sides of the tree. Pruning cuts are to be at the branch collar and done in such a fashion as to not damage (wound) the tree, or promote adventitious branching at the pruning cut.

WUI 100 (Zone 1)

Within the WUI 100m (Zone 1), pruning activities should be consistent with those set forth in the FireSmart Principles (Section 7.2.1, steps 4-6) by aggressively pruning all retained trees within a distance of 100m from structures to the target height stated in the first paragraph given the size of each tree. This prevents a ground fire from spreading up into the crown of the tree by laddering up the branches.

WUI 500 (Zone 2)

Within the WUI 500m (Zone 2), pruning should continue to be aggressive by removing branches to the target lift height stated in the first paragraph given the overall height of each tree to maximize the base-to-crown height distance and reduce the risk of a ground fire spreading up into the crowns of the trees. For those areas with a naturally-occurring shrub, grass and/or surface layer, pruning of mature overstory trees should be to a minimum of 5m (15ft) or more given the expected higher flame height and intensity of a ground fire.

WUI 2000 (Zone 3)

Within the WUI 2km (Zone 3), the hand pruning of trees would not be expected as the focus of fuel reduction would be through alternative vegetation management activities to create fuel breaks across the larger landscape.

5.4.5 Debris Management

The debris resulting from operational treatment activities will be managed through one or more of the following techniques: lop and scatter, chipping, hand piling and burning and removal as posts, rails or firewood.

- In areas where lop and scatter is prescribed, branches and foliage will be slashed so that they are touching or as close to the ground as possible to promote water retention and decomposition. In thick areas the slash is to be scattered across the forest floor to avoid heavy accumulations that will resist breaking down. Slash will be pulled away from the base of leave trees, and off of any trails. Lop and scatter is not recommended for forest types and exposures which are open and dry, where the debris will not readily begin to decompose.
- In areas that are readily accessible by a chipper, and other debris removal options are not recommended (such as in very close proximity to residential areas, health care facilities and other critical structures), debris can be chipped and blown on the site or hauled away by truck or trailer to another location for disposal.
- In most areas debris removal will be by piling and burning. The debris piles are located in areas safe to do so, well away from out from closed tree canopies and on flat areas where possible to avoid having the burning debris rolling down the hill. Unless otherwise approved and permitted, all burn piles are to be kept to a maximum size of 2m X 3m (Category 1 – Open Fires) and must be well away from any structure or property line. If burning of debris piles is being done with no snow on the ground, a hand guard must be established around each burn pile down to mineral soil. Residents in close proximity of burning activities are to be notified of activities prior to ignition, and the venting conditions must be such that the smoke dissipates. Burning activities must be in compliance with the *Environmental Management Act - Open Burning Smoke Control Regulation*.
- In areas that are accessible to members of the community, the option of leaving larger debris for firewood or cut tree lengths for posts and rails is available if this material can clearly be accessed, removed from the area and utilized by the community. The firewood, posts and/or rails are to be in excess of the coarse woody debris requirements stated in the Prescription for the treatment area(s).

5.4.6 Prescribed Burning

Controlled, low-intensity prescribed burns may also be used as an optional treatment to reduce the fine fuel content after the course fuels have been removed following the treatments described in the previous sections. Care must be taken to ensure that the fire remains purely as a ground fire and is conducted at the appropriate time of year. Prescribed burning needs to be conducted by qualified experts in the field of preparing and executing prescribed burn plans.

5.4.7 Timber Harvesting

The harvesting of mature timber is an optional treatment approach that may be considered as part of the overall fuel management objectives for a given area if it is operationally feasible and within a suitable forest type. The community may wish to discuss the option of timber harvesting with a forest management company to determine whether it is a viable approach in a recommended treatment area. Generally these discussions with the forest company would occur

prior to the layout and prescription development phase to ensure that the treatment area(s) are not included in an approved or proposed cutting permit, or are being considered for development. If timber harvesting is considered, a qualified and experienced Professional Forester with a forest management company will work with the community to prepare and execute a Site Plan specific to this treatment approach, and consider the Forest Fuel Management Stocking Standards for any areas where silviculture obligations would exist.

5.4.8 Maintenance Treatments

Once an area is successfully treated through the various operational activities outlined in the previous sections, it is equally important to monitor that area on a regular basis (every 3-4 years) to ensure that forest fuels do not build back up, resulting in an increase in wildfire threat once again. For example, the establishment of new trees (seedlings to juveniles) and increased crown closure of existing trees may warrant a maintenance thinning treatment; the return and/or spread of brush (ladder fuels) may warrant a maintenance brushing treatment; deadfall and windthrown trees may need to be bucked, piled and burned if the amount fuel loading is excessive and the amount exceeds coarse woody debris targets for the area; and the accumulation of surface and ladder fuels from the growth of seedlings, shrubs and brush, branch and needle fall and dead grass may warrant a controlled, low-intensity prescribed burn. A re-assessment of the post-treatment wildfire threat plots in a given treatment area will confirm whether the wildfire threat has increased, and which component of forest fuels is contributing to that increase. The activities listed in sections 5.4.1 to 5.4.7 are all applicable and are to be considered as part of the maintenance program to address any increase in wildfire threat in previously-treated areas.

There are also areas which may require monitoring annually or every 2 years, with a follow-up maintenance treatment of brushing, piling and burning or prescribed burning. These areas would include high-risk ignition locations such as public parks, campgrounds and alongside trails and roads heavily used by the public where fast-growing vegetation such as grasses, weeds, and shrubs re-establish each year. Or where there is a large accumulation of pine needles and other surface debris. Areas such as these that are adjacent to homes and other critical structures would be of a high priority for more frequent monitoring and maintenance treatments.

5.4.9 Project Implementation, Monitoring and Quality-Assurance Reporting

Project implementation, monitoring/quality-assurance and reporting of fuel treatment activities (danger tree felling, thinning/brushing, pruning and debris management) by experienced professionals and field technicians ensures that all work will be implemented and undertaken (planning, set-up, prework, completion of operational activities and treatments, monitoring and reporting) using safe-work practices and completed to the standards detailed in the Forest Fuel Management Prescription prepared by a Registered Professional Forester, and to applicable project Agreements.

5.4.10 Project Administration

Administration activities by the Squamish-Lillooet Regional District project manager and office staff include overall project management, communications and correspondence, paperwork and filing, financial tracking, reporting and payroll, acquiring consultants and contractors, coordinating activities between project participants, and monitoring and reporting on the overall project progress with the applicable partners and funding agencies.

The primary community contact responsible for the implementation of the CWPP is Ryan Wainwright (604-567-5663), the Emergency Program Manager for the Squamish-Lillooet Regional District.

5.5 Community Support, Capacity and Resources

The Squamish-Lillooet Regional District supports the Community Wildfire Protection Plan program and the opportunity to conduct forest fuel management work within and surrounding the Electoral Area 'B' communities to reduce the wildfire threat, become fire-resilient, and protect the safety of its residents. A Certified Resolution from the SLRD Board of Directors adopting the CWPP and supporting it's implementation is included on the second page of this document.

To date, the Squamish-Lillooet Regional District has successfully treated over 122.8 hectares of provincial crown land within the Electoral Area 'B' WUI Areas from the Fall of 2006 through Spring 2016. The Squamish-Lillooet Regional District has access to a local, trained, skilled, experienced and certified/qualified workforce with the necessary equipment and resources that can be applied to forest fuel management activities and properly and safely conduct the operational ground treatment activities proposed in this CWPP.

6.0 SLRD Electoral Area B CWPP - 2016 Treatment Plan

6.1 Treatment Area (Polygon) Maps

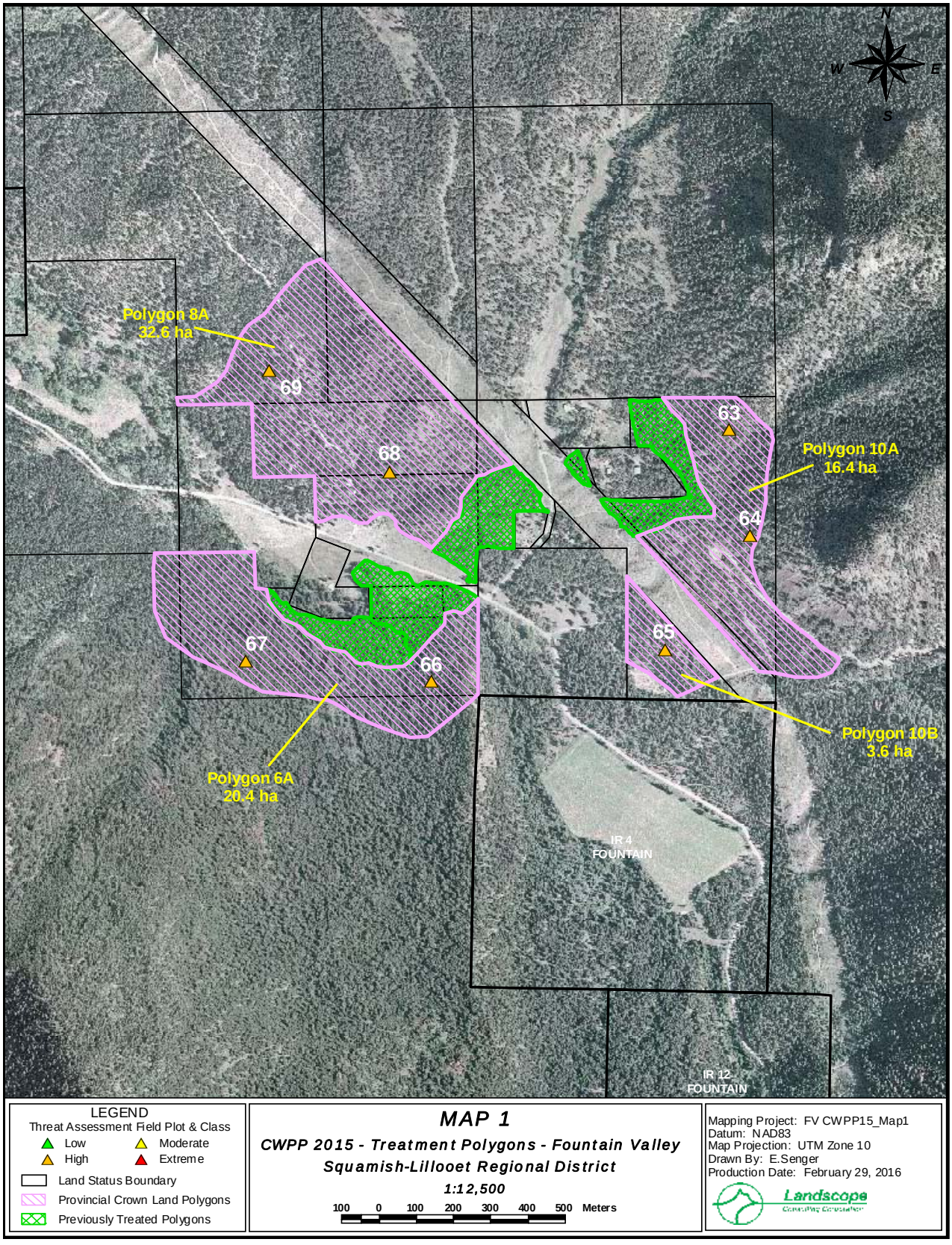

Figure 41: Treatment Areas – Map 1, Fountain Valley WUI Areas, Frantzen Road.

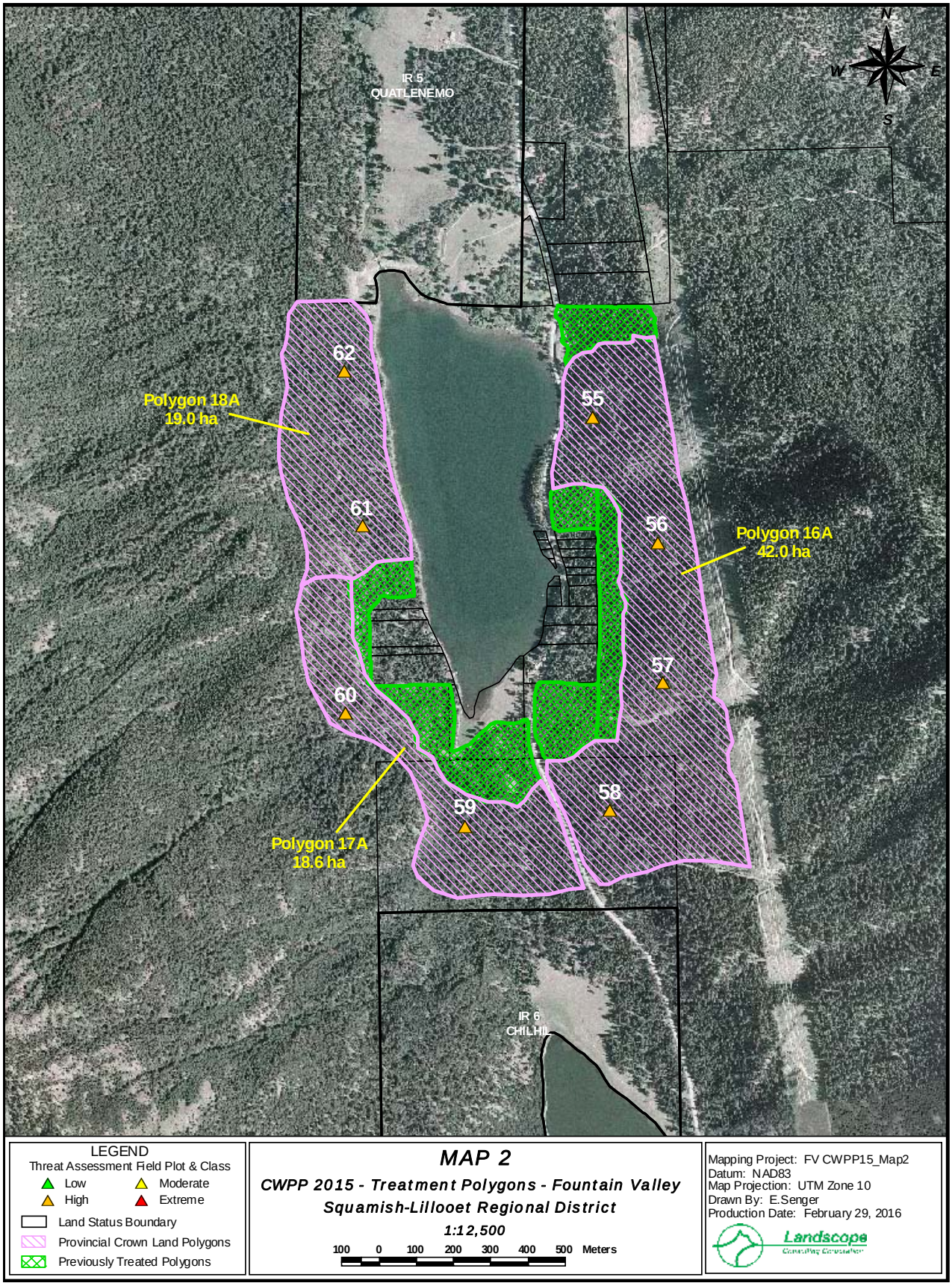

Figure 42: Treatment Areas – Map 2, Fountain Valley WUI Areas, Fountain Lake.

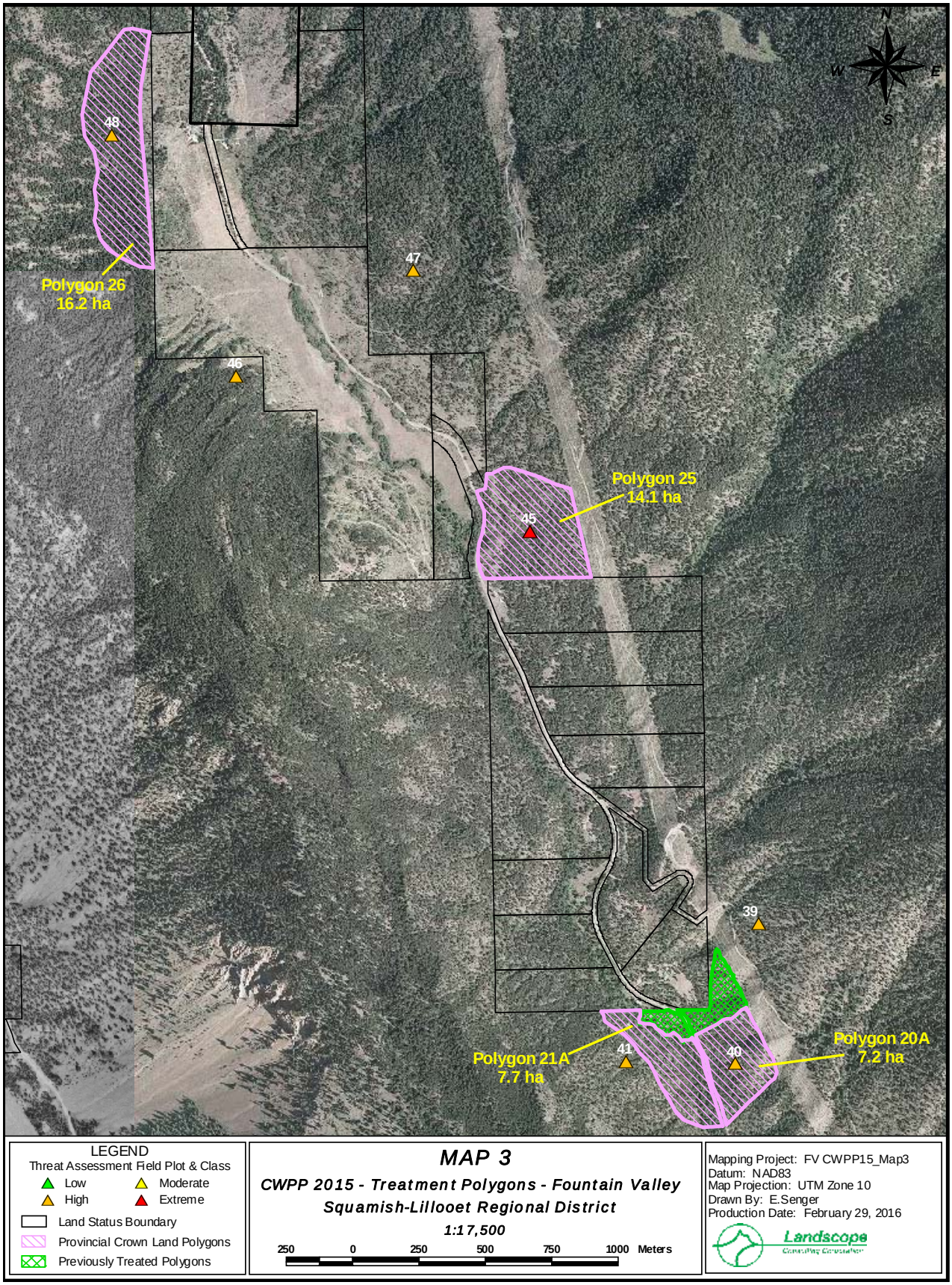

Figure 43: Treatment Areas – Map 3, Fountain Valley WUI Areas, south end Fountain Valley Rd.

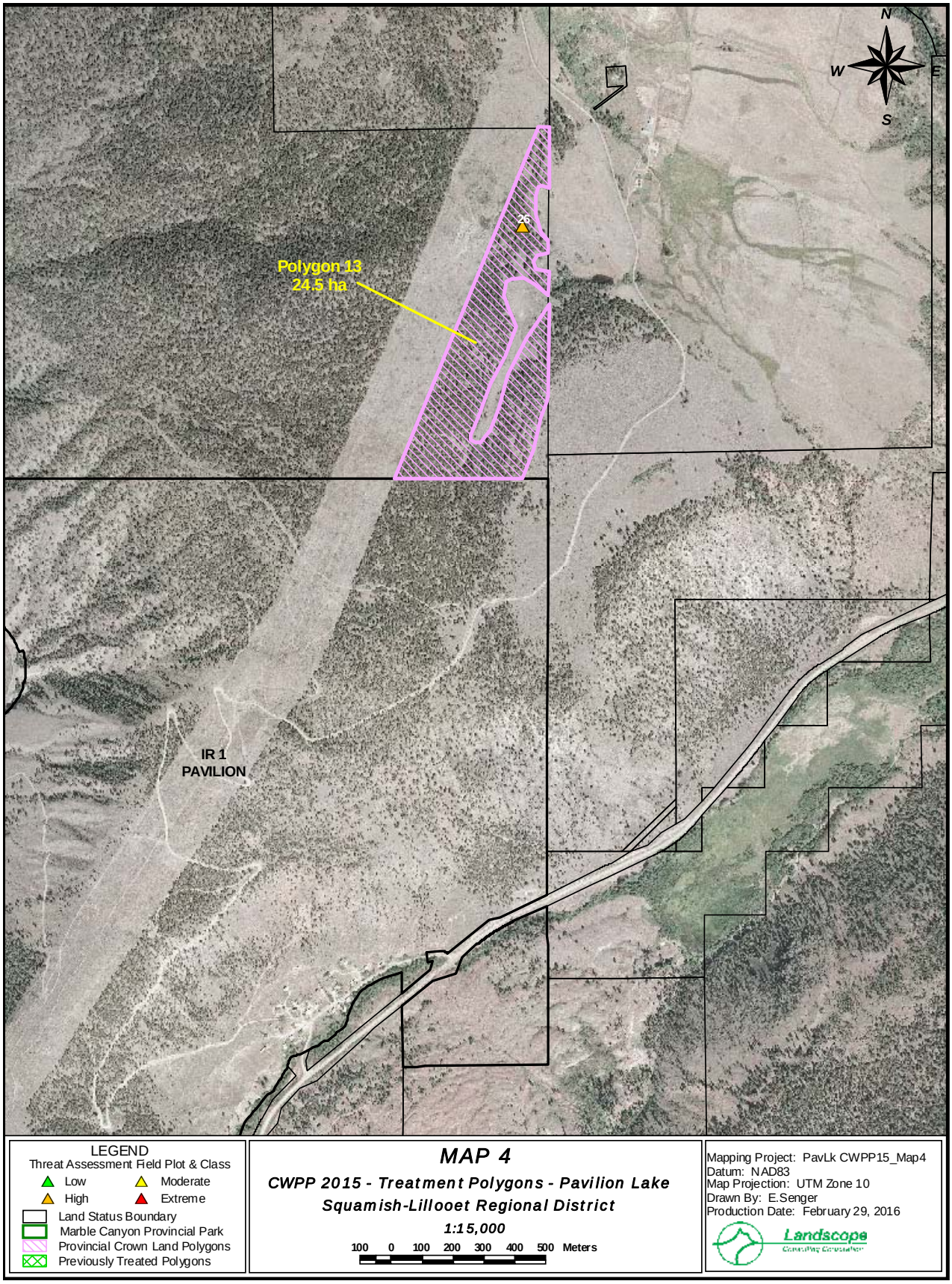

Figure 44: Treatment Areas – Map 4, Pavilion Lake WUI Area, Milkranch.

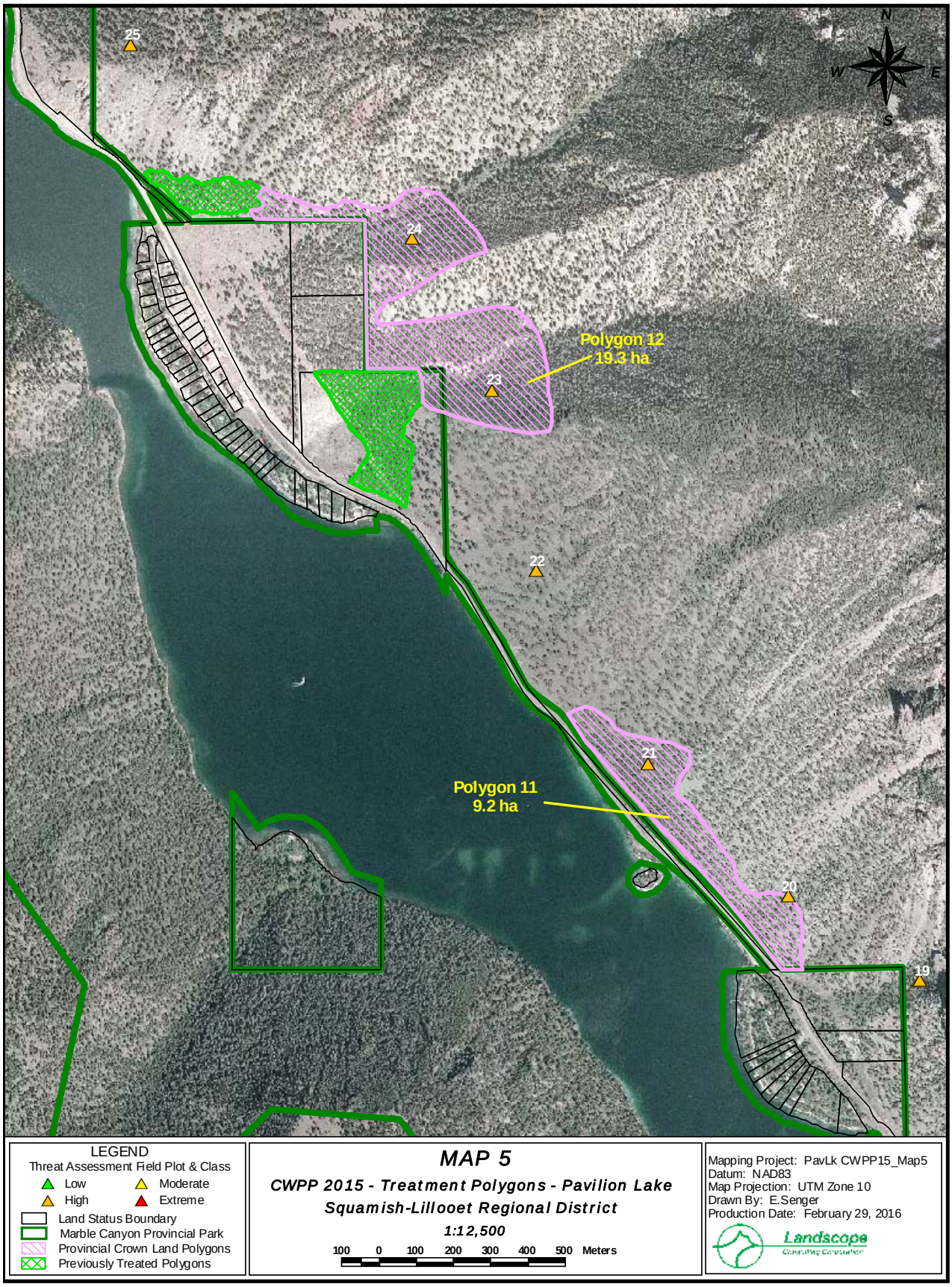

Figure 45: Treatment Areas – Map 5, Pavilion Lake WUI Area, Pavilion Lake.

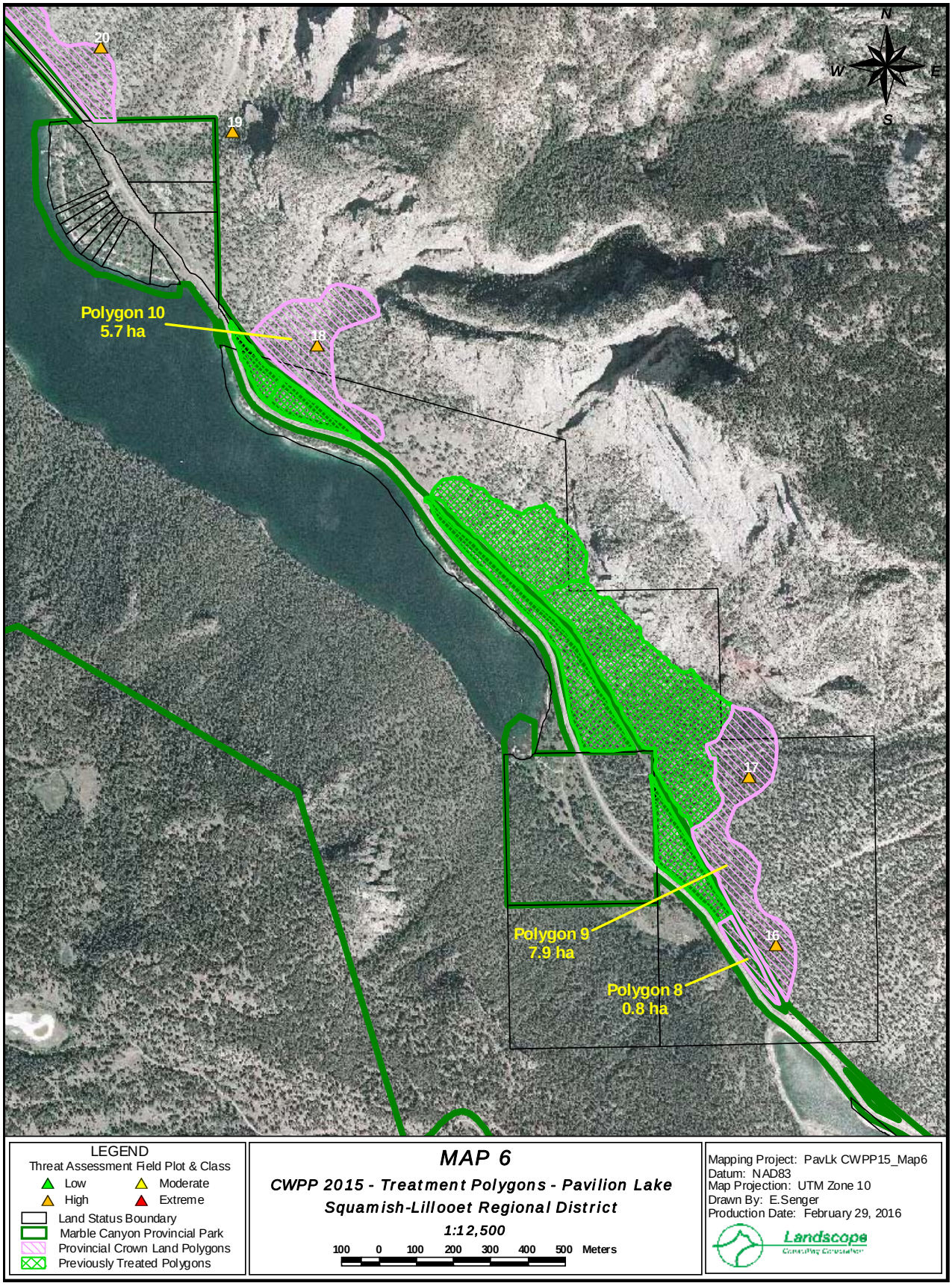

Figure 46: Treatment Areas – Map 6, Pavilion Lake WUI Area, Pavilion Lake.

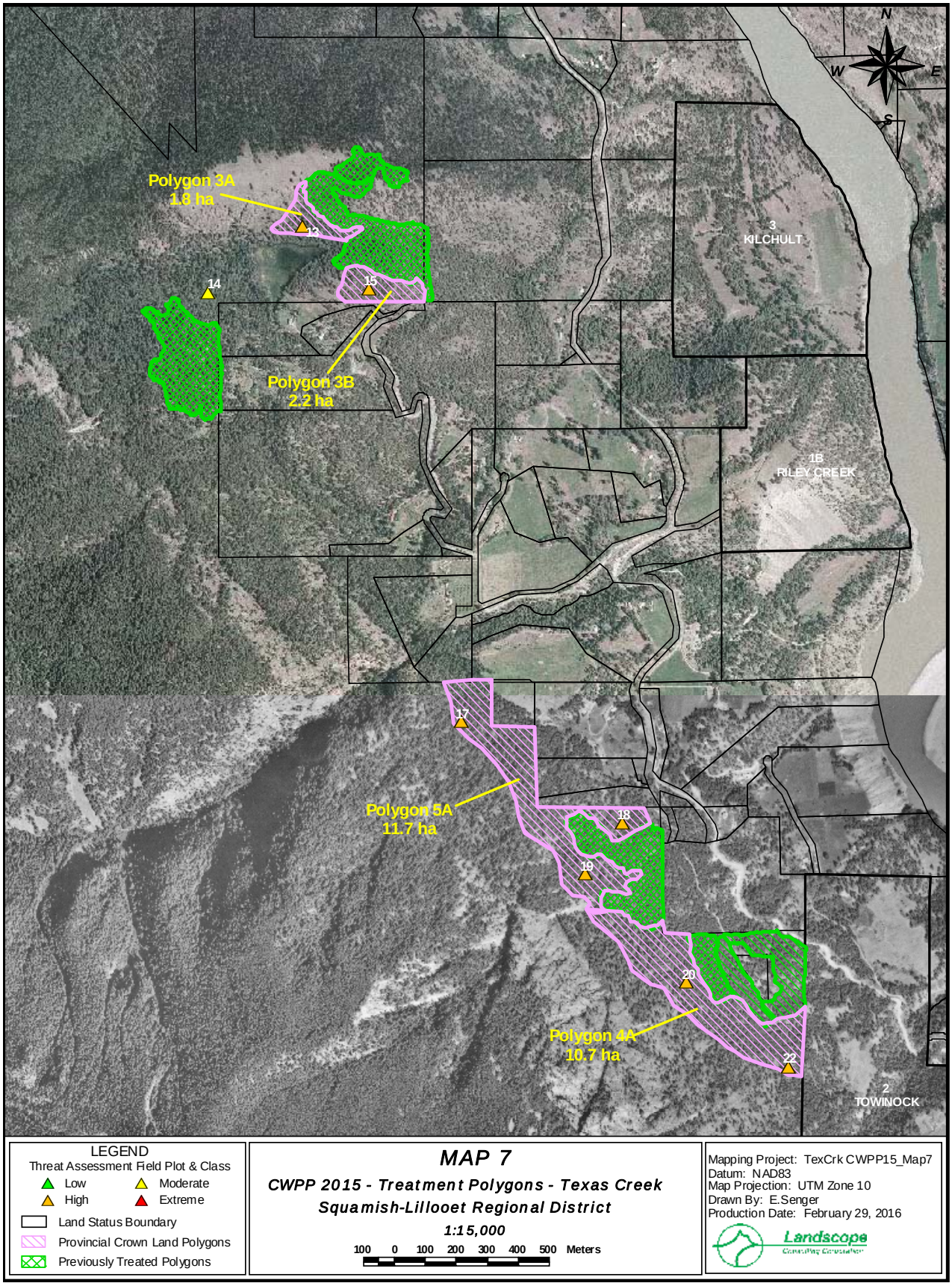

Figure 47: Treatment Areas – Map 7, Texas Creek WUI Area, Phair Lake/Riley Creek.

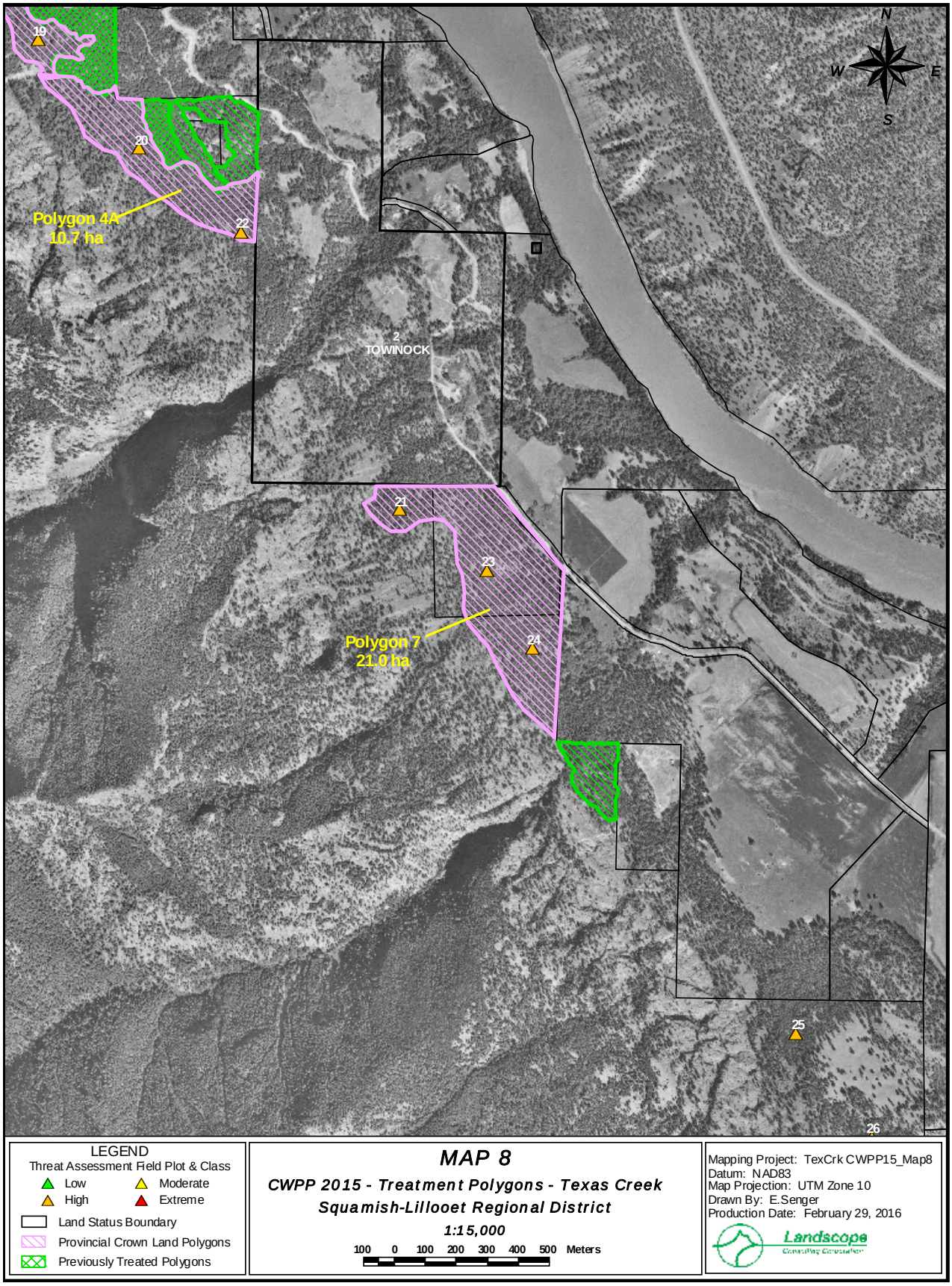

Figure 48: Treatment Areas – Map 8, Texas Creek WUI Area, Riley Creek/Spray Creek.

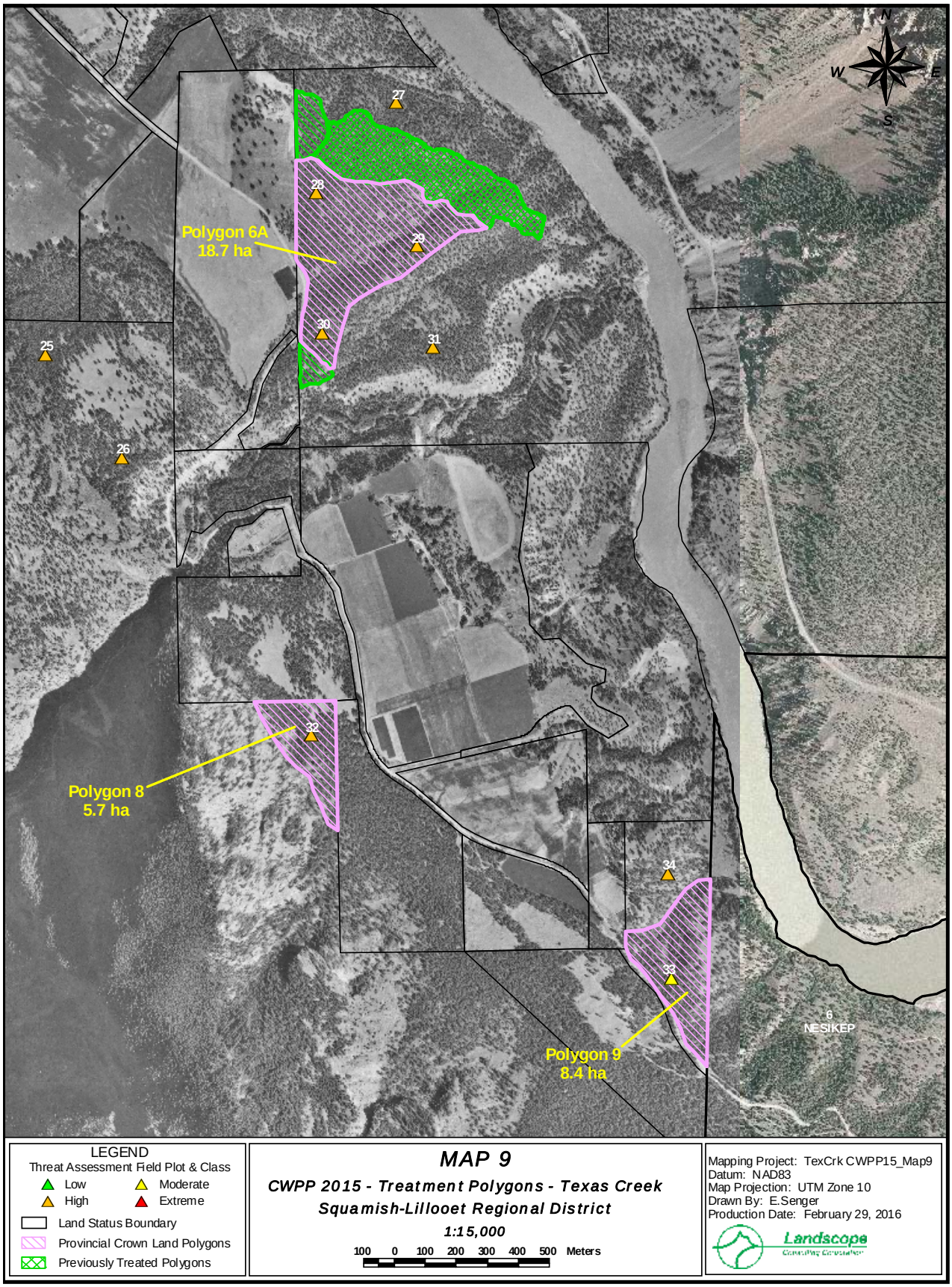

Figure 49: Treatment Areas – Map 9, Texas Creek WUI Area, Texas Creek.

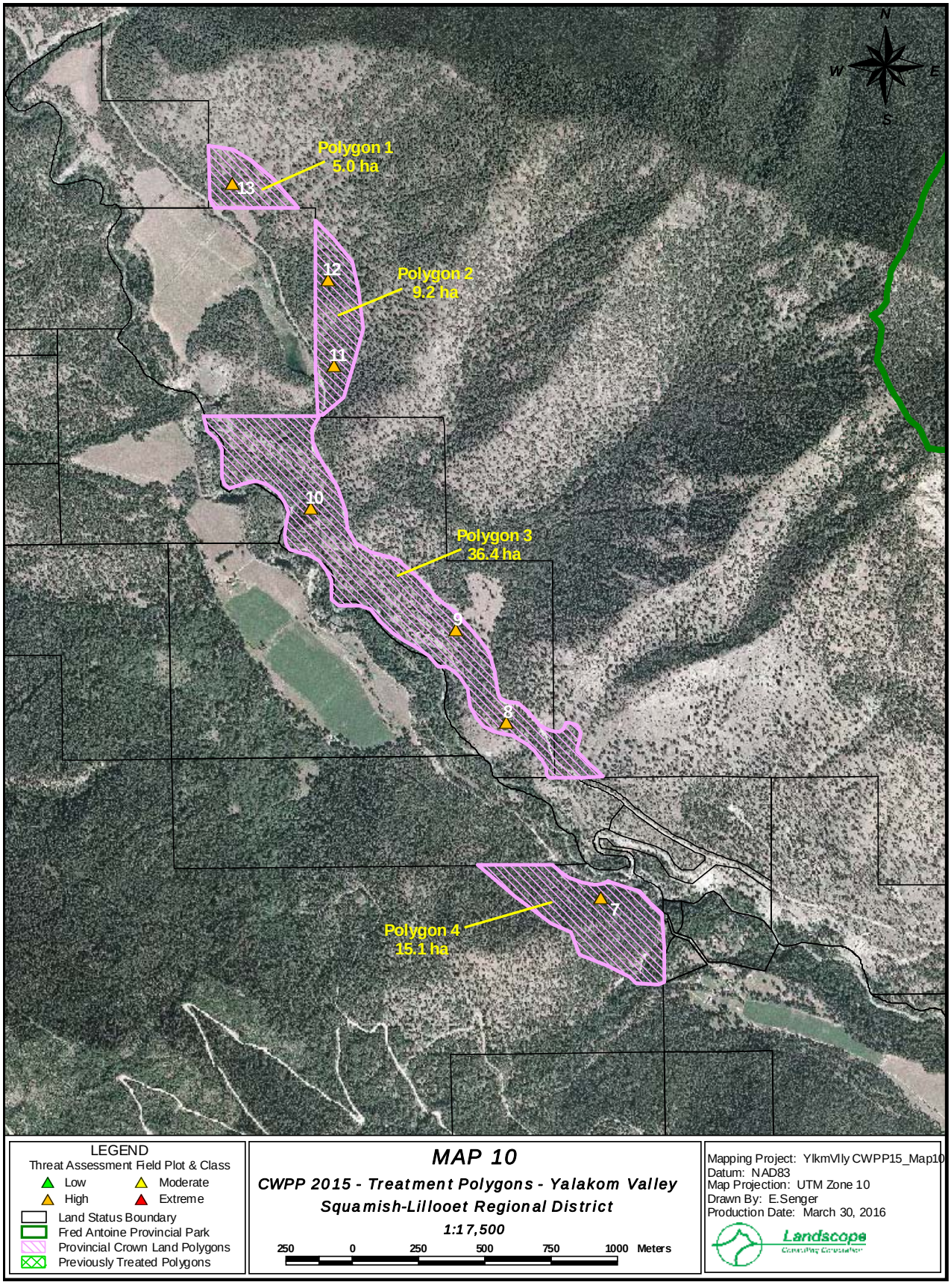

Figure 50: Treatment Areas – Map 10, Yalakom Valley WUI Area, Yalakom Valley.

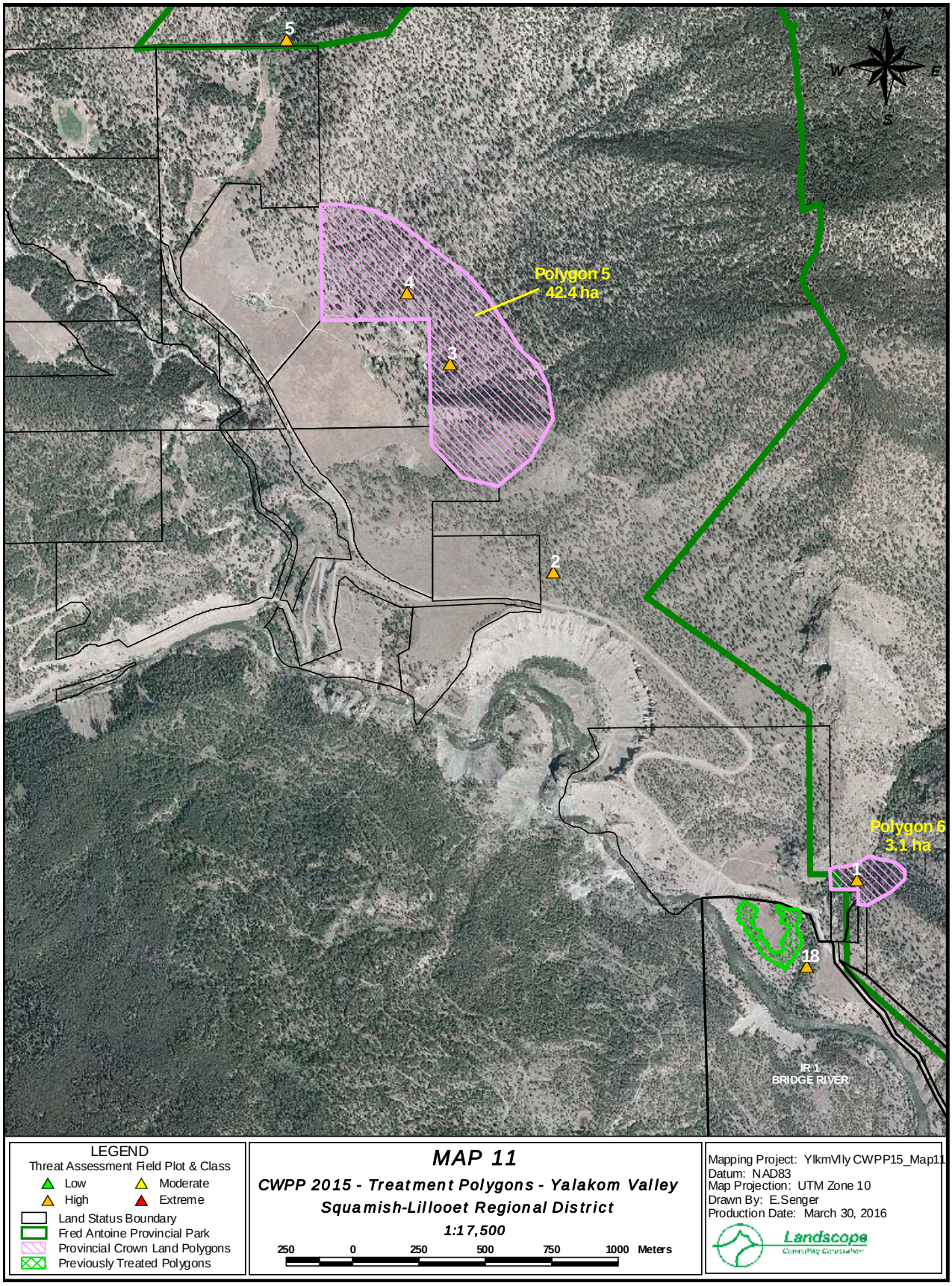

Figure 51: Treatment Areas – Map 11, Yalakom Valley WUI Area, Yalakom Valley/Bridge River.

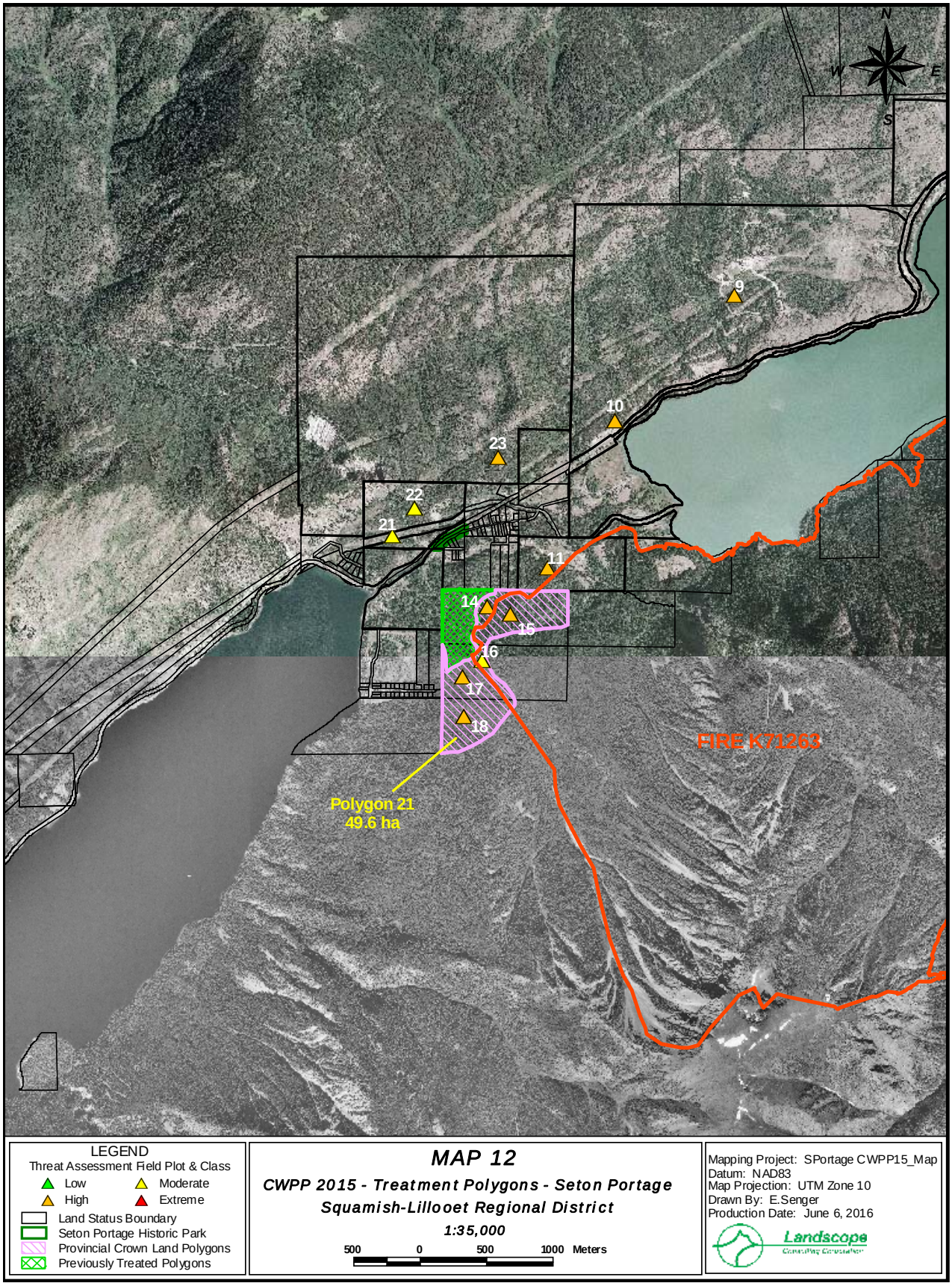

Figure 52: Treatment Areas – Map 12, Seton Portage WUI Area.

6.2 Treatment Area (Polygon) Summary and Proposed Budget

The proposed treatment area budgets for each WUI Area reflect the current forest conditions around the Squamish-Lillooet Regional District – Electoral Area 'B' in 2016. The budget amounts may be subject to change if future forest conditions change. Areas that have been treated over the previous 2006 CWPP planning period are shaded.

Within the Fountain Valley WUI Areas (Figures 41-43, Table 13), a total of 43.8 hectares of provincial crown land was treated over the 2006 CWPP period at fourteen (14) polygons. Under the 2016 CWPP, eleven (11) new polygons totalling 197.8 hectares have been identified on provincial crown land that is adjacent to homes and other critical structures within Fountain Valley and at Fountain Lake.

Within the Pavilion Lake WUI Area (Figures 44-46, Table 14), a total of 35.2 hectares of provincial crown land was treated over the 2006 CWPP period at seven (7) polygons. Under the 2016 CWPP, six (6) new polygons totalling 67.4 hectares have been identified on provincial crown land that is adjacent to homes and other critical structures at Milkranch and Pavilion Lake.

Within the Texas Creek WUI Area (Figures 47-49, Table 15), a total of 43.8 hectares of provincial crown land was treated over the 2006 CWPP period at eleven (11) polygons. Under the 2016 CWPP, eight (8) new polygons totalling 80.2 hectares have been identified on provincial crown land that is adjacent to homes and other critical structures along Texas Creek Road.

Within the Yalakom Valley WUI Area (Figures 50-51, Table 16), no provincial crown land was treated over the 2006 CWPP period. Under the 2016 CWPP, six (6) new polygons totalling 111.2 hectares have been identified on provincial crown land that is adjacent to homes and other critical structures within the Yalakom Valley.

Within the Seton Portage WUI Area (Figure 52, Table 17), no provincial crown land was treated over the 2006 CWPP period nor is any currently identified for treatment under the 2016 CWPP. The entire Seton Portage WUI Area overlaps the WUI Area for the Tsal'alh (Seton Lake Indian Band) 2016 CWPP, which has identified a single 49.6 hectare provincial crown land polygon adjacent to homes and other critical structures south of the community. Under the Tsal'alh (Seton Lake Indian Band) 2010 CWPP, one 14.1 hectare provincial crown land polygon had been previously treated in the same area south of the Seton Portage community.

In total, 456.6 hectares of provincial crown land in 31 polygons has been recommended for treatment within the 6 individual WUI Areas of the Squamish-Lillooet Regional District – Electoral Area 'B'. Note that the identified polygons are the broad recommended areas; the final area proposed for forest fuel treatment would be determined through more detailed ground-truthing during the layout/prescription phase.

Table 13. Summary of Fuel Management activities and costs – Fountain Valley WUI Area polygons.

Treatment Area	Polygon #	Area (ha)	CWPP[1]	Threat Class[2]	Treatment	Budget Estimate[3]
CROWN LAND (Fountain Valley Road – North End)	2	3.7	2006	Treated		
CROWN LAND (Frantzen Road)	6	3.0	2006	Treated		
CROWN LAND (Frantzen Road)	6A	20.4	2016	High	dead tree removal thin/prune/pile & burn	$142,290
CROWN LAND (Frantzen Road)	7	4.0	2006	Treated		
CROWN LAND (Frantzen Road)	8	4.3	2006	Treated		
CROWN LAND (Frantzen Road)	8A	32.6	2016	High	dead tree removal thin/prune/pile & burn	$227,385
CROWN LAND (Frantzen Road)	9	0.3	2006	Treated		
CROWN LAND (Frantzen Road)	10	4.3	2006	Treated		
CROWN LAND (Frantzen Road)	10A	16.4	2016	High	dead tree removal thin/prune/pile & burn	$114,390
CROWN LAND (Frantzen Road)	10B	3.6	2016	High	dead tree removal thin/prune/pile & burn	$25,110
CROWN LAND (Fountain Lake)	13	2.6	2006	Treated		
CROWN LAND (Fountain Lake)	14	1.4	2006	Treated		
CROWN LAND (Fountain Lake)	15	3.1	2006	Treated		
CROWN LAND (Fountain Lake)	16	4.0	2006	Treated		
CROWN LAND (Fountain Lake)	16A	42.0	2016	High	dead tree removal thin/prune/pile & burn	$292,950
CROWN LAND (Fountain Lake)	17	6.6	2006	Treated		
CROWN LAND (Fountain Lake)	17A	18.6	2016	High	dead tree removal thin/prune/pile & burn	$129,735
CROWN LAND (Fountain Lake)	18	2.3	2006	Treated		
CROWN LAND (Fountain Lake)	18A	19.0	2016	High	dead tree removal thin/prune/pile & burn	$132,525
CROWN LAND (Fountain Valley Road – South End)	20	3.0	2006	Treated		
CROWN LAND (Fountain Valley Road – South End)	20A	7.2	2016	High	dead tree removal thin/prune/pile & burn	$48,600
CROWN LAND (Fountain Valley Road – South End)	21	1.2	2006	Treated		
CROWN LAND (Fountain Valley Road – South End)	21A	7.7	2016	High	dead tree removal thin/prune/pile & burn	$51,975
CROWN LAND (Fountain Valley Road – South End)	25	14.1	2016	High	dead tree removal thin/prune/pile & burn	$95,175
CROWN LAND (Fountain Valley Road – South End)	26	16.2	2016	High	dead tree removal thin/prune/pile & burn	$109,350
CROWN LAND Treatment Total		**197.8**				**$1,369,485**

[1]- The CWPP year which the polygon was first identified and recommended for treatment.

[2]- Wildfire Behaviour Threat Class rating as determined by data collection at one or more wildfire threat plots within and/or in the immediate vicinity of the treatment area.

[3]- $5,250 - $7,250/ha total all found cost for a crew to fall/limb/top dead trees; thin & prune remaining trees, lop-scatter and/or pile and burn all debris. Also includes the cost for Layout, Prescription Preparation, Implementation/Quality-Assurance, and Administration of the Fuel Management Project work. These costs are based on 8 years (2007-2016) of actual fuel management treatment costs for work completed in representative stand types.

Table 14. Summary of Fuel Management activities and costs – Pavilion Lake WUI Area polygons.

Treatment Area	Polygon #	Area (ha)	CWPP[1]	Threat Class[2]	Treatment	Budget Estimate[3]
CROWN LAND (Pavilion Lake)	1	2.1	2006	Treated		
CROWN LAND (Pavilion Lake)	2	5.8	2006	Treated		
CROWN LAND (Pavilion Lake)	3	2.2	2006	Treated		
CROWN LAND (Pavilion Lake)	4	5.9	2006	Treated		
CROWN LAND (Pavilion Lake)	5	4.8	2006	Treated		
CROWN LAND (Pavilion Lake)	6	11.9	2006	Treated		
CROWN LAND (Pavilion Lake)	7	2.5	2006	Treated		
CROWN LAND (Pavilion Lake)	8	0.8	2016	High	dead tree removal thin/prune/pile & burn	$5,400
CROWN LAND (Pavilion Lake)	9	7.9	2016	High	dead tree removal thin/prune/pile & burn	$53,325
CROWN LAND (Pavilion Lake)	10	5.7	2016	High	dead tree removal thin/prune/pile & burn	$38,475
CROWN LAND (Pavilion Lake)	11	9.2	2016	High	dead tree removal thin/prune/pile & burn	$62,100
CROWN LAND (Pavilion Lake)	12	19.3	2016	High	dead tree removal thin/prune/pile & burn	$130,275
CROWN LAND (Milkranch)	13	24.5	2016	High	dead tree removal thin/prune/pile & burn	$165,375
CROWN LAND Treatment Total		**67.4**				**$454,950**

[1]- The CWPP year which the polygon was first identified and recommended for treatment.

[2]- Wildfire Behaviour Threat Class rating as determined by data collection at one or more wildfire threat plots within and/or in the immediate vicinity of the treatment area.

[3]- $5,250 - $7,250/ha total all found cost for a crew to fall/limb/top dead trees; thin & prune remaining trees, lop-scatter and/or pile and burn all debris. Also includes the cost for Layout, Prescription Preparation, Implementation/Quality-Assurance, and Administration of the Fuel Management Project work. These costs are based on 8 years (2007-2016) of actual fuel management treatment costs for work completed in representative stand types.

Table 15. Summary of Fuel Management activities and costs – Texas Creek WUI Area polygons.

Treatment Area	Polygon #	Area (ha)	CWPP[1]	Threat Class[2]	Treatment	Budget Estimate[3]
CROWN LAND (Phair Lake)	1	6.2	2006	Treated		
CROWN LAND (Riley Creek)	Tex-1	1.7	2006	Treated		
CROWN LAND (Phair Lake)	2	1.4	2006	Treated		
CROWN LAND (Riley Creek)	Tex-2	3.3	2006	Treated		
CROWN LAND (Phair Lake)	3	6.8	2006	Treated		
CROWN LAND (Phair Lake)	3A	1.8	2016	High	dead tree removal thin/prune/pile & burn	$12,150
CROWN LAND (Phair Lake)	3B	2.2	2016	High	dead tree removal thin/prune/pile & burn	$14,850
CROWN LAND (Spray Creek)	Tex-3	3.1	2006	Treated		
CROWN LAND (Riley Creek)	4	1.6	2006	Treated		
CROWN LAND (Riley Creek)	4A	10.7	2016	High	dead tree removal thin/prune/pile & burn	$72,225
CROWN LAND (Texas Creek)	Tex-4	1.7	2006	Treated		
CROWN LAND (Riley Creek)	5	5.8	2006	Treated		
CROWN LAND (Riley Creek)	5A	11.7	2016	High	dead tree removal thin/prune/pile & burn	$78,975
CROWN LAND (Texas Creek)	Tex-5	0.9	2006	Treated		
CROWN LAND (Texas Creek)	6	11.3	2006	Treated		
CROWN LAND (Texas Creek)	6A	18.7	2016	High	dead tree removal thin/prune/pile & burn	$126,225
CROWN LAND (Spray Creek)	7	21.0	2016	High	dead tree removal thin/prune/pile & burn	$141,750
CROWN LAND (Texas Creek)	8	5.7	2016	High	dead tree removal thin/prune/pile & burn	$38,475
CROWN LAND (Texas Creek)	9	8.4	2016	High	dead tree removal thin/prune/pile & burn	$56,700
CROWN LAND Treatment Total		**80.2**				**$541,350**

[1]- The CWPP year which the polygon was first identified and recommended for treatment.

[2]- Wildfire Behaviour Threat Class rating as determined by data collection at one or more wildfire threat plots within and/or in the immediate vicinity of the treatment area.

[3]- $5,250 - $7,250/ha total all found cost for a crew to fall/limb/top dead trees; thin & prune remaining trees, lop-scatter and/or pile and burn all debris. Also includes the cost for Layout, Prescription Preparation, Implementation/Quality-Assurance, and Administration of the Fuel Management Project work. These costs are based on 8 years (2007-2016) of actual fuel management treatment costs for work completed in representative stand types.

Table 16. Summary of Fuel Management activities and costs – Yalakom WUI Area polygons.

Treatment Area	Polygon #	Area (ha)	CWPP[1]	Threat Class[2]	Treatment	Budget Estimate[3]
CROWN LAND (Yalakom Valley)	1	5.0	2016	High	dead tree removal thin/prune/pile & burn	$33,750
CROWN LAND (Yalakom Valley)	2	9.2	2016	High	dead tree removal thin/prune/pile & burn	$62,100
CROWN LAND (Yalakom Valley)	3	36.4	2016	High	dead tree removal thin/prune/pile & burn	$245,700
CROWN LAND (Yalakom Valley)	4	15.1	2016	High	dead tree removal thin/prune/pile & burn	$101,925
CROWN LAND (Yalakom Valley)	5	42.4	2016	High	dead tree removal thin/prune/pile & burn	$286,200
CROWN LAND (Bridge River)	6	3.1	2015	High	dead tree removal thin/prune/pile & burn	$20,925
CROWN LAND Treatment Total		**111.2**				**$750,600**

[1]- The CWPP year which the polygon was first identified and recommended for treatment.

[2]- Wildfire Behaviour Threat Class rating as determined by data collection at one or more wildfire threat plots within and/or in the immediate vicinity of the treatment area.

[3]- $5,250 - $7,250/ha total all found cost for a crew to fall/limb/top dead trees; thin & prune remaining trees, lop-scatter and/or pile and burn all debris. Also includes the cost for Layout, Prescription Preparation, Implementation/Quality-Assurance, and Administration of the Fuel Management Project work. These costs are based on 8 years (2007-2016) of actual fuel management treatment costs for work completed in representative stand types.

Table 17. Summary of Fuel Management activities and costs – Seton Portage WUI Area polygons.

Treatment Area	Polygon#	Area (ha)	CWPP[1]	Threat Class[2]	Treatment	Budget Estimate[3]
CROWN LAND – DL 1594/1595	21	49.6	2016	Identified in the Tsal'alh (Seton Lake) CWPP 2016.		
CROWN LAND Treatment Total		**49.6**				**$0**

[1]- The CWPP year which the polygon was first identified and recommended for treatment.

[2]- Wildfire Behaviour Threat Class rating as determined by data collection at one or more wildfire threat plots within and/or in the immediate vicinity of the treatment area.

[3]- $5,250 - $7,250/ha total all found cost for a crew to fall/limb/top dead trees; thin & prune remaining trees, lop-scatter and/or pile and burn all debris. Also includes the cost for Layout, Fuel Mgmt Prescription development, Implementation/Quality-Assurance, and Administration of the Fuel Management Project work. These costs are based on 9 years (2007-2016) of actual fuel management treatment costs for work completed in representative stand types.

7.0 Recommendations

7.1 Implementation of the CWPP 2016 Treatment Plan

It is recommended that the Squamish-Lillooet Regional District proceed with the implementation of the CWPP 2016 Treatment Plan presented in Section 6.0 as soon as possible. Funding sources are available including the provincial Strategic Wildfire Prevention Initiative (SWPI) that provide grant monies towards the development of prescriptions and subsequent operational treatment of proposed areas (polygons). There are several application intake dates throughout the year which provide the opportunity for the Squamish-Lillooet Regional District to access funding to do the forest fuel management activities presented in the Treatment Plan.

The implementation of the Treatment Plan also includes the regular monitoring and potential follow-up maintenance (every 3-4 years) of previously-treated areas on Regional District and Provincial Crown lands. It also includes the monitoring and potential follow-up maintenance treatment of the high-risk areas within and surrounding the Electoral Area 'B' community cores every 1-2 years. Funding sources such as the SWPI program should be accessed for any follow-up maintenance treatments.

7.2 Becoming a Nationally-Recognized FireSmart Community

7.2.1 FireSmart Principles

In response to the "Firestorm 2003 Provincial Review", a guide to assist homeowners with assessing their current or future building structure for fire readiness was developed titled "The Home Owners FireSmart Manual". This guide outlines measures that homeowners can take to become "fire smart" and reduce the wildfire threat of both their home and property, such as creating a three-zoned defensible space out to 100 metres surrounding the building structure, assessing the type of roofing, siding, windows and doors currently on or planned for on all structures, and assessing and reducing fire potential from ignition sources such as chimneys and burning barrels. Jack Cohen, a USDA fire behaviour scientist, has shown through his research on ignition potential of homes and structures that more than 50% of structures are ignited from contact with burning embers and not the direct flames of the fire. All homeowners, landowners, and developers are encouraged to embrace FireSmart principles that protect their property and private structures from wildfires. Taking the proactive action will allow firefighting crews to work safely, quickly, and effectively in extinguishing a fire and protecting the homes and structures. In the longer term it is hoped that Insurance agencies will provide financial incentives for homeowners through reduced premiums where the FireSmart work is carried out.

It is anticipated that future funding opportunities from programs offered by sources such as FireSmart Canada, the federal Wildfire Prevention Initiative and provincial Strategic Wildfire Prevention Initiative will be more closely linked to a community being FireSmart and FireSmart recognized.

Specific FireSmart recommendations that the Squamish-Lillooet Regional District should consider promoting within and becoming involved with the Electoral Area 'B' communities are as follows:

1. All residents be provided with a copy of the updated "The Home Owners FireSmart Manual".
2. Contact and connect with a local FireSmart representative to assist the private landowners in the implementation of the following steps in FireSmart Principles and the FireSmart Communities Program within the SLRD Electoral Area 'B'.
3. The Structure Zone (0m) is the FireSmart of the home and other structures themselves. Evaluate the building materials: roofing, siding, decks and porches; are all eaves and vents screened and soffits closed off? Are roof gutters cleared of leaves, needles and other combustible materials? What type of glass is used in the doors and windows, is it fire and heat resistant?
4. Create a 0m to 10m (30 ft) fuel and ignition free Priority Zone 1 around homes and other critical structures by removing vegetation and other combustible materials including shrubs, trees, wood and firewood piles, tires, etc. and keep grass mowed and watered. Combustible landscape bedding materials such as bark mulch should be removed and replaced with non-combustible material such as soil, gravel or rock (reference the FireSmart Guide to Landscaping).
5. In the 10m (30 ft) to 30m (100 ft) Priority Zone 2, thin out and prune trees off the ground (to a minimum 3m spacing and 2m pruning height) and remove understory brush and other vegetation that would support a fire, and that would allow a fire to become more aggressive by spreading from the surface up into the crowns of the trees. Introduce more deciduous vegetation that resists fire rather than more combustible evergreen vegetation in landscaping around homes.
6. Extend the FireSmart property maintenance plan out into the Priority Zone 3 – 30m (100ft) to 100m (300ft) by thinning out and spacing understory shrubs and trees (to a minimum 3m spacing and 2m pruning height) to open up the forest canopy so a wildfire would be of low intensity and more easily extinguished.
7. Apply for funding through the provincial Strategic Wildfire Prevention Initiative – FireSmart Grant Program to be able to assist the SLRD Electoral Area 'B' communities in implementing FireSmart recommendations and earn FireSmart Community Recognition status.
8. Promote the education of the residents of the SLRD Electoral Area 'B' communities through FireSmart Community Champion Workshops and gather information from the communities on what they would like to see completed as priority FireSmart actions within their area.
9. Sponsor a community FireSmart Day within SLRD Electoral Area 'B' communities on National Wildfire Community Preparedness Day to raise community wildfire awareness, help protect homes, neighborhoods and the entire community towards becoming FireSmart. FireSmart Canada awards $500 to successful community projects.

7.2.2 FireSmart Community Recognition

A community (or part of a community such as a neighborhood) within the SLRD Electoral Area 'B' may become a Recognized FireSmart Community (or Neighborhood) through the FireSmart Canada Community Recognition Program. It is recommended that the Squamish-Lillooet Regional District consider following these steps:

1. Engage the FireSmart Communities Program by contacting FireSmart Canada and connecting with a local FireSmart community representative.
2. Arrange a site visit with the local FireSmart representative and assess the wildfire hazards within and surrounding the SLRD Electoral Area 'B' communities.

3. Work with the local FireSmart representative to select a Community Champion within a given SLRD Electoral Area 'B' community and create a FireSmart Community Board that is comprised of members who represent all people within that community.
4. Support and assist in the completion of the wildfire hazard assessment and evaluation of the community's wildfire readiness with the local FireSmart representative, and present it to the FireSmart Community Board for review and approval.
5. Support and be involved in the creation of a FireSmart Community Plan for a given SLRD Electoral Area 'B' community that addresses area-specific solutions to the issues raised through the wildfire hazard assessment and evaluation of community wildfire readiness.
6. Support and be involved in the implementation of the solutions recommended in the given SLRD Electoral Area 'B' community FireSmart Community Plan following the timeline presented in the FireSmart Plan, including a schedule to maintain the program into the future.
7. Assist the local FireSmart representative to complete the necessary documentation and apply for FireSmart Community Recognition status, ensuring that the community meets the 6-point Recognition Criteria.
8. Support the renewal of the FireSmart Community Recognition status for any SLRD Electoral Area 'B' community on an annual basis by assisting in the completion and submission of documentation demonstrating the community's ongoing implementation of solutions identified in the FireSmart Community Plan.

In larger communities it is possible to achieve National Recognition at the neighborhood scale, where a neighborhood is successful in working together to complete the 7 step process. This approach at this scale may be more practicable to promote and implement (by neighborhood) rather than attempting to achieve FireSmart Community Recognition status across the entire municipality at one time.

It is recommended that the SLRD consider hiring a post-secondary summer student who's responsibility would be to visit, engage and support the Electoral Area 'B' community residents in their efforts to become FireSmart, both at the individual landowner and at a neighborhood/community level.

7.3 Emergency Management Planning

In the event of a major wildfire, the Squamish-Lillooet Regional District should have a comprehensive Emergency Management Plan (EMP) in place covering the Electoral Area 'B' that details the particulars if an evacuation order was ever needed. In 2008, the Ministry of Forests, Lands and Natural Resource Operations, Ministry of Public Safety & Solicitor General, Emergency Management British Columbia – Provincial Emergency Program and the Office of the Fire Commissioner produced a document titled "British Columbia Wildland Urban Interface Fire Consequence Management Plan" that lists various emergency management pillars, authorities, as well as recommendations for prevention, mitigation, preparedness, hazard and risk analysis and response. It is recommended that the SLRD complete the comprehensive re-development of it's current EMP (including community-specific Hazard Vulnerability Risk Assessments), and implement the EMP in it's entirety once the update is completed. Key content of the updated CWPP for the Electoral Area 'B' will also be referenced in the EMP re-development process. In addition, it is recommended that the SLRD undertake any required training and conduct annual emergency response and evacuation practice sessions with key

Electoral Area 'B' EMP community members, First Nation responders, the volunteer fire department and other response agencies (such as the BC Wildfire Service and FNESS) to be better prepared in the event of a catastrophic wildfire or other event that threatens the community and it's residents.

7.3.1 Community Emergency Program Development

The Squamish-Lillooet Regional District should focus on 10 steps in their development and/or updating of an emergency program for Electoral Area 'B':

1. Develop a Community Emergency Program Bylaw
2. Establish an Emergency Management Program Committee
3. Complete a hazard, risk and vulnerability analysis (HRVA)
4. Adopt the BC Emergency Management System (BCEMS) structure, a concept of emergency event management.
5. Through continuity and resiliency planning, develop a concept of community recovery.
6. Consult with neighbouring municipalities, regional districts and First Nations regarding emergency response management.
7. Develop new and/or modify existing emergency plans, including Emergency Management, Recovery and Pandemic Plans, Community Wildfire Protection Plans, etc.
8. Obtain approval and support for the Emergency Management Plan from the community.
9. Validate the community Emergency Management Plan by conducting training and simulation exercises, and prepare procedure and mitigation documentation
10. Evaluate and modify/update the community Emergency Management Plan on an ongoing basis after the plan has been implemented within the community to ensure it remains up-to-date and as effective as it can be.

The same post-secondary summer student that was recommended to be hired to visit, engage and support the Electoral Area 'B' community residents in their efforts to become FireSmart could also engage and survey the communities regarding fire services and water supply. The information gathered from this survey would then be incorporated into Emergency Management Planning and Response supported by the SLRD throughout the Electoral Area 'B'.

7.4 Hazard Tree & Vegetation Removal Programs

B.C. Hydro is actively conducting slashing, pruning and hazard tree removal in the vicinity of their power generation facilities and along their transmission and distribution lines within the interior of the province. Growing trees, shrubs and brush, and falling dead trees will be a potential wildfire ignition source if the vegetation is within reach of the power lines and is not removed. It is recommended that Squamish-Lillooet Regional District staff contact BC Hydro vegetation management personnel to encourage them work with the regional district and Area 'B' communities and continue the program to ensure that all hazard trees along the power lines are identified and removed in a timely fashion, as well as areas where trees and brush have grown up to close proximity to and is at risk of contacting the lines.

Other government ministries including the Ministry of Highways and Transportation, Ministry of Forests, Lands and Natural Resource Operations and BC Parks, as well as private companies such as CN and CP Rail should be contacted and encouraged to be pro-active and work with the Squamish-Lillooet Regional District to implement and/or continue a vegetation and forest fuel

management program along major ignition corridors such as railway right-of-ways, highways and other public roads, Forest Service Roads, recreation sites, trails and campgrounds where there is a risk to public safety and damage to buildings and other infrastructure due to the potential for an ignition and resulting severe wildfire.

7.5 Partnerships in Community Wildfire Protection Planning

It is recommended that all potential stakeholders and partners at a landscape level who are able to assist in wildfire threat reduction planning and treatment work in and around the community be contacted and encouraged to become involved in the implementation of this CWPP. Many other organizations including BC Wildfire Service, Ministry of Forests, Lands and Natural Resource Operations, BC Hydro, Indian and Northern Affairs Canada, First Nation Emergency Services Society, FireSmart Canada, Columbia Basin Trust, Habitat Conservation Trust and the various forest licensees and major contractors working in the area have land management obligations and programs in place that can assist in the management of the wildfire threat components identified in this document. Table 18 lists other organizations and individuals who could play an active role in assisting the Squamish-Lillooet Regional District in reducing the overall wildfire threat throughout the Electoral Area 'B', and not just in the immediate interface zone of the WUI Areas.

Table 18: Potential Partner Organizations in CWPP Implementation

NAME	ORGANIZATION
Jerry Canuel	Aspen Planers, Licensee
Clint Ely	Interwest Forest Mgmt, Licensee
Christian Guay	Timber Sales BC, Licensee
Tracy Coombes	MFLNRO – Cascades District
Christine Galliazzo	MFLNRO – Cascades District
Verne Rasmussen	BC Wildfire Service – Lillooet Fire Zone
Brad Bushill	Ministry of Highways
Rick Poznikoff	Canadian National Railway
James McKendry	B.C Hydro - Distribution
Gerald Trudeau	B.C Hydro - Transmission
Sheldon Gagne	Indian and Northern Affairs Canada
Jeff Eustache	First Nations Emergency Services Society
Jeff Eustache	FireSmart Canada
Darren Oike	District of Lillooet
Matt Manuel	Lillooet Tribal Council
Stephanie Barney	T'ít'q'et
Chief Michelle Edwards	Sekw'el'was
Gerald Michel	Xwisten
Cliff Casper	Tsal'alh
Kelsey Alec	Ts'kw'aylaxw First Nation
Jolene Rendolic	Xaxli'p Community Forest Corporation
Ed Senger	Landscope Consulting Corporation

Ideally, all types of land jurisdictions should have some form of fuel management treatments. Currently, the only lands eligible for government-funded treatments are provincial crown land and federal and reserve lands from sources such as Indian and Northern Affairs Canada and the Province of BC – Strategic Wildfire Prevention Initiative, BC Capacity Initiative and the Habitat

Conservation Trust Fund. Even though private land is not currently eligible for funding through these programs, all options should be explored to assist private landowners with large parcels of forested land in implementing some level of wildfire threat reduction measures. Private companies such as CN Rail who have right-of-ways within the Electoral Area 'B' that are rated high-extreme for wildfire threat should be contacted and encouraged to work with the Squamish-Lillooet Regional District to perform the recommended treatment work directly, or by contributing monetary amounts to existing fuel management projects to be able to include these land parcels in the fuel reduction work. Involving the local forest licensees in exploring the potential for incorporating timber harvesting activities as a treatment option in areas outside the immediate community wildland-urban interface zones may be advantageous. The Squamish-Lillooet Regional District can engage the local schools in promoting FireSmart, wildfire prevention and forest fuel management through school visits and hold educational workshops with the general public. It is recommended that the Squamish-Lillooet Regional District involve all partners and stakeholders to ensure that all forested land across the broader area of the Electoral Area 'B' WUI Areas with a high-extreme wildfire threat rating receive consideration for some form of wildfire threat reduction, if it is possible, in effort to address the potential for a severe wildfire to threaten the nearby community.

7.6 Additional Recommendations

The following recommendations were cited from both the Squamish-Lillooet District Community Wildfire Protection Plan (Davies, John and M. Coulthard. 2006) and the District of Lillooet Community Wildfire Protection Plan (Davies, J. 2007). They are general measures that are recommended and continue to be applicable to future development planning for the Squamish-Lillooet Regional District – Electoral Area 'B'.

7.6.1 Access Management

The road network into and within a community serves several needs: access for emergency vehicles, escape routes for residents, and firebreaks. Emergency vehicles can weigh up to 20 tonnes and require large spaces for turning around. Communities with cul-de-sacs, narrow driveways and dead-end streets impede fire suppression efforts. Smoky conditions or low light can make house numbers and street signs difficult to see and can delay emergency response times. For the purpose of fire suppression, access route standards are divided into *roadway standards* for an access route that serves three or more dwellings, and *fire services access standard*, for routes to a building that is located more than 45 m from a road. Guidelines for the design of roads for suppression are as follows:

Roadway Standards

- Roadways should allow for simultaneous access for emergency vehicles and public evacuation. They should have a travel way of at least 7.5 m horizontally and 4.5 m vertically.
- Improved road shoulders should be at least 1.5 m wide on each side of the roadway. If parking is permitted on the shoulder, the width should be increased to 2.75 m
- Vegetation on the sides of the road should be maintained below 10 cm.
- Roadway curve radius should be at least 30 from the centerline.
- Road gradients should not exceed 10%.
- Dead-end roadways longer than 90 m should have a turn-around at the terminus with an outside diameter of no less than 36 m. Fire officials may permit a 'hammer-head T' turn around.

- Dead-end roads should be posted as such.
- Any gated roads should have the gates located 9 m from the public ROW; they should open outward, and should provide an opening of at least 0.6 m wider than the traveled roadway. Fire Service personnel should have keys for all gates.
- Roadway material should be all weather and support all emergency suppression.
- Bridges should be designed of all-weather material, support the weight of any fire suppression vehicle and have the load limit clearly posted.

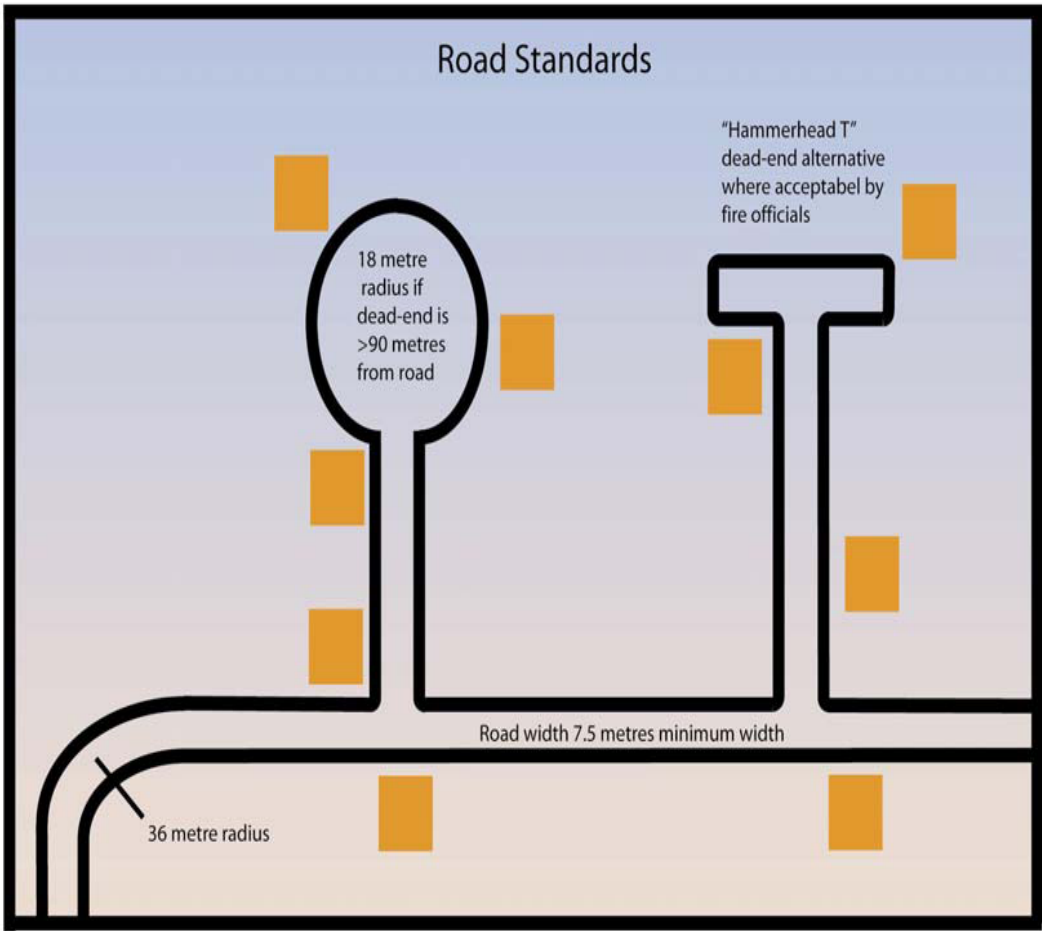

Figure 53: A schematic of road standards from the FireSmart Manual

Fire Service Access Standards

- Fire service access, including bridges, should be at least 3.7 m wide and have 4.5 m vertical clearance.
- Gradients should not exceed 15%
- Access turns should not restrict access of any emergency vehicle.
- Dead-end roadways longer than 90 m should have a turn-around at the terminus with an outside diameter of no less than 36 m. Fire officials may permit a'hammer-head T' turn around.
- Dead-end roads should be posted as such.
- Any gated roads should have the gates located 9 m from the public right-of -way, they should open outward, and should provide an opening of at least 0.6 m wider than the traveled roadway. Fire Service personnel should have keys for all gates.
- Roadway material should be all weather and support all emergency suppression.

7.6.2 Water supply

Water is the most effective fire suppression tool. Fire suppression requires large quantities of water to be successful and ensuring an adequate supply for fire suppression may make the difference to saving a community. All the residences within the Electoral Area 'B' WUI Areas are on water supplied from private systems (pumped from a well or nearby water source, or gravity-fed from a spring or creek).

Alternative power sources should be considered for well systems. During extreme fire conditions, electricity may be shut off for safety reasons and, therefore water supplies that rely on electrical pumps will be unavailable. Fire suppression crews are often required to rely on natural water sources or the water carried onboard emergency vehicles when dealing with fires in remote wildland developments. When planning new developments in the wildlands, several man-made water storage areas should be designed and constructed. These water sources should be accessible to emergency vehicles in order to refill onboard tanks.

Alternatively, underground cisterns could be constructed to store water for suppression purposes. These tanks could supply homes with water that was accessible from stand pipes throughout the development and would be restricted to suppression use only. The system could also be used to run sprinkler systems during an interface fire. During the design phase of the remote developments, an experienced fire suppression specialist should be consulted to help determine appropriate locations for man-made water bodies.

7.6.3 Utilities-Electric and Gas

Overhead transmission and distribution lines are a major ignition hazard. Falling trees or branches can knock a powerline to the ground, where it will remain charged and potentially start a fire. Primary distribution lines are the most problematic as they are remote and difficult to inspect and maintain. Secondary lines contain less voltage but are more susceptible to being overgrown by vegetation, which can lead to arcing and ignition. Underground power lines are the most FireSafe. When planning new developments, underground power lines systems should be considered. Where such a system is not feasible, overhead utility lines should have a clearance of at least 3 m from vegetation.

Propane tanks surrounded by vegetation are potential hazards. Combustion adjacent to these tanks increases the internal pressure causing the tank to vent through a relief valve. The resulting fire is one of high-intensity and will certainly destroy an adjacent building. Hence, when positioning tanks, the relief valves should point away from buildings. Faulty relief valves will not allow pressure to discharge resulting in a boiling liquid explosion capable of killing anyone within 300 m. Propane tanks should have all vegetation cleared for at least 3 m in all directions. Tanks should be located at least 10 m from any building. Future development around the tank should respect this distance and be monitored by the development strata.

7.6.4 Home Sprinkler Systems

When designing new developments, particularly those in remote locations some distance from emergency services, some consideration should be given to the installation of underground sprinkler systems. These systems can serve as both a method of irrigation as well as an interface suppression tool. Sprinklers can be located on the rooftops of homes and outbuildings. In the

event of a wildfire, the sprinklers would be engaged and would increase the relative humidity around the house as well as increase the fuel moisture content of any fuel adjacent to the home resulting in lower flammability and fire behaviour potential.

7.6.5 Community Planning, Design Review and Construction Operations

Planners, engineers, and landscape architects should refer to both this report and the FireSmart manual during the designing phase of developments. A fire management specialist should be consulted during the design phase of future developments to ensure the development is planned in a FireSmart manner and that any potential problems are addressed early on. Additionally, all construction operations should be conducted according to the Wildfire Act and associated regulations. Following these regulations helps reduce liability and protects the development as an investment in the event of a catastrophic wildfire.

8.0 Amendments to the Community Wildfire Protection Plan

Over the lifespan of this CWPP, there may be situations that arise where it will be required, or simply advantageous to amend a particular section or sections of the CWPP to address an issue, situation or condition. The CWPP is to be considered dynamic, with the ability to respond and adapt to issues, situations and changing conditions that have implications on the existing content and management practices and recommendations identified in the document. This will ensure that the CWPP remains applicable and effective under the current wildfire management and prevention initiatives in the province, while being consistent with all other management guidelines and objectives.

Situations that would trigger a re-evaluation and resulting amendment of one or more sections of the CWPP include (but not limited to):

1. The introduction of new or changes in existing provincial and federal legislation, regulation, and policies (e.g. management of wildlife and species-at-risk, First Nations culture and heritage);
2. The initiation/implementation of higher-level planning processes by federal, provincial, local governments and First Nations;
3. The initiation of a Landscape-Level Fire Management Planning process;
4. Changes in residential development within the Electoral Area 'B' that would require the designation of a new, or revision to an existing 2 kilometre WUI Area (new home construction expanding the existing community core or introducing a new residential core), and/or updating of the Priority Treatment Plan;
5. Changes in forest conditions within a WUI Area surrounding a community (e.g. tree mortality from insect and disease outbreaks, fire, drought, and high winds);
6. Changes in wildfire prevention program guidelines and/or program funding eligibility criteria for forest fuel treatments (i.e. provincial Strategic Wildfire Prevention Initiative).
7. The introduction of new, or changes in existing wildfire prevention practices including forest fuel reduction methods, FireSmart Principles, etc.

9.0 Appendices

9.1 Biogeoclimatic Zones within SLRD Electoral Area 'B' WUI Areas

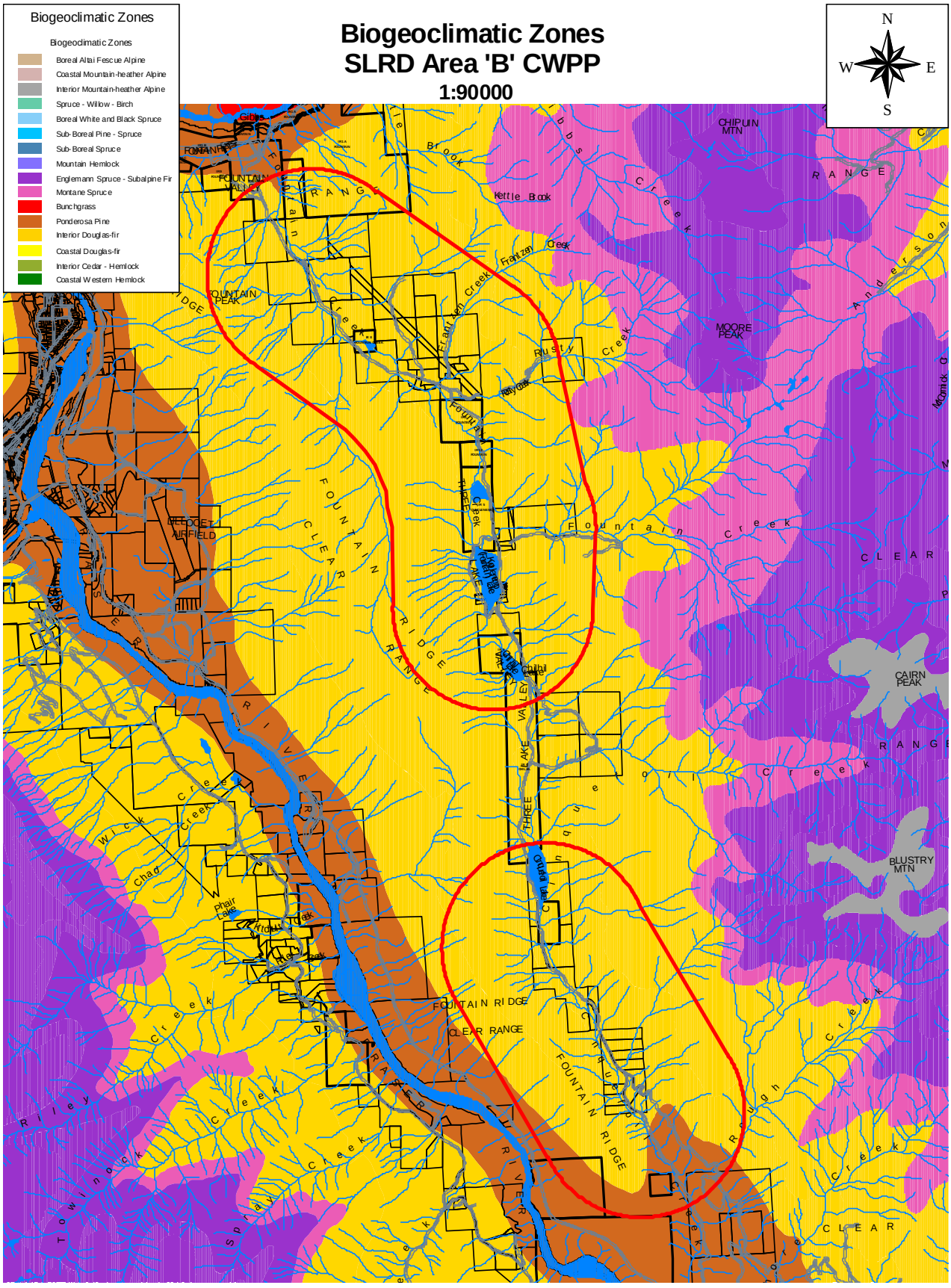

Figure 54: Biogeoclimatic Zones – Fountain Valley WUI Areas.

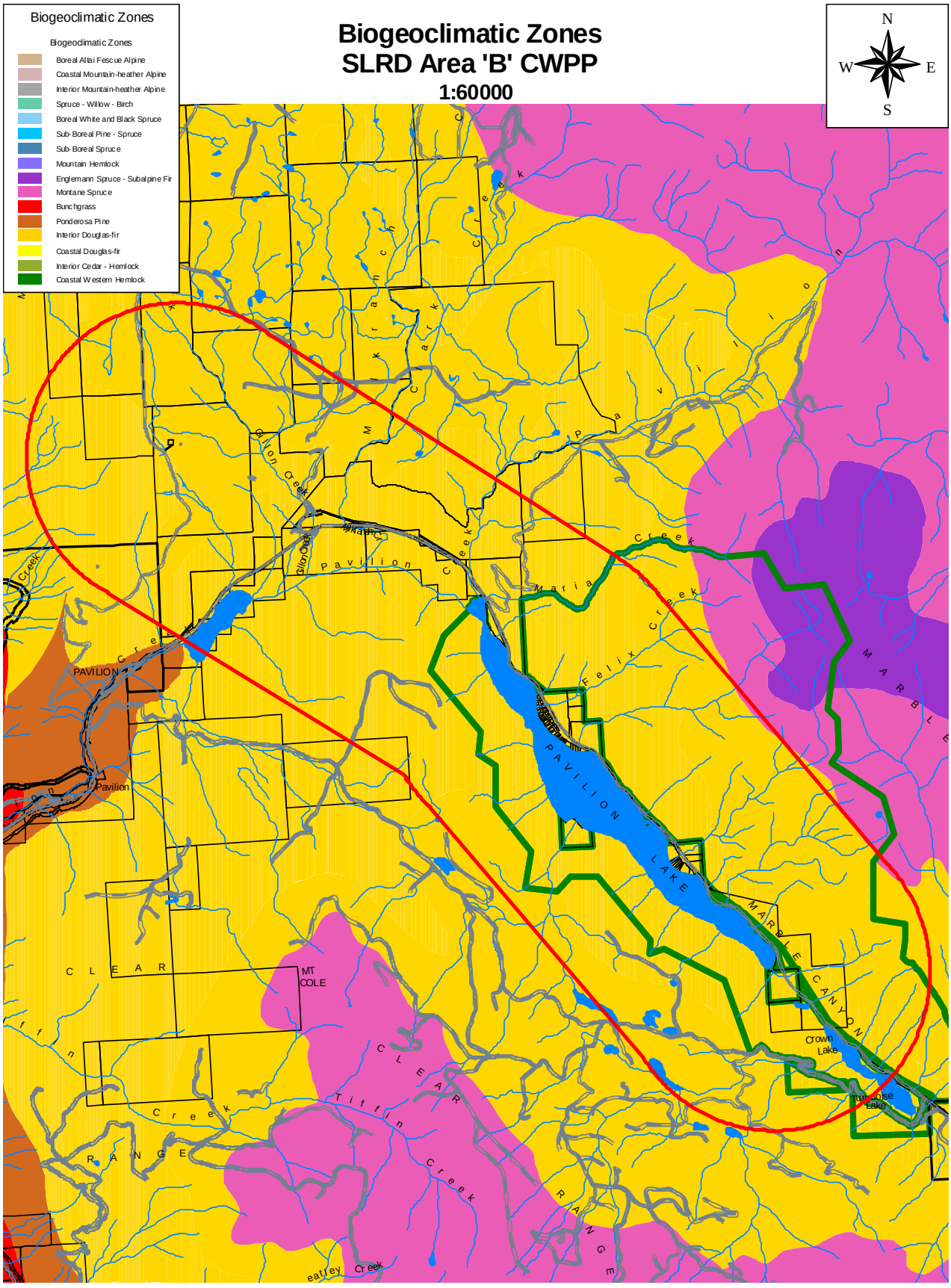

Figure 55: Biogeoclimatic Zones – Pavilion Lake WUI Area.

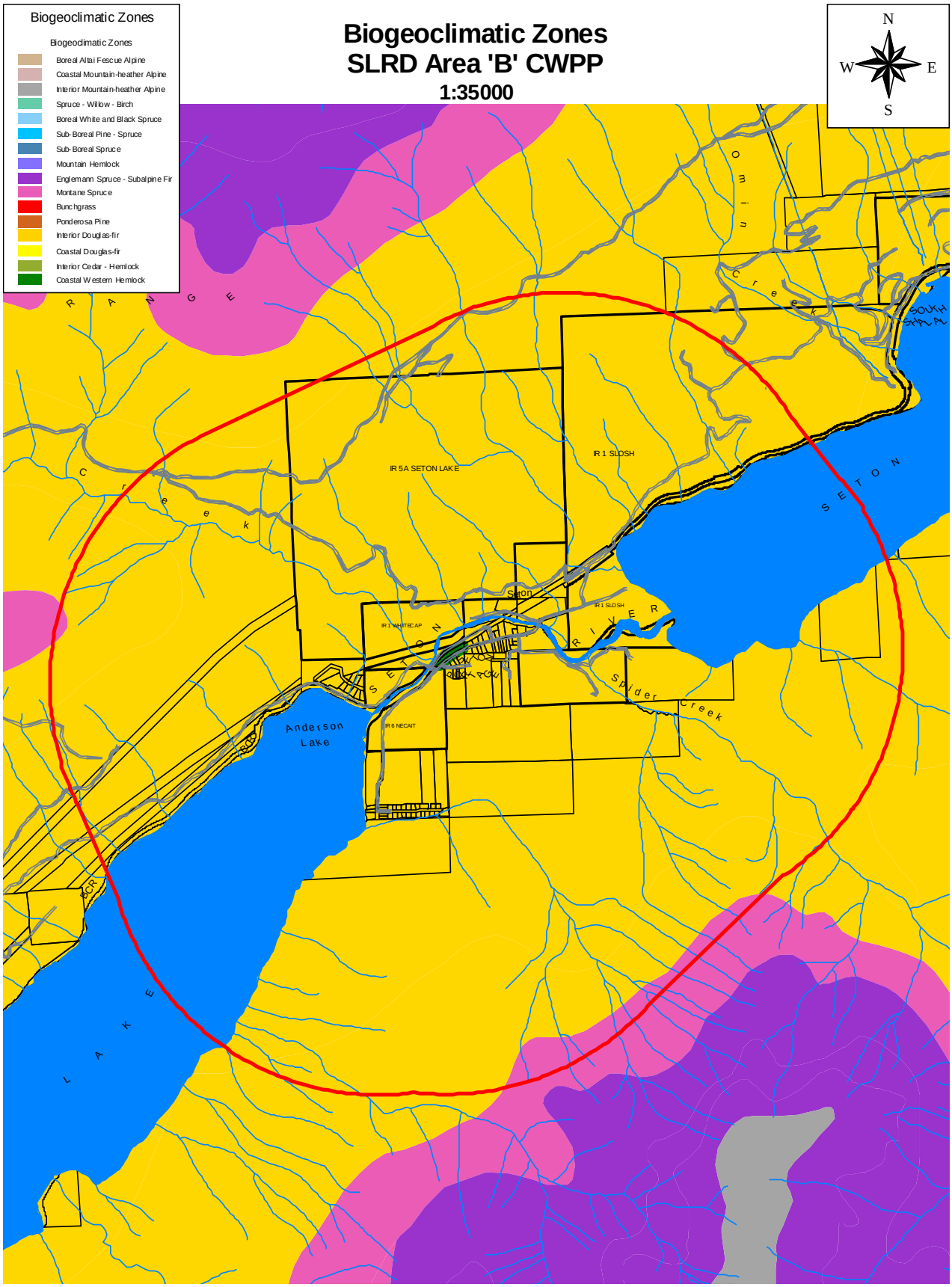

Figure 56: Biogeoclimatic Zones – Seton Portage WUI Area.

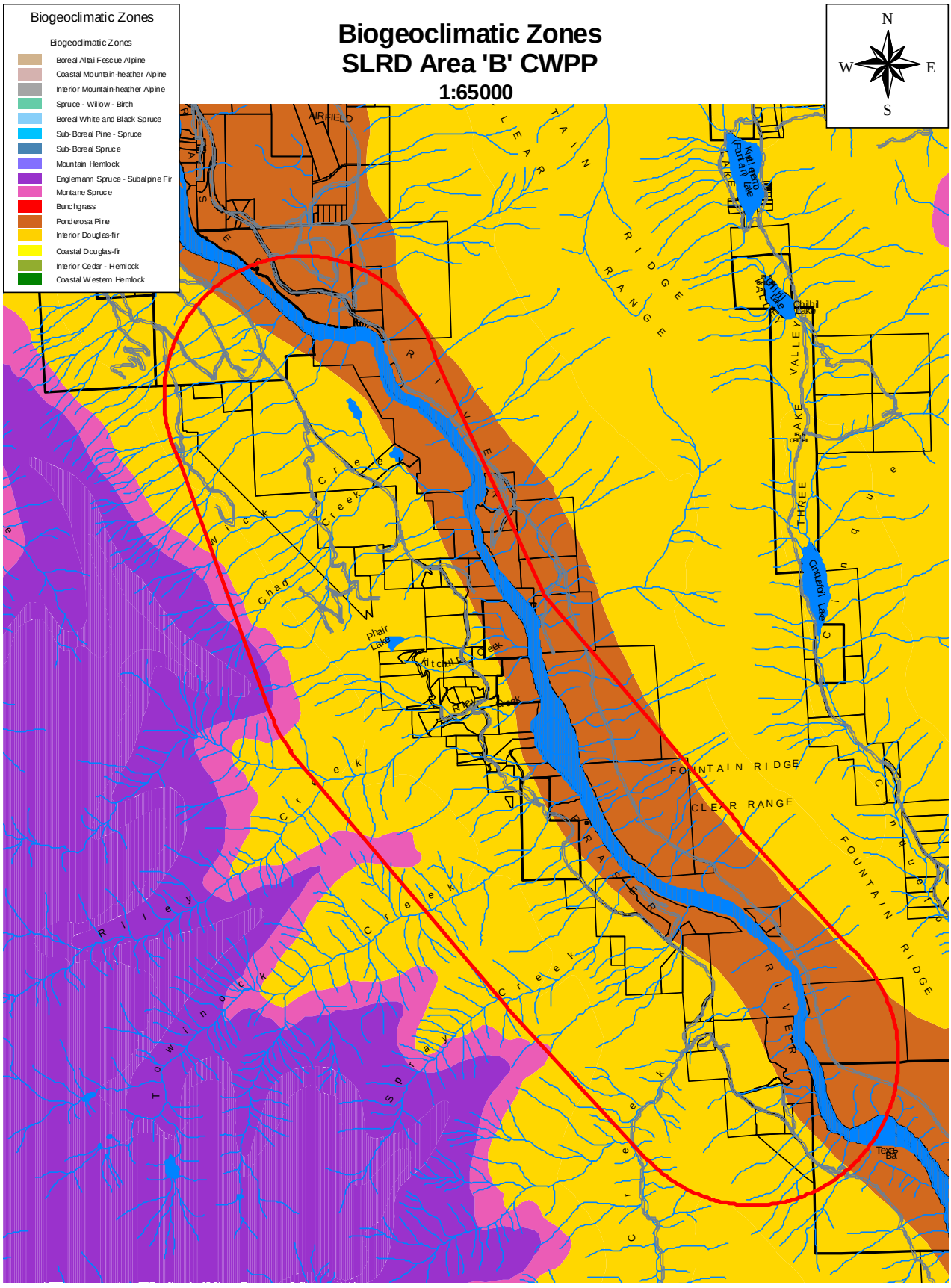

Figure 57: Biogeoclimatic Zones – Texas Creek WUI Area.

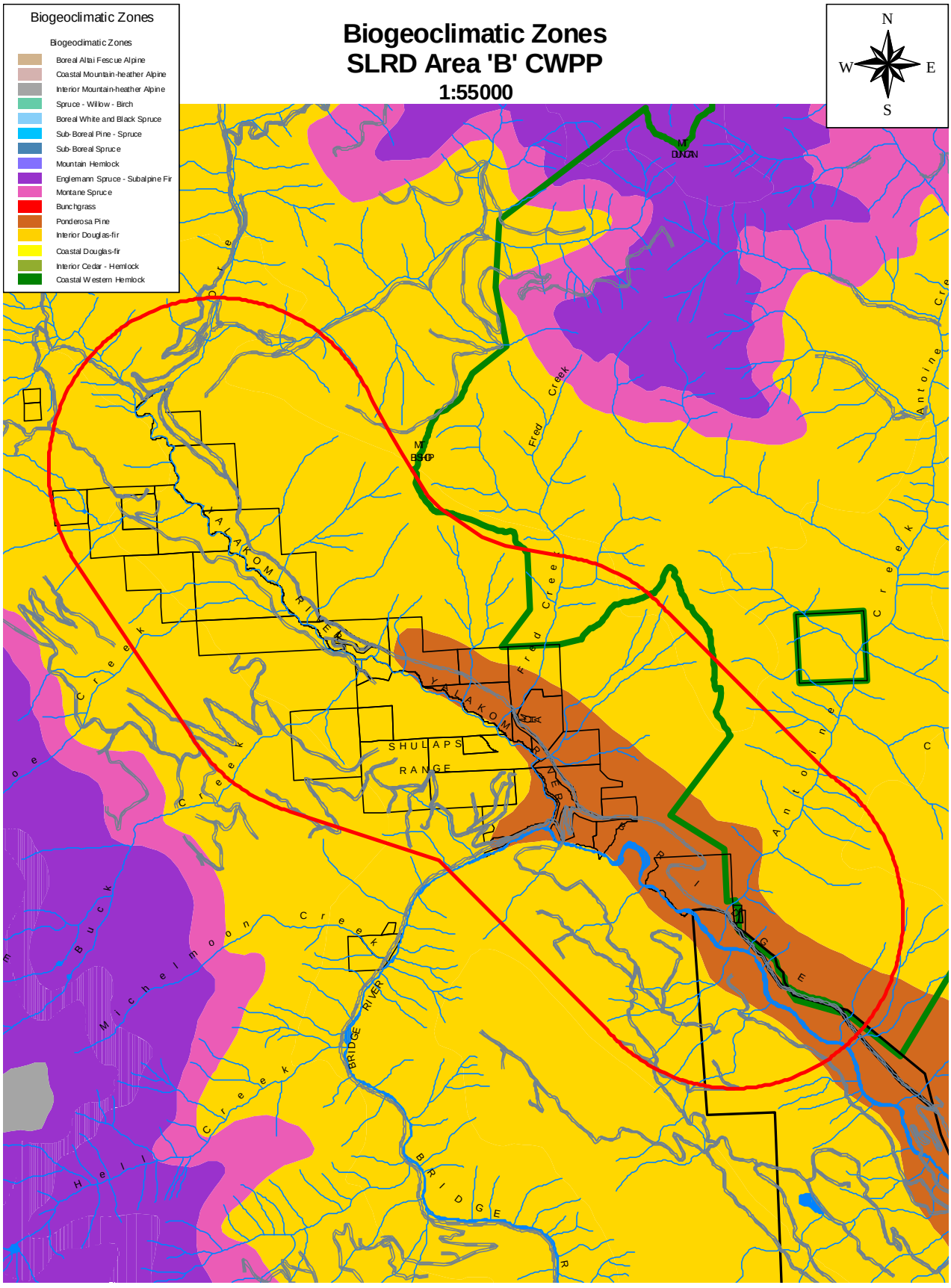

Figure 58: Biogeoclimatic Zones – Yalakom Valley WUI Area.

9.2 Natural Disturbance Types within SLRD Electoral Area 'B' WUI Areas

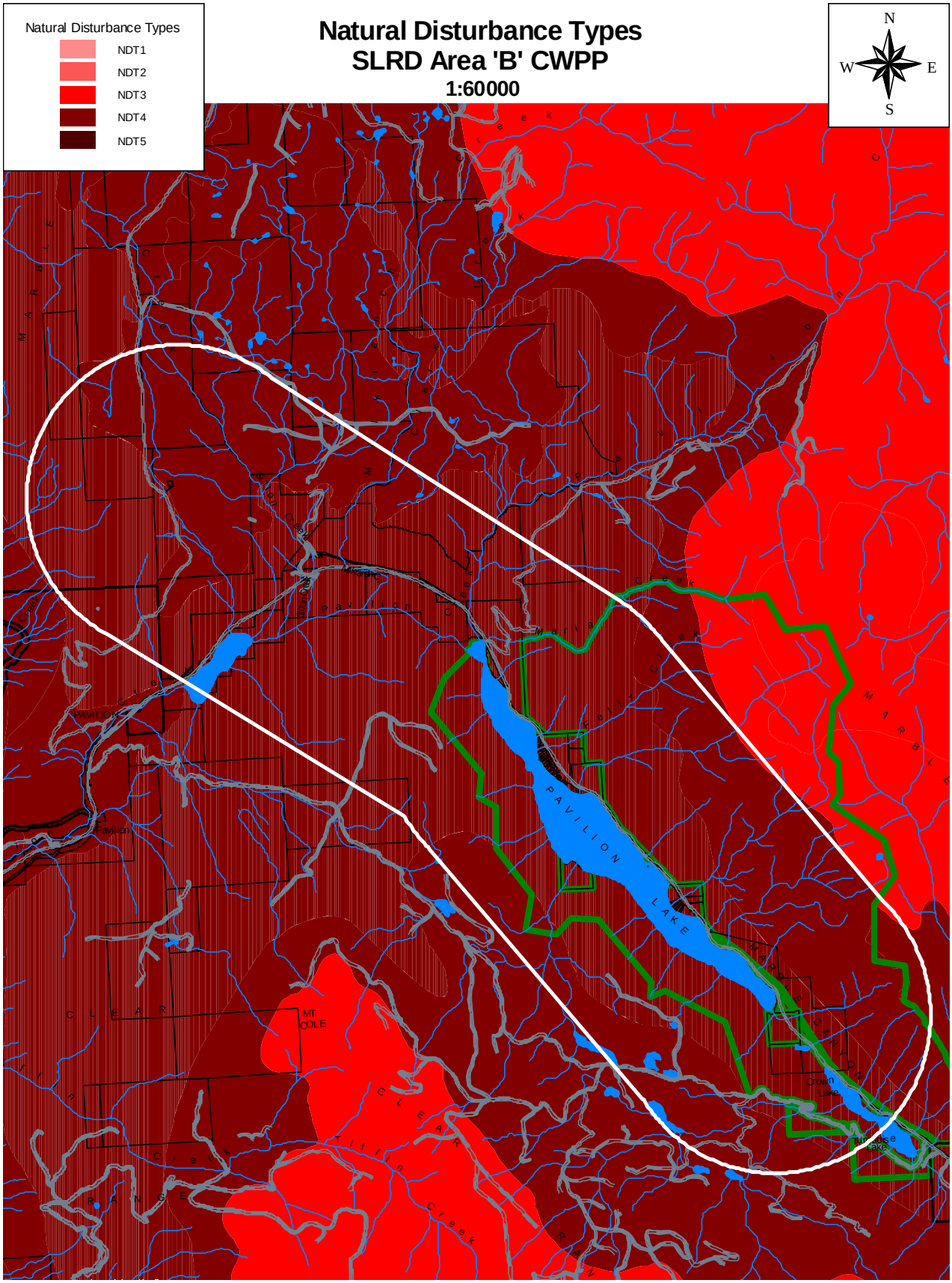

Figure 59: Natural Disturbance Types – Fountain Valley WUI Areas.

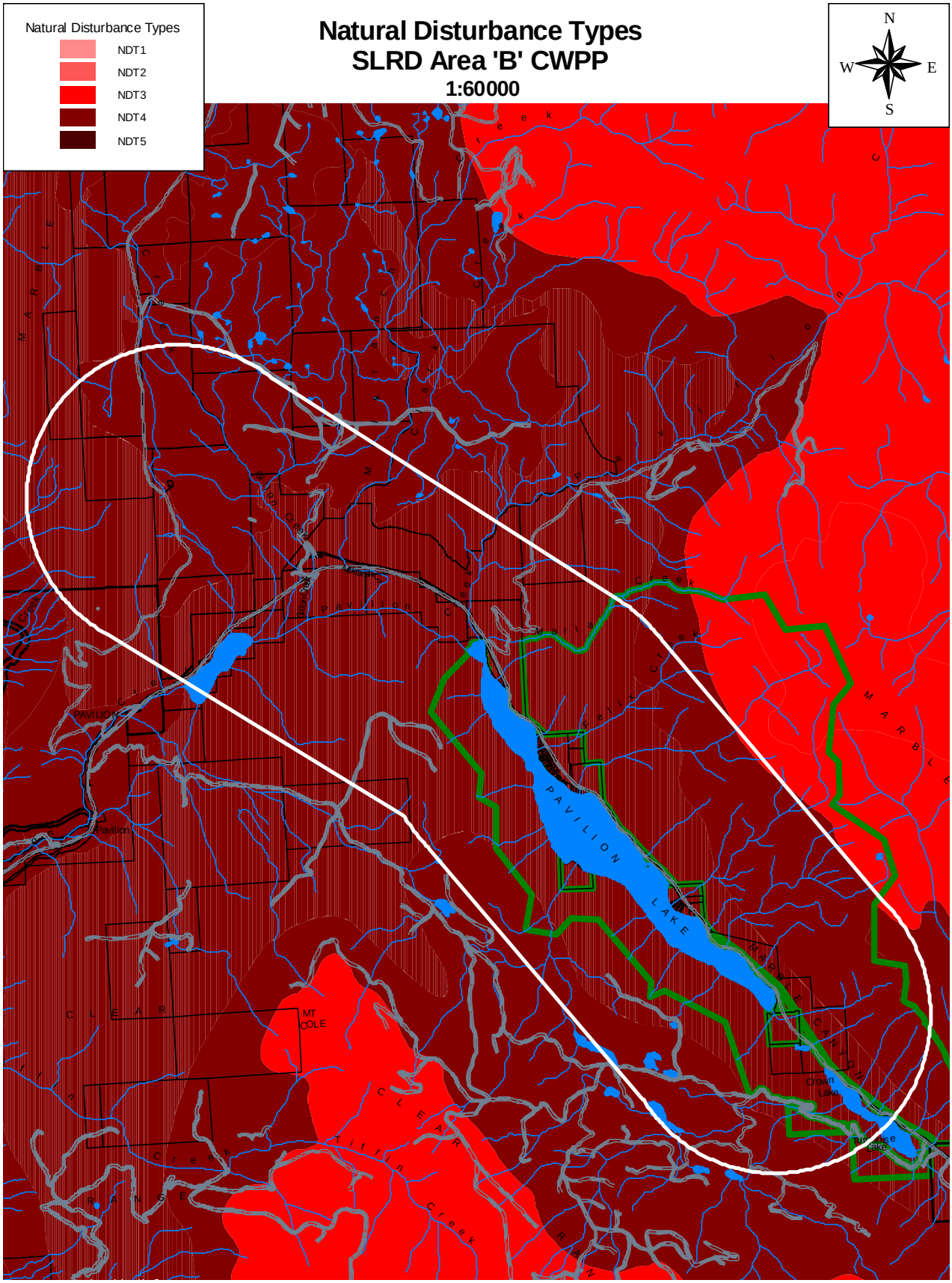

Figure 60: Natural Disturbance Types – Pavilion Lake WUI Area.

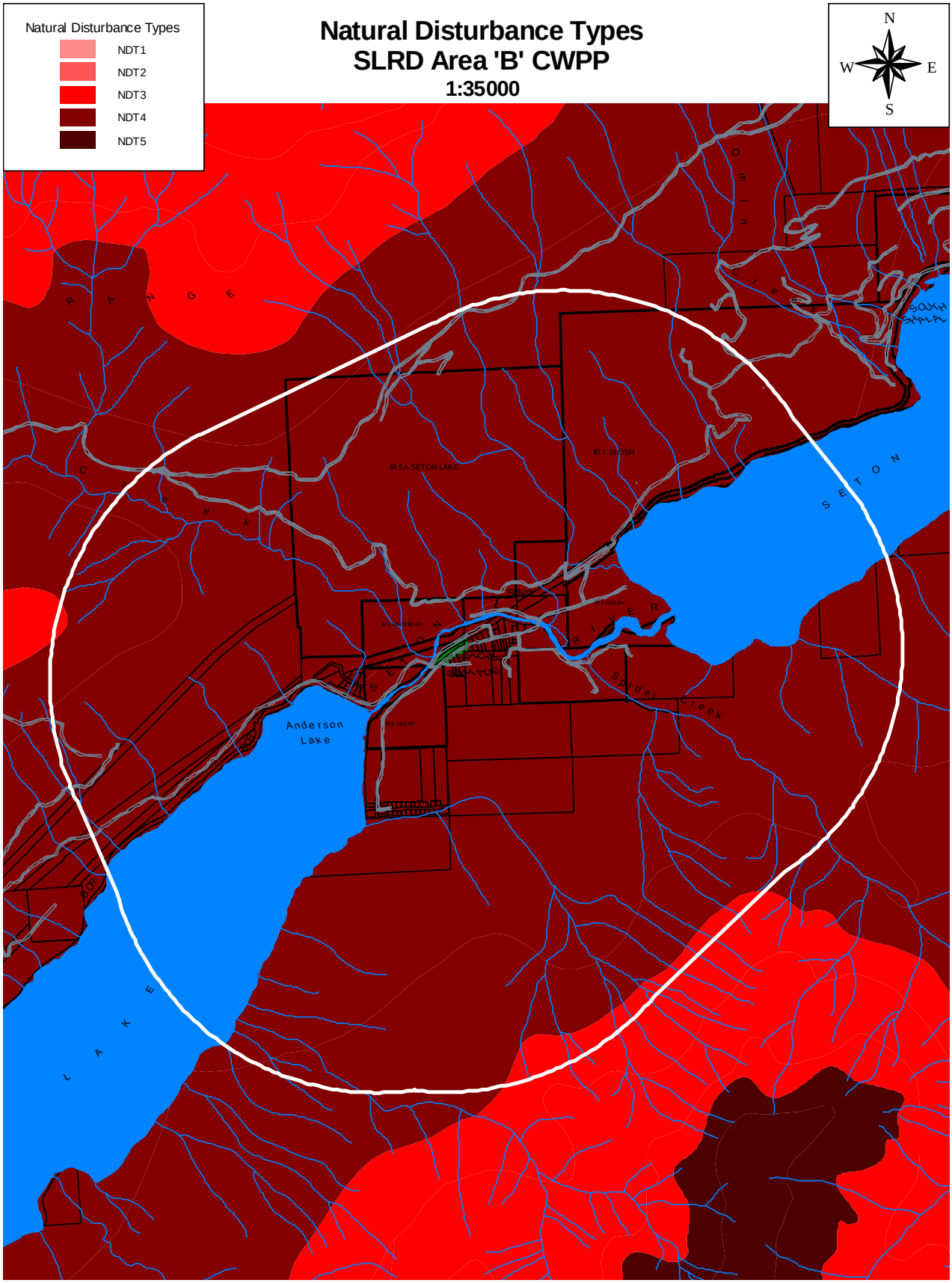

Figure 61: Natural Disturbance Types – Seton Portage WUI Area.

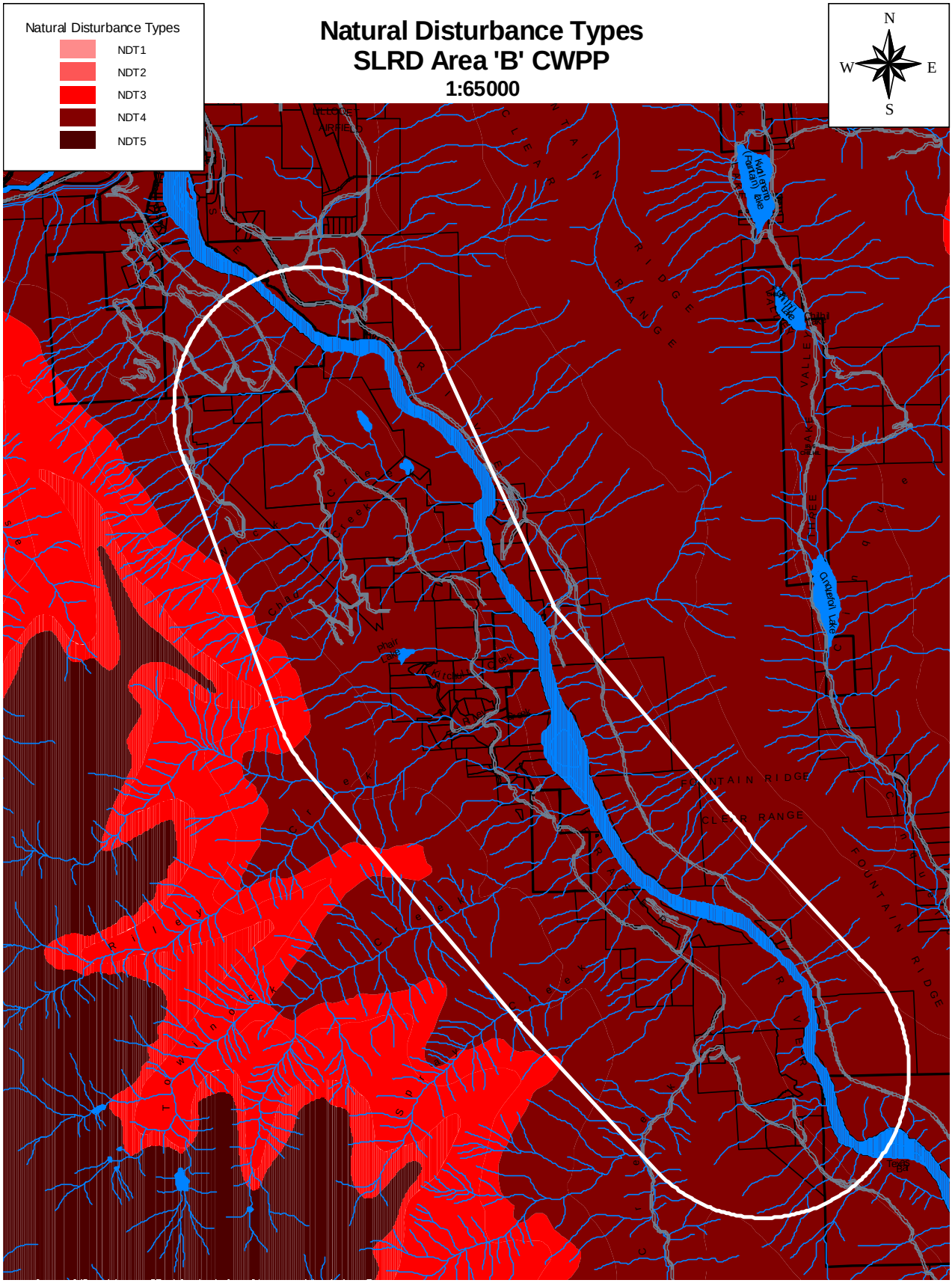

Figure 62: Natural Disturbance Types – Texas Creek WUI Area.

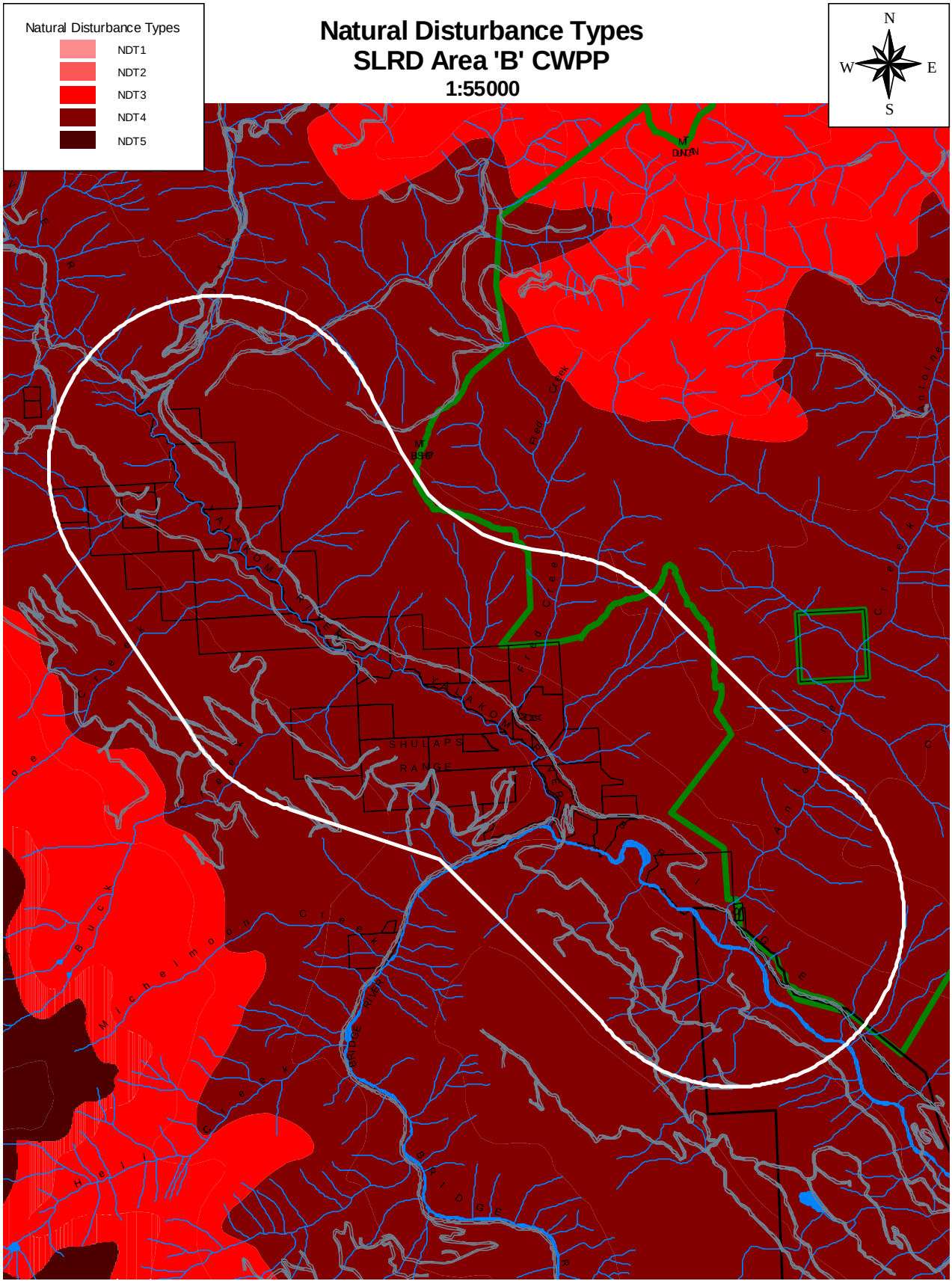

Figure 63: Natural Disturbance Types – Yalakom Valley WUI Area.

9.3 Pine Susceptibility & Area of Attack/Killed Pine for MPB within the SLRD Electoral Area 'B' WUI Areas

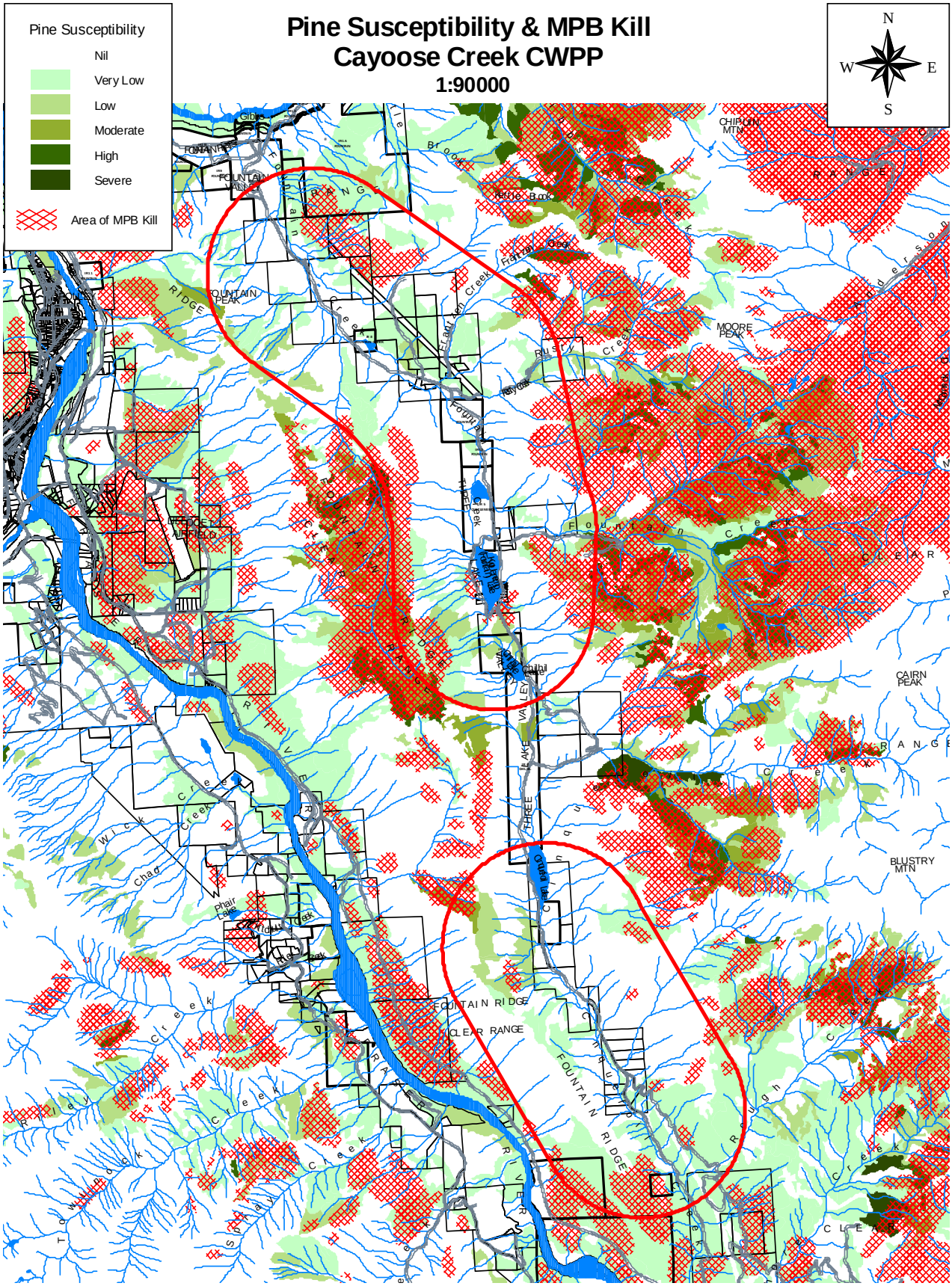

Figure 64: Pine Susceptibility & Area of Attack/Killed Pine for MPB – Fountain Valley WUI Areas.

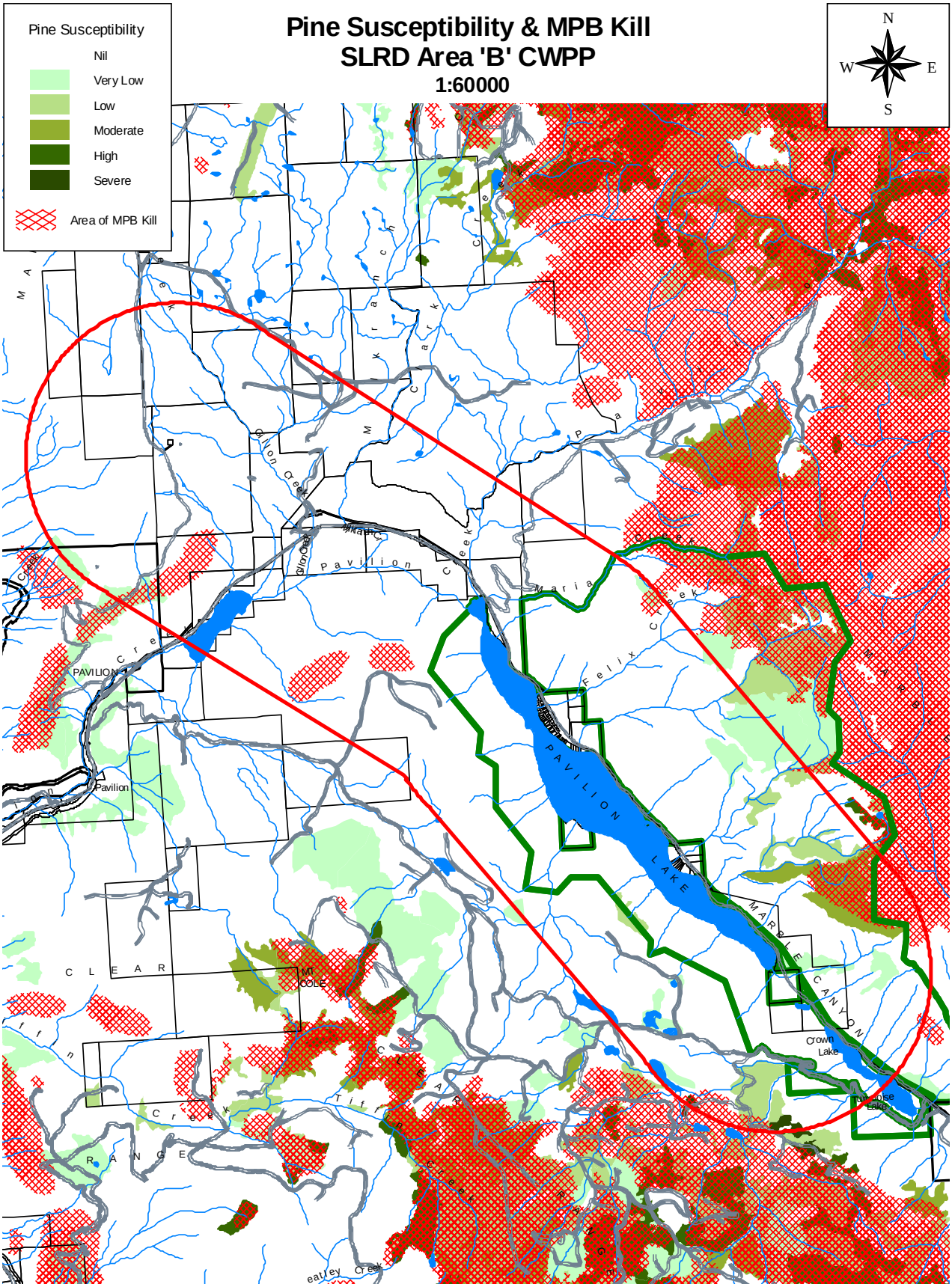

Figure 65: Pine Susceptibility & Area of Attack/Killed Pine for MPB – Pavilion Lake WUI Area.

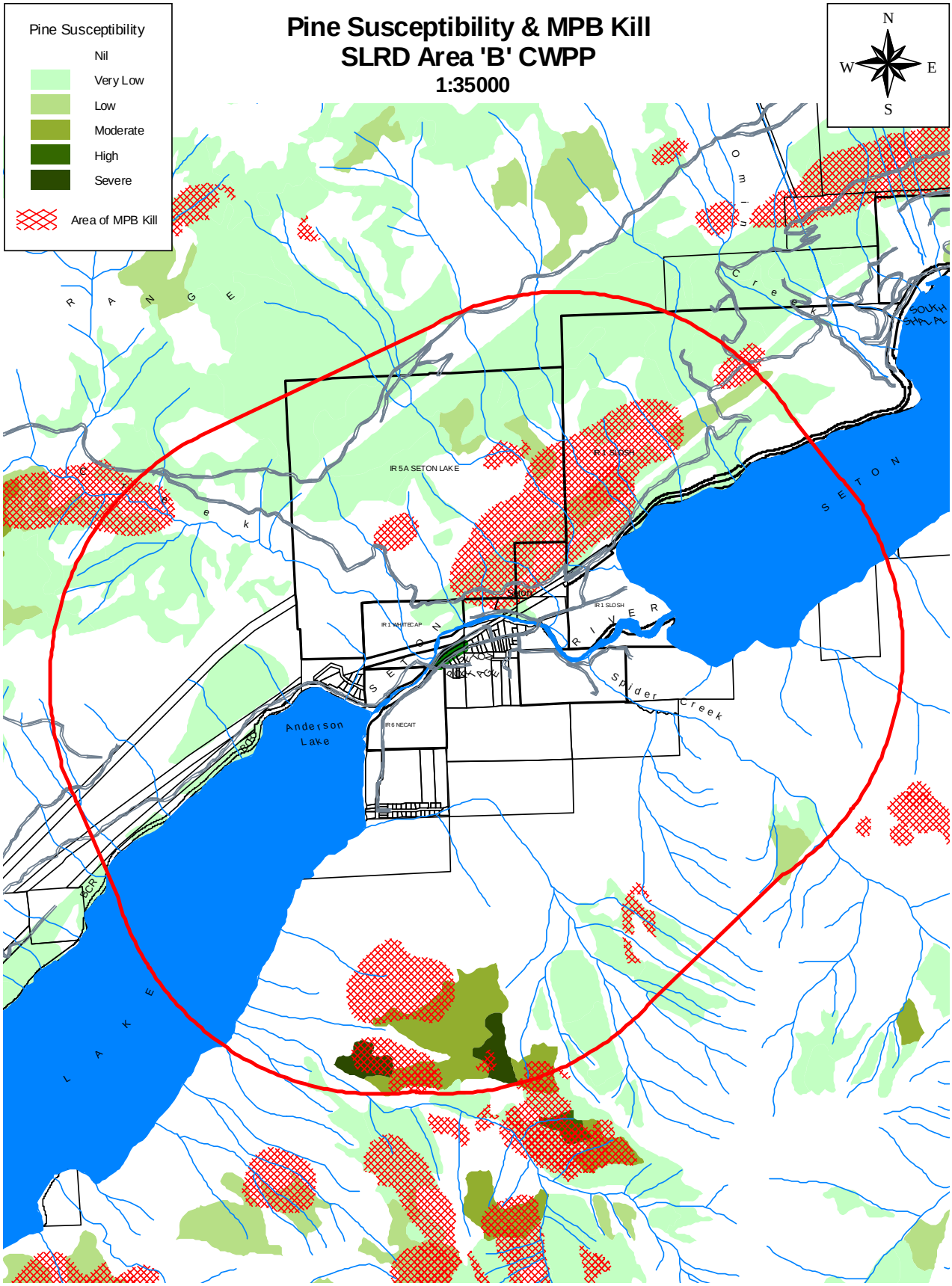

Figure 66: Pine Susceptibility & Area of Attack/Killed Pine for MPB – Seton Portage WUI Area.

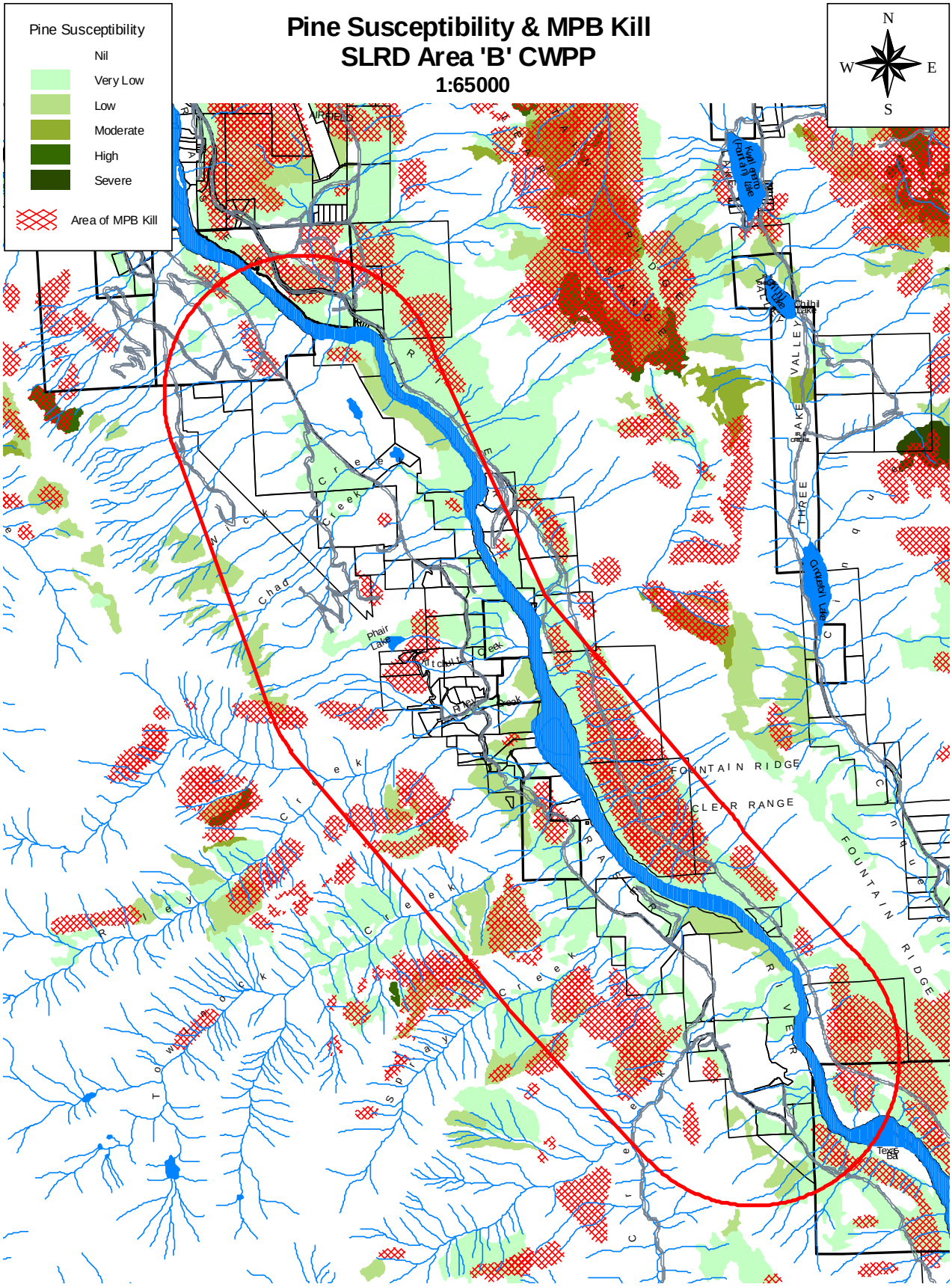

Figure 67: Pine Susceptibility & Area of Attack/Killed Pine for MPB – Texas Creek WUI Area.

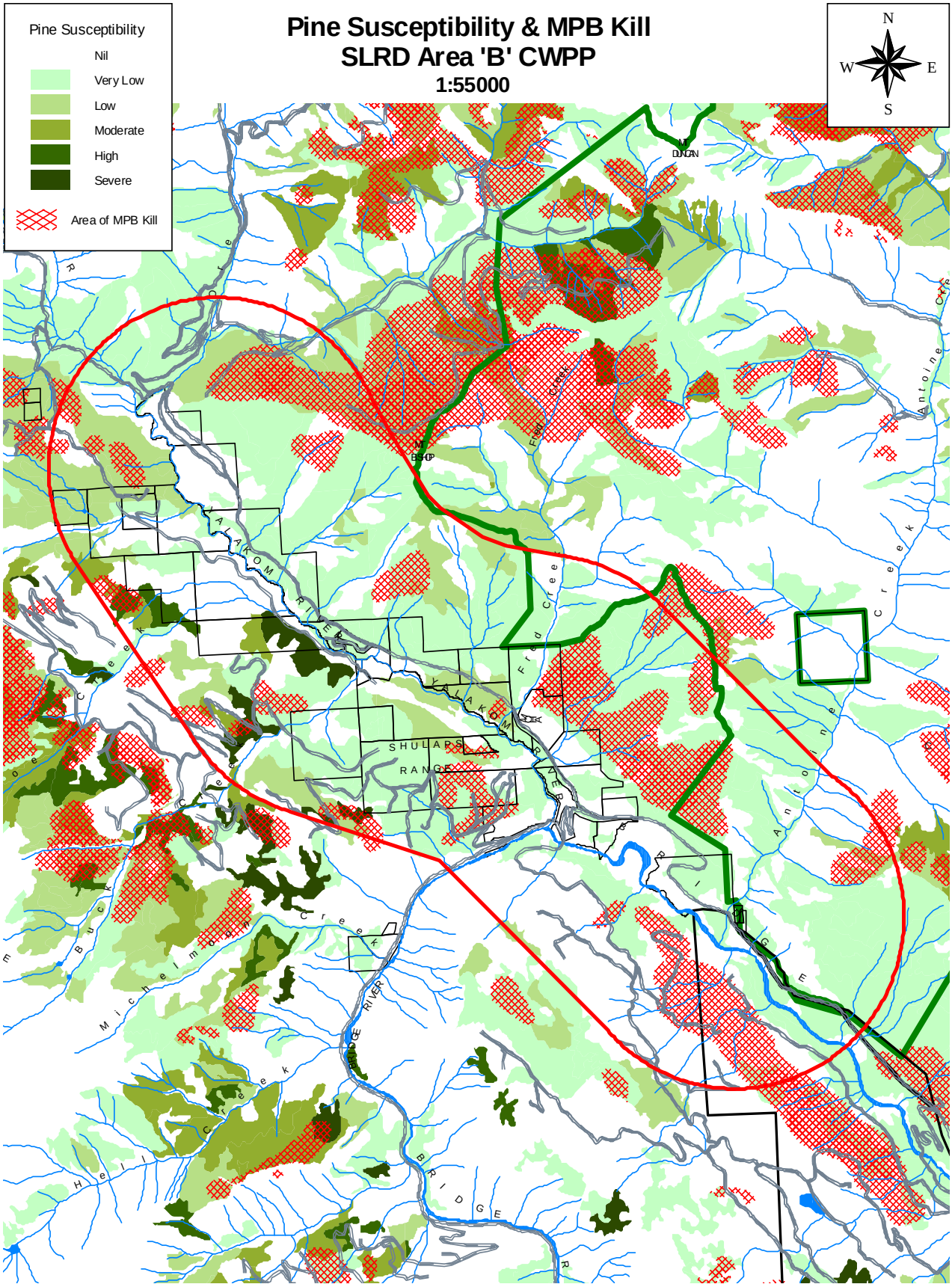

Figure 68: Pine Susceptibility & Area of Attack/Killed Pine for MPB – Yalakom Valley WUI Area.

9.4 Wildland Urban Interface Wildfire Threat Summary – Individual Plot Results

9.4.1 Fountain Valley WUI Areas

Wildland Urban Interface Wildfire Threat Assessment Worksheet Summary

SLRD Area B - CWPP Update 2015 - Fountain Valley

October 6, 8, 9 & November 12, 2015

	Wildfire Threat Component	SLRD Fountain Valley Threat Plot Numbers										
		39	40	41	45	46	47	48	55	56	57	58
1	Duff depth and moisture regime	3	3	3	3	5	3	5	5	3	5	3
2	Surface fuels continuity (% cover)	5	4	5	5	5	3	5	5	5	5	5
3	Vegetation fuel composition	5	5	5	5	4	5	4	5	4	4	4
4	Fine woody debris continuity	5	5	5	15	5	7	7	5	5	5	5
5	Large woody debris continuity	2	1	2	2	2	2	2	2	2	2	2
6	Live and dead coniferous crown closure	10	10	15	15	15	15	10	10	10	15	15
7	Live deciduous crown closure	5	5	5	5	5	5	0	5	5	5	5
8	Live and dead coniferous crown base height	15	15	15	15	15	15	15	15	15	15	15
9	Live and dead suppressed & understory conifers	2	2	5	2	2	5	5	5	10	10	10
10	Forest Health (% of dom and co-dom)	5	5	5	5	5	5	5	5	5	5	5
11	Continuous forest/slash cover within 2km	7	10	10	10	7	10	7	10	10	10	10
	Sub Total Fuel	**64**	**65**	**75**	**82**	**70**	**75**	**65**	**72**	**74**	**81**	**79**
12	Biogeoclimatic Zone	15	15	15	15	15	15	15	15	15	15	15
13	Historical Wildfire Occurance	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Weather	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
14	Aspect	12	12	5	12	5	12	5	12	12	12	12
15	Slope	12	15	12	10	12	12	5	15	15	5	5
16	Terrain	7	7	10	7	10	5	10	10	7	5	7
17	Landscape/topographic limitations to wildfire spread	15	10	10	15	15	15	15	15	10	10	10
	Sub Total Topography	**46**	**44**	**37**	**44**	**42**	**44**	**35**	**52**	**44**	**32**	**34**
	Wildfire Behavior Threat Score	**135**	**134**	**137**	**151**	**137**	**144**	**125**	**149**	**143**	**138**	**138**
	Wildfire Behaviour Threat Class	**H**	**H**	**H**	**E**	**H**	**H**	**H**	**E**	**H**	**H**	**H**
18	Position of Structure/Community on slope	10	12	10	10	10	10	10	10	10	10	10
19	Type of Development	10	10	10	10	8	10	10	8	10	10	10
20	Position of assessment area relative to values	10	12	10	10	1	1	10	12	20	20	10
	WUI Wildfire Threat Score	**30**	**34**	**30**	**30**	**19**	**21**	**30**	**30**	**40**	**40**	**30**
	WUI Wildfire Threat Class	**H**	**H**	**H**	**H**	**M**	**M**	**H**	**H**	**E**	**E**	**H**
	Total Wildfire Threat Score	**165**	**168**	**167**	**181**	**156**	**165**	**155**	**179**	**183**	**178**	**168**

Wildfire Behaviour Threat Class		Wildland Urban Interface Threat Class	
Low	0-40	Low	0-13
Moderate	41-95	Moderate	14-26
High	96-149	High	27-39
Extreme	>149	Extreme	>39

Wildland Urban Interface Wildfire Threat Assessment Worksheet Summary

SLRD Area B - CWPP Update 2015 - Fountain Valley

October 6, 8, 9 & November 12, 2015

	Wildfire Threat Component	SLRD Fountain Valley Threat Plot Numbers										
		59	60	61	62	63	64	65	66	67	68	69
1	Duff depth and moisture regime	5	5	3	5	3	3	3	5	3	3	5
2	Surface fuels continuity (% cover)	5	5	5	5	5	4	5	5	5	5	5
3	Vegetation fuel composition	4	4	4	4	4	5	4	2	4	5	4
4	Fine woody debris continuity	5	7	5	5	5	5	5	5	7	5	5
5	Large woody debris continuity	2	5	2	2	2	2	2	2	2	2	2
6	Live and dead coniferous crown closure	10	10	15	15	15	10	10	10	15	15	15
7	Live deciduous crown closure	0	5	5	5	5	0	5	5	5	5	5
8	Live and dead coniferous crown base height	15	15	15	15	15	15	15	15	15	15	15
9	Live and dead suppressed & understory conifers	30	10	2	30	2	2	2	10	10	2	2
10	Forest Health (% of dom and co-dom)	5	5	5	0	5	5	5	0	5	5	5
11	Continuous forest/slash cover within 2km	10	10	7	10	10	7	10	7	10	7	7
	Sub Total Fuel	**91**	**81**	**68**	**96**	**71**	**58**	**66**	**66**	**81**	**69**	**70**
12	Biogeoclimatic Zone	15	15	15	15	15	15	15	15	15	15	15
13	Historical Wildfire Occurance	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Weather	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
14	Aspect	5	5	5	10	15	12	12	12	0	10	10
15	Slope	5	10	5	1	15	15	12	5	5	1	1
16	Terrain	7	5	7	3	7	7	7	7	7	3	7
17	Landscape/topographic limitations to wildfire spread	15	15	10	10	10	10	10	10	15	15	10
	Sub Total Topography	**32**	**35**	**27**	**24**	**47**	**44**	**41**	**34**	**27**	**29**	**28**
	Wildfire Behavior Threat Score	**148**	**141**	**120**	**145**	**143**	**127**	**132**	**125**	**133**	**123**	**123**
	Wildfire Behaviour Threat Class	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**
18	Position of Structure/Community on slope	10	10	10	10	10	10	12	10	10	12	10
19	Type of Development	10	10	10	8	10	10	10	10	10	10	10
20	Position of assessment area relative to values	10	10	12	10	10	10	12	10	10	12	10
	WUI Wildfire Threat Score	**30**	**30**	**32**	**28**	**30**	**30**	**34**	**30**	**30**	**34**	**30**
	WUI Wildfire Threat Class	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**
	Total Wildfire Threat Score	**178**	**171**	**152**	**173**	**173**	**157**	**166**	**155**	**163**	**157**	**153**

Wildfire Behaviour Threat Class	
Low	0-40
Moderate	41-95
High	96-149
Extreme	>149

Wildland Urban Interface Threat Class	
Low	0-13
Moderate	14-26
High	27-39
Extreme	>39

9.4.2 Pavilion Lake WUI Area

Wildland Urban Interface Wildfire Threat Assessment Worksheet Summary

SLRD Area B - CWPP Update 2015 - Pavilion Lake

July 24, 2015 & February 2, 2016

	Wildfire Threat Component	Pavilion Lake Threat Plot Numbers										
		16	17	18	19	20	21	22	23	24	25	26
1	Duff depth and moisture regime	3	3	3	3	3	3	3	5	5	3	5
2	Surface fuels continuity (% cover)	3	2	3	2	2	2	3	5	5	5	5
3	Vegetation fuel composition	5	4	5	5	5	5	5	5	4	5	4
4	Fine woody debris continuity	5	5	7	5	5	1	5	5	5	5	7
5	Large woody debris continuity	1	1	1	1	1	1	2	2	1	1	2
6	Live and dead coniferous crown closure	2	2	10	5	2	5	5	5	15	5	15
7	Live deciduous crown closure	0	0	5	0	0	0	0	0	5	0	5
8	Live and dead coniferous crown base height	0	0	15	15	0	15	15	15	15	15	15
9	Live and dead suppressed & understory conifers	2	2	2	2	2	2	2	2	2	2	2
10	Forest Health (% of dom and co-dom)	0	0	0	0	30	5	0	5	5	5	0
11	Continuous forest/slash cover within 2km	10	10	10	10	10	10	10	10	10	10	5
	Sub Total Fuel	**31**	**29**	**61**	**48**	**60**	**49**	**50**	**59**	**72**	**56**	**65**
12	Biogeoclimatic Zone	15	15	15	15	15	15	15	15	15	15	15
13	Historical Wildfire Occurance	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Weather	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
14	Aspect	15	12	15	15	12	12	12	0	12	12	5
15	Slope	15	15	10	15	15	12	15	15	15	12	5
16	Terrain	10	10	10	10	10	10	10	10	10	10	5
17	Landscape/topographic limitations to wildfire spread	10	10	10	10	10	10	10	10	10	10	15
	Sub Total Topography	**50**	**47**	**45**	**50**	**47**	**44**	**47**	**35**	**47**	**44**	**30**
	Wildfire Behavior Threat Score	**106**	**101**	**131**	**123**	**132**	**118**	**122**	**119**	**144**	**125**	**120**
	Wildfire Behaviour Threat Class	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**
18	Position of Structure/Community on slope	5	5	12	12	5	5	5	5	5	5	10
19	Type of Development	10	10	8	10	8	8	8	8	8	8	10
20	Position of assessment area relative to values	20	20	25	25	20	20	20	20	20	20	10
	WUI Wildfire Threat Score	**35**	**35**	**45**	**47**	**33**	**33**	**33**	**33**	**33**	**33**	**30**
	WUI Wildfire Threat Class	**II**	**II**	**E**	**E**	**II**	**II**	**II**	**II**	**II**	**II**	**II**
	Total Wildfire Threat Score	**141**	**136**	**176**	**170**	**165**	**151**	**155**	**152**	**177**	**158**	**150**

Wildfire Behaviour Threat Class	
Low	0-40
Moderate	41-95
High	96-149
Extreme	>149

Wildland Urban Interface Threat Class	
Low	0-13
Moderate	14-26
High	27-39
Extreme	>39

9.4.3 Seton Portage WUI Area

Wildland Urban Interface Wildfire Threat Assessment Worksheet Summary

SLRD Area B - CWPP Update 2015 - Seton Portage

August 7 & 13, 2015

	Wildfire Threat Component	Seton Portage Threat Plot Numbers *										
		9	10	11	14	15	16	17	18	21	22	23
1	Duff depth and moisture regime	12	10	3	3	3	10	10	12	5	3	5
2	Surface fuels continuity (% cover)	5	5	5	5	5	5	5	5	3	0	5
3	Vegetation fuel composition	2	2	2	2	2	2	3	2	2	5	3
4	Fine woody debris continuity	5	5	15	5	7	7	15	15	5	5	7
5	Large woody debris continuity	1	2	1	2	5	5	2	2	1	1	1
6	Live and dead coniferous crown closure	10	15	10	2	2	2	15	15	2	2	15
7	Live deciduous crown closure	5	5	5	0	0	0	5	5	0	0	5
8	Live and dead coniferous crown base height	10	15	10	0	0	0	10	15	0	0	15
9	Live and dead suppressed & understory conifers	5	2	2	30	2	5	2	2	2	2	2
10	Forest Health (% of dom and co-dom)	0	5	0	30	30	0	0	10	0	0	0
11	Continuous forest/slash cover within 2km	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Fuel	**65**	**76**	**63**	**89**	**66**	**46**	**77**	**93**	**30**	**28**	**68**
12	Biogeoclimatic Zone	15	15	15	15	15	15	15	15	15	15	15
13	Historical Wildfire Occurance	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Weather	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
14	Aspect	12	5	10	10	10	0	12	0	10	12	15
15	Slope	5	12	1	1	1	5	10	5	5	15	12
16	Terrain	5	10	3	3	3	5	5	7	7	10	7
17	Landscape/topographic limitations to wildfire spread	5	5	5	5	5	5	5	5	5	5	5
	Sub Total Topography	**27**	**32**	**19**	**19**	**19**	**15**	**32**	**17**	**27**	**42**	**39**
	Wildfire Behavior Threat Score	**117**	**133**	**107**	**133**	**110**	**86**	**134**	**135**	**82**	**95**	**132**
	Wildfire Behaviour Threat Class	**H**	**H**	**H**	**H**	**H**	**M**	**M**	**H**	**M**	**M**	**H**
18	Position of Structure/Community on slope	12	5	5	5	5	12	12	15	12	10	5
19	Type of Development	10	10	10	10	10	10	10	10	10	8	10
20	Position of assessment area relative to values	25	20	20	10	10	12	25	20	20	20	10
	WUI Wildfire Threat Score	**47**	**35**	**35**	**25**	**25**	**34**	**47**	**45**	**42**	**38**	**25**
	WUI Wildfire Threat Class	**E**	**H**	**H**	**M**	**M**	**H**	**E**	**E**	**E**	**H**	**M**
	Total Wildfire Threat Score	**164**	**168**	**142**	**158**	**135**	**120**	**181**	**180**	**124**	**133**	**157**

Wildfire Behaviour Threat Class		Wildland Urban Interface Threat Class	
Low	0-40	Low	0-13
Moderate	41-95	Moderate	14-26
High	96-149	High	27-39
Extreme	>149	Extreme	>39

*** Wildfire Threat Plot data from the Seton Lake Indian Band - CWPP 2016.**

9.4.4 Texas Creek WUI Area

Wildland Urban Interface Wildfire Threat Assessment Worksheet Summary

SLRD Area B - CWPP Update 2015 - Texas Creek

September 4, 9 & 10, 2015

	Wildfire Threat Component	Texas Creek Threat Plot Numbers										
		13	14	15	17	18	19	20	21	22	23	24
1	Duff depth and moisture regime	3	2	3	3	5	5	5	3	5	5	5
2	Surface fuels continuity (% cover)	5	5	5	5	5	5	5	4	5	5	5
3	Vegetation fuel composition	5	2	5	5	2	5	2	2	5	5	5
4	Fine woody debris continuity	7	15	7	5	5	10	7	5	5	5	5
5	Large woody debris continuity	2	1	2	2	2	1	2	2	2	2	1
6	Live and dead coniferous crown closure	15	2	15	10	10	10	15	10	5	10	10
7	Live deciduous crown closure	5	0	5	5	5	5	5	5	0	5	5
8	Live and dead coniferous crown base height	15	0	15	15	10	10	15	15	15	15	15
9	Live and dead suppressed & understory conifers	2	2	5	2	2	2	2	2	2	2	2
10	Forest Health (% of dom and co-dom)	0	0	0	0	0	10	5	0	0	5	0
11	Continuous forest/slash cover within 2km	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Fuel	**69**	**39**	**72**	**62**	**56**	**73**	**73**	**58**	**54**	**69**	**63**
12	Biogeoclimatic Zone	15	5	15	15	15	15	15	15	15	15	15
13	Historical Wildfire Occurance	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Weather	**25**	**15**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
14	Aspect	15	10	15	5	5	5	5	5	5	5	5
15	Slope	15	1	15	15	15	15	15	15	12	12	5
16	Terrain	5	3	10	5	5	7	5	5	7	5	7
17	Landscape/topographic limitations to wildfire spread	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Topography	**45**	**24**	**50**	**35**	**35**	**37**	**35**	**35**	**34**	**32**	**27**
	Wildfire Behavior Threat Score	**139**	**78**	**147**	**122**	**116**	**135**	**133**	**118**	**113**	**126**	**115**
	Wildfire Behaviour Threat Class	**H**	**M**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**
18	Position of Structure/Community on slope	12	12	12	10	10	12	12	10	12	10	10
19	Type of Development	10	10	10	8	8	10	10	10	10	10	10
20	Position of assessment area relative to values	25	25	25	10	20	12	20	10	15	10	10
	WUI Wildfire Threat Score	**47**	**47**	**47**	**28**	**38**	**34**	**42**	**30**	**37**	**30**	**30**
	WUI Wildfire Threat Class	**E**	**E**	**E**	**H**	**H**	**H**	**E**	**H**	**H**	**H**	**H**
	Total Wildfire Threat Score	**186**	**125**	**194**	**150**	**154**	**169**	**175**	**148**	**150**	**156**	**145**

Wildfire Behaviour Threat Class		Wildland Urban Interface Threat Class	
Low	0-40	Low	0-13
Moderate	41-95	Moderate	14-26
High	96-149	High	27-39
Extreme	>149	Extreme	>39

Wildland Urban Interface Wildfire Threat Assessment Worksheet Summary

SLRD Area B - CWPP Update 2015 - Texas Creek

September 4, 9 & 10, 2015

	Wildfire Threat Component	Texas Creek Threat Plot Numbers									
		25	26	27	28	29	30	31	32	33	34
1	Duff depth and moisture regime	5	5	5	3	3	3	3	10	3	5
2	Surface fuels continuity (% cover)	5	5	5	5	4	5	5	5	0	5
3	Vegetation fuel composition	4	5	5	5	5	5	5	5	5	5
4	Fine woody debris continuity	5	7	5	5	5	7	1	5	1	7
5	Large woody debris continuity	2	5	1	1	2	5	2	2	1	5
6	Live and dead coniferous crown closure	15	10	10	15	10	5	10	15	5	2
7	Live deciduous crown closure	5	5	5	5	5	0	5	5	0	0
8	Live and dead coniferous crown base height	10	15	10	15	15	10	15	10	10	0
9	Live and dead suppressed & understory conifers	5	5	2	2	2	2	2	2	2	2
10	Forest Health (% of dom and co-dom)	0	5	5	5	5	5	0	0	0	5
11	Continuous forest/slash cover within 2km	10	10	10	10	10	10	10	10	10	10
	Sub Total Fuel	**66**	**77**	**63**	**71**	**66**	**57**	**58**	**69**	**37**	**46**
12	Biogeoclimatic Zone	15	15	15	15	15	15	15	15	15	15
13	Historical Wildfire Occurance	10	10	10	10	10	10	10	10	10	10
	Sub Total Weather	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
14	Aspect	0	5	5	10	10	10	10	5	10	5
15	Slope	5	5	15	1	1	1	1	5	1	15
16	Terrain	3	3	7	3	3	3	3	5	3	10
17	Landscape/topographic limitations to wildfire spread	10	10	10	10	10	10	10	10	5	5
	Sub Total Topography	**18**	**23**	**37**	**24**	**24**	**24**	**24**	**25**	**19**	**35**
	Wildfire Behavior Threat Score	**109**	**125**	**125**	**120**	**115**	**106**	**107**	**119**	**81**	**106**
	Wildfire Behaviour Threat Class	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**M**	**H**
18	Position of Structure/Community on slope	10	10	10	10	10	10	10	10	10	10
19	Type of Development	10	10	10	10	10	10	10	10	10	10
20	Position of assessment area relative to values	10	10	30	25	25	25	25	10	25	30
	WUI Wildfire Threat Score	**30**	**30**	**50**	**45**	**45**	**45**	**45**	**30**	**45**	**50**
	WUI Wildfire Threat Class	**H**	**H**	**E**	**E**	**E**	**E**	**E**	**H**	**E**	**E**
	Total Wildfire Threat Score	**139**	**155**	**175**	**165**	**160**	**151**	**152**	**149**	**126**	**156**

Wildfire Behaviour Threat Class		Wildland Urban Interface Threat Class	
Low	0-40	Low	0-13
Moderate	41-95	Moderate	14-26
High	96-149	High	27-39
Extreme	>149	Extreme	>39

9.4.5 Yalakom WUI Area

Wildland Urban Interface Wildfire Threat Assessment Worksheet Summary

SLRD Area B - CWPP Update 2015 - Yalakom Valley

March 10, 2016

	Wildfire Threat Component	Yalakom Valley Threat Plot Numbers												
		1	2	3	4	5	7	8	9	10	11	12	13	18
1	Duff depth and moisture regime	3	3	3	3	3	5	3	3	3	10	5	3	3
2	Surface fuels continuity (% cover)	5	5	4	5	2	5	5	5	4	5	5	5	5
3	Vegetation fuel composition	2	5	5	5	4	2	4	4	2	4	4	4	2
4	Fine woody debris continuity	5	5	15	5	7	7	7	15	7	15	15	10	7
5	Large woody debris continuity	2	2	5	5	1	1	1	2	1	1	1	2	2
6	Live and dead coniferous crown closure	10	5	5	5	5	15	15	10	10	10	10	15	5
7	Live deciduous crown closure	5	0	0	0	0	5	5	5	5	5	0	5	0
8	Live and dead coniferous crown base height	15	10	7	5	15	15	15	15	15	15	15	15	10
9	Live and dead suppressed & understory conifers	2	2	2	2	2	2	5	2	2	2	2	2	2
10	Forest Health (% of dom and co-dom)	5	0	5	0	0	0	5	5	5	0	0	0	5
11	Continuous forest/slash cover within 2km	10	10	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Fuel	**64**	**47**	**61**	**45**	**49**	**67**	**75**	**76**	**64**	**77**	**67**	**71**	**51**
12	Biogeoclimatic Zone	15	15	15	15	15	15	15	15	15	15	15	15	15
13	Historical Wildfire Occurance	10	10	10	10	10	10	10	10	10	10	10	10	10
	Sub Total Weather	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
14	Aspect	0	10	12	10	12	5	5	12	0	12	0	12	0
15	Slope	5	1	10	1	15	15	10	10	5	12	5	5	5
16	Terrain	10	3	7	7	5	5	7	5	5	5	5	5	10
17	Landscape/topographic limitations to wildfire spread	5	10	10	10	10	10	10	10	10	10	15	15	10
	Sub Total Topography	**20**	**24**	**39**	**28**	**42**	**35**	**32**	**37**	**20**	**39**	**25**	**37**	**25**
	Wildfire Behavior Threat Score	**109**	**96**	**125**	**98**	**116**	**127**	**132**	**138**	**109**	**141**	**117**	**133**	**101**
	Wildfire Behaviour Threat Class	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**	**H**
18	Position of Structure/Community on slope	12	10	10	10	12	5	10	10	10	5	10	10	10
19	Type of Development	10	10	20	10	10	10	10	10	10	10	10	10	30
20	Position of assessment area relative to values	25	25	8	20	20	20	10	10	12	20	20	10	10
	WUI Wildfire Threat Score	**47**	**45**	**38**	**40**	**42**	**35**	**30**	**30**	**32**	**35**	**40**	**30**	**50**
	WUI Wildfire Threat Class	**E**	**E**	**H**	**E**	**E**	**H**	**H**	**H**	**H**	**H**	**E**	**H**	**E**
	Total Wildfire Threat Score	**156**	**141**	**163**	**138**	**158**	**162**	**162**	**168**	**141**	**176**	**157**	**163**	**151**

Wildfire Behaviour Threat Class		**Wildland Urban Interface Threat Class**	
Low	0-40	Low	0-13
Moderate	41-95	Moderate	14-26
High	96-149	High	27-39
Extreme	>149	Extreme	>39

9.5 Provincial Strategic Threat Analysis (PSTA) Mapping SLRD – Electoral Area 'B' CWPP – WUI Overview Maps

9.5.1 Fountain Valley WUI Areas

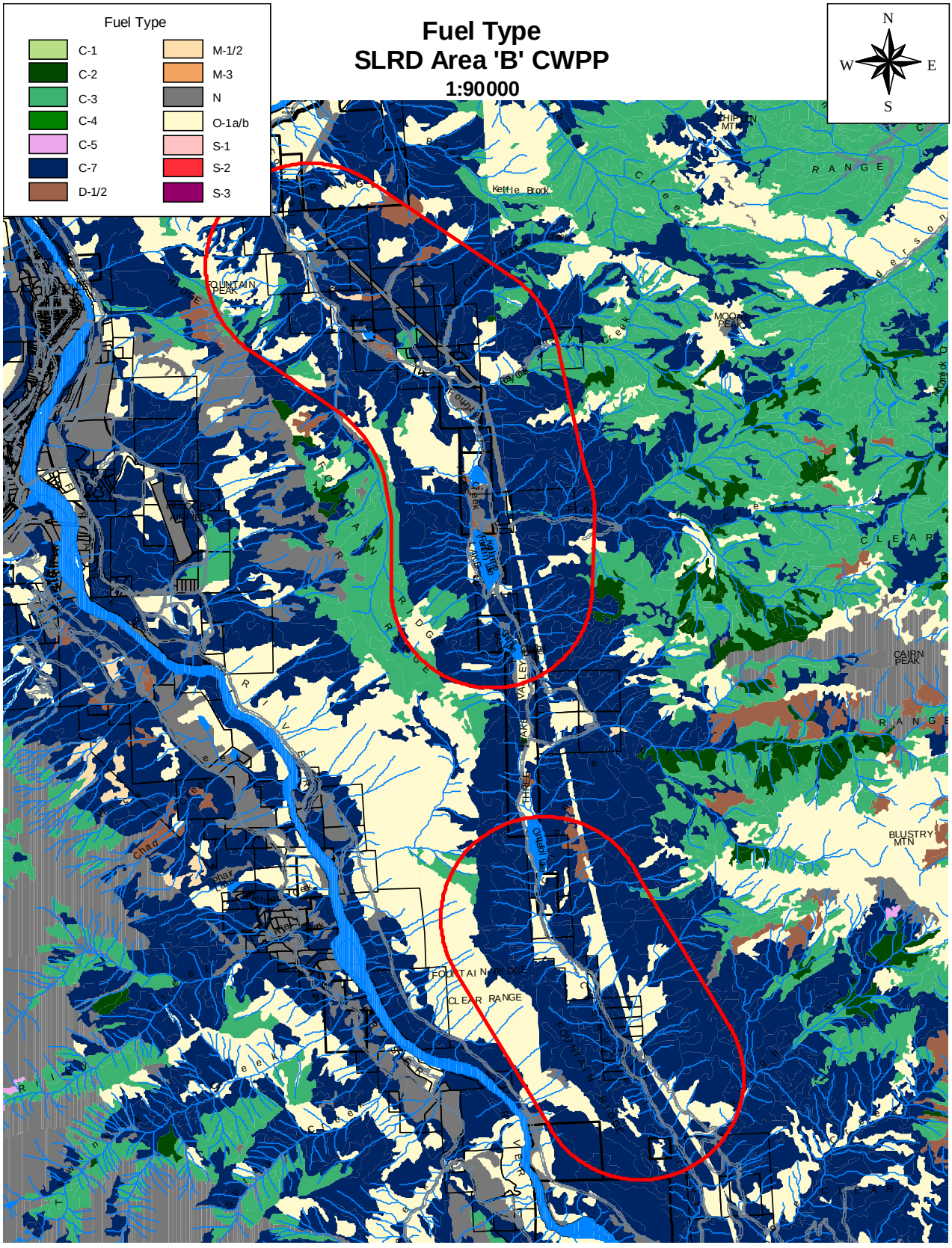

Figure 69: PSTA Mapping – Fuel Type: Fountain Valley WUI Areas.

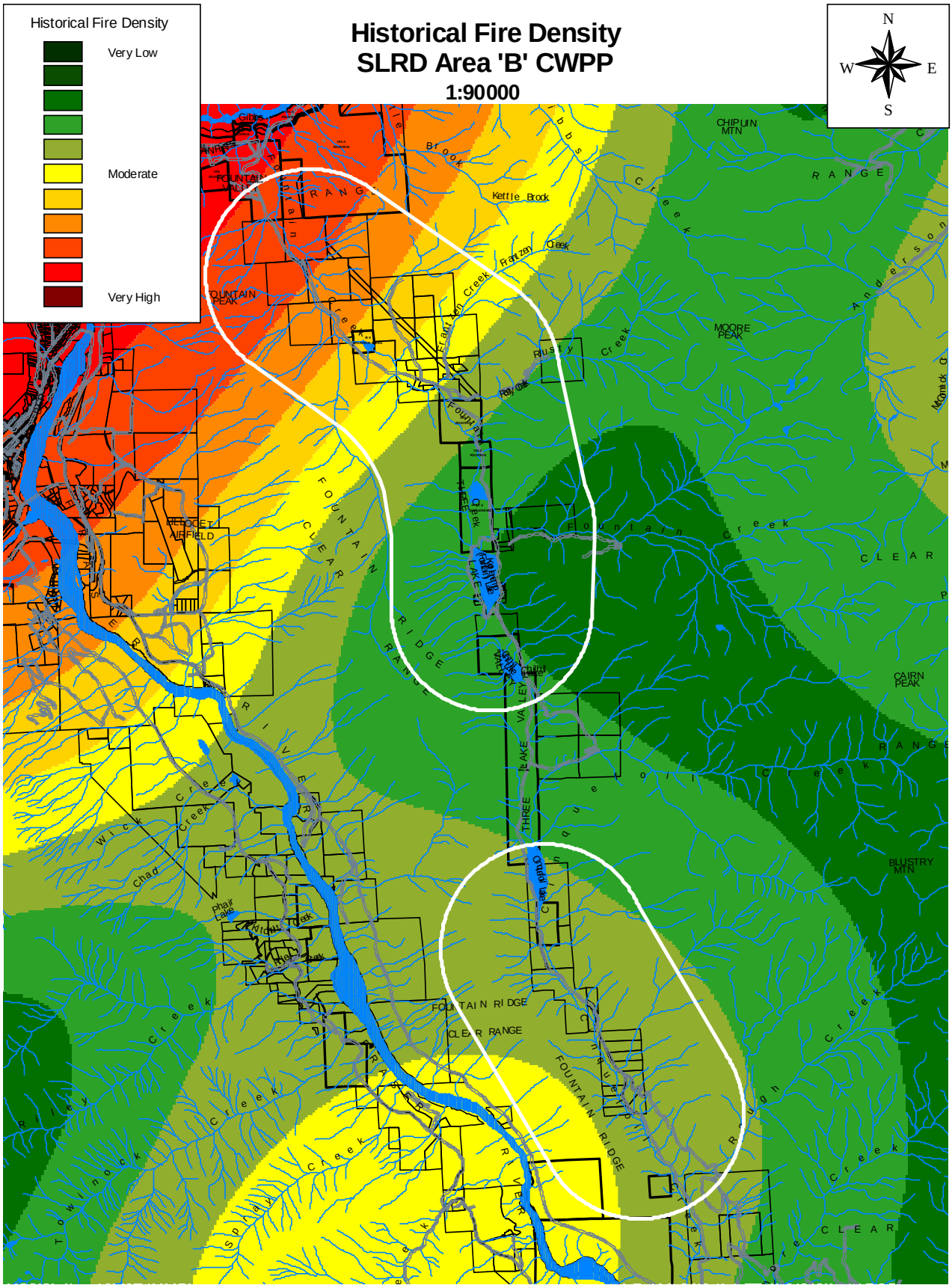

Figure 70: PSTA Mapping – Historical Fire Density: Fountain Valley WUI Areas.

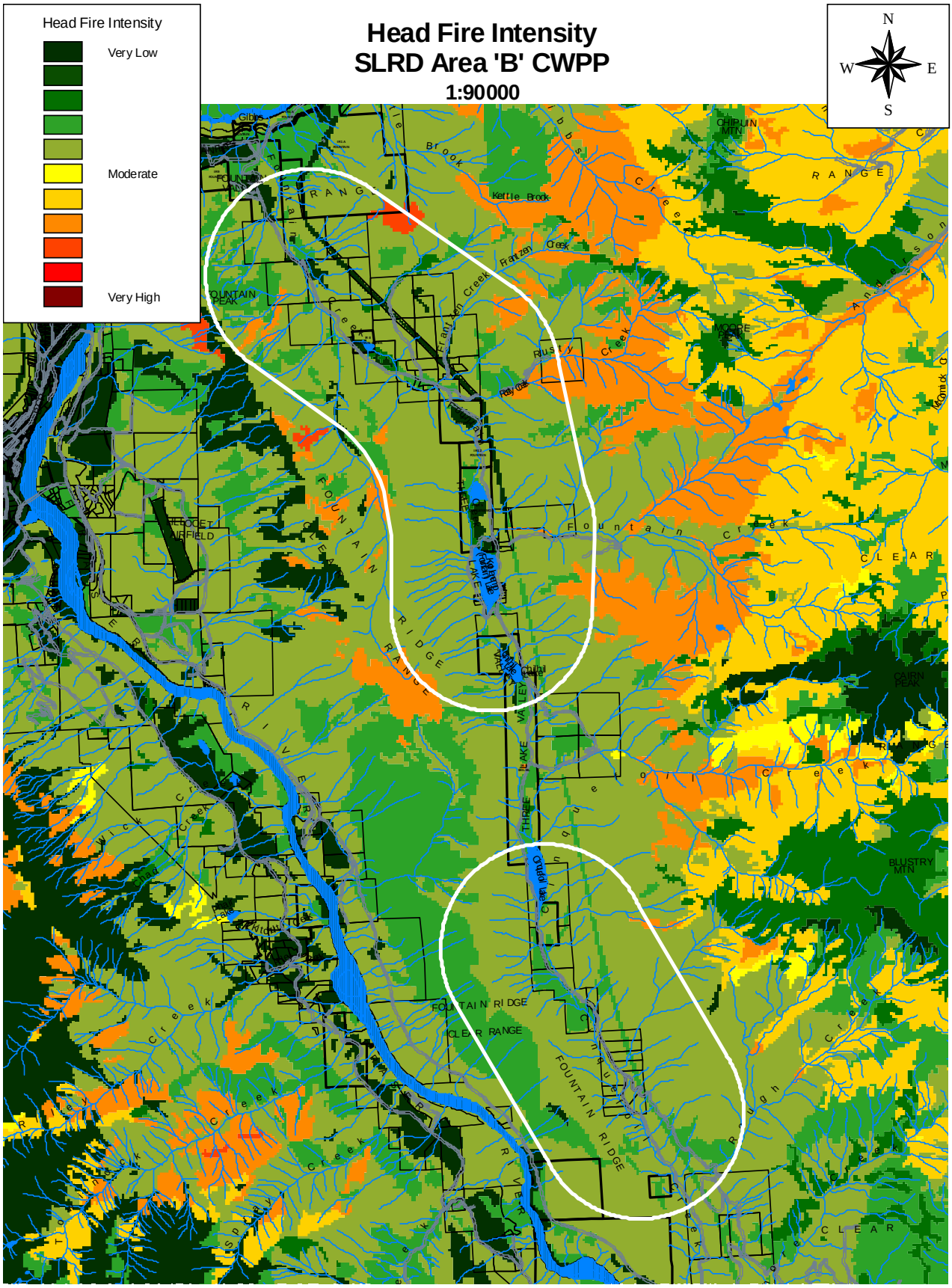

Figure 71: PSTA Mapping – Head Fire Intensity: Fountain Valley WUI Areas.

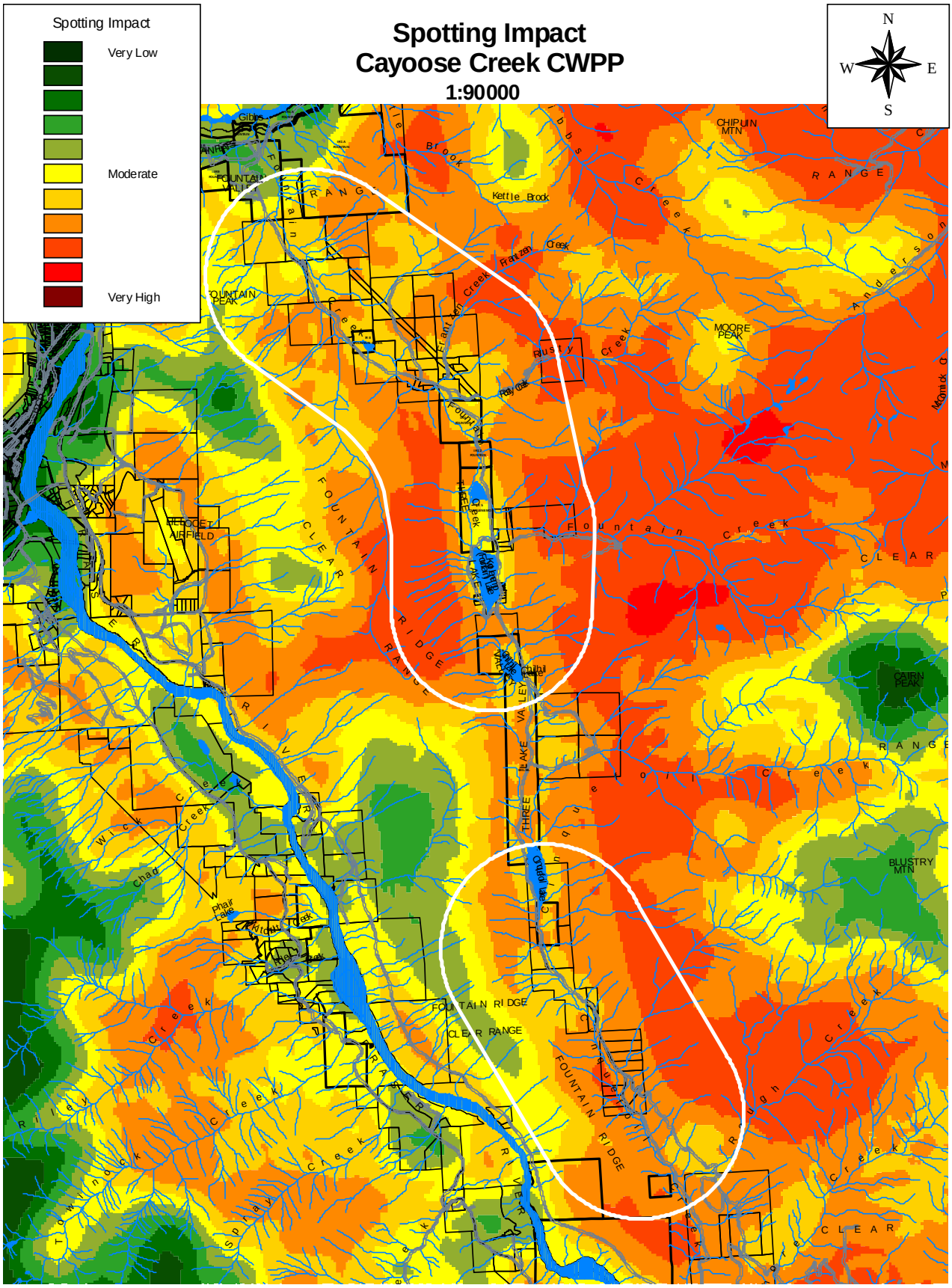

Figure 72: PSTA Mapping – Spotting Impact: Fountain Valley WUI Areas.

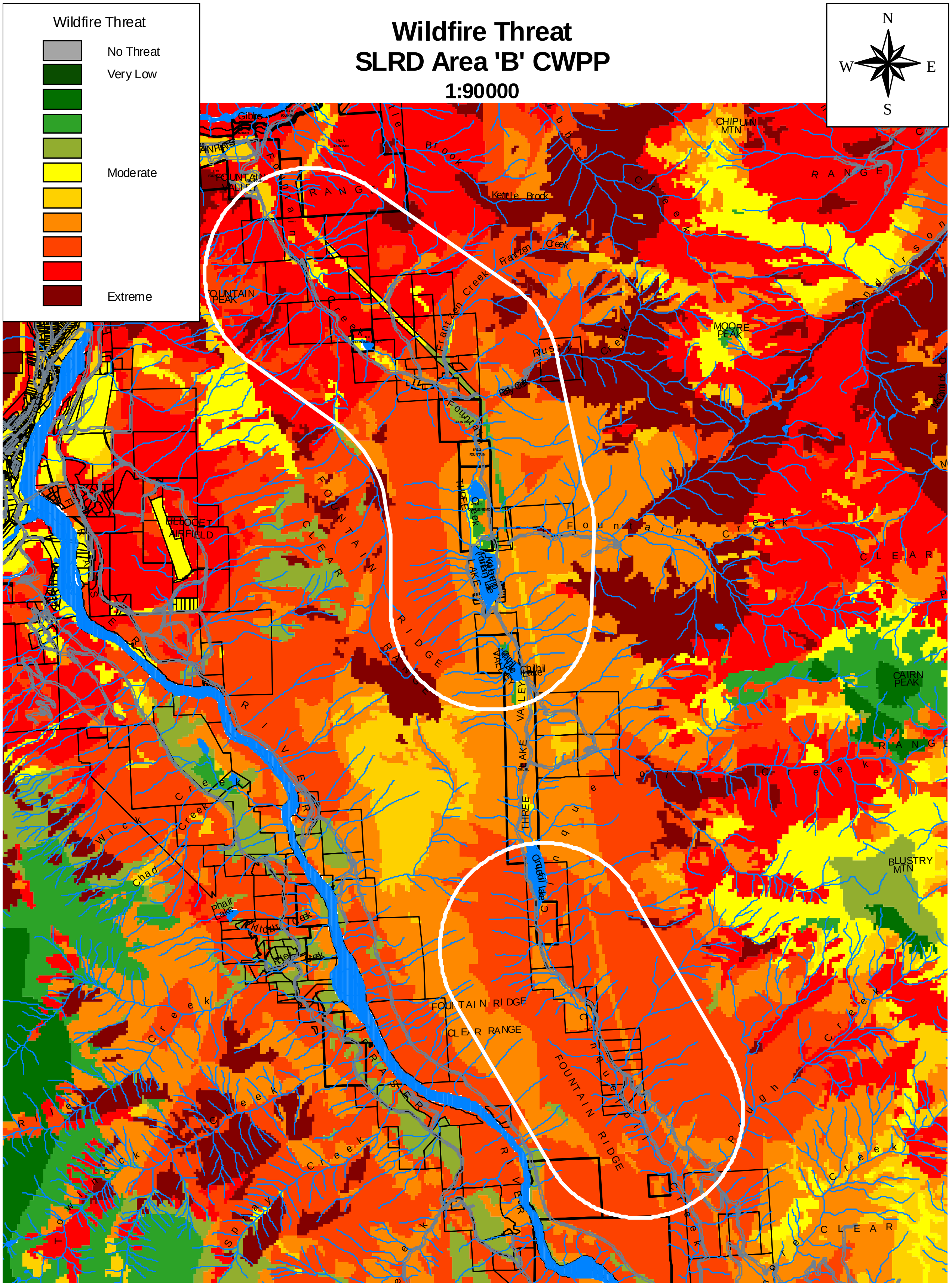

Figure 73: PSTA Mapping – Wildfire Threat: Fountain Valley WUI Areas.

9.5.2 Pavilion Lake WUI Area

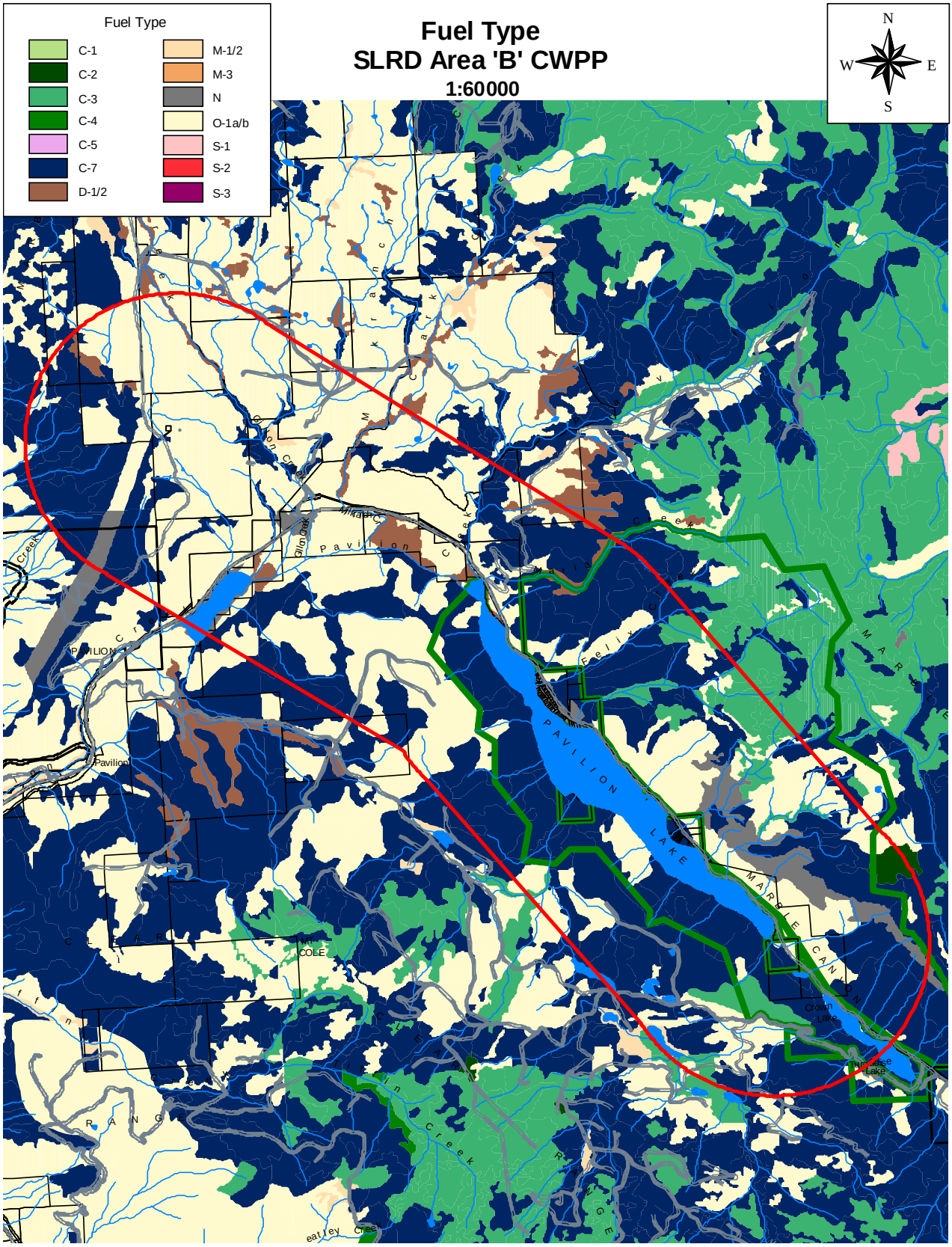

Figure 74: PSTA Mapping – Fuel Type: Pavilion Lake WUI Area.

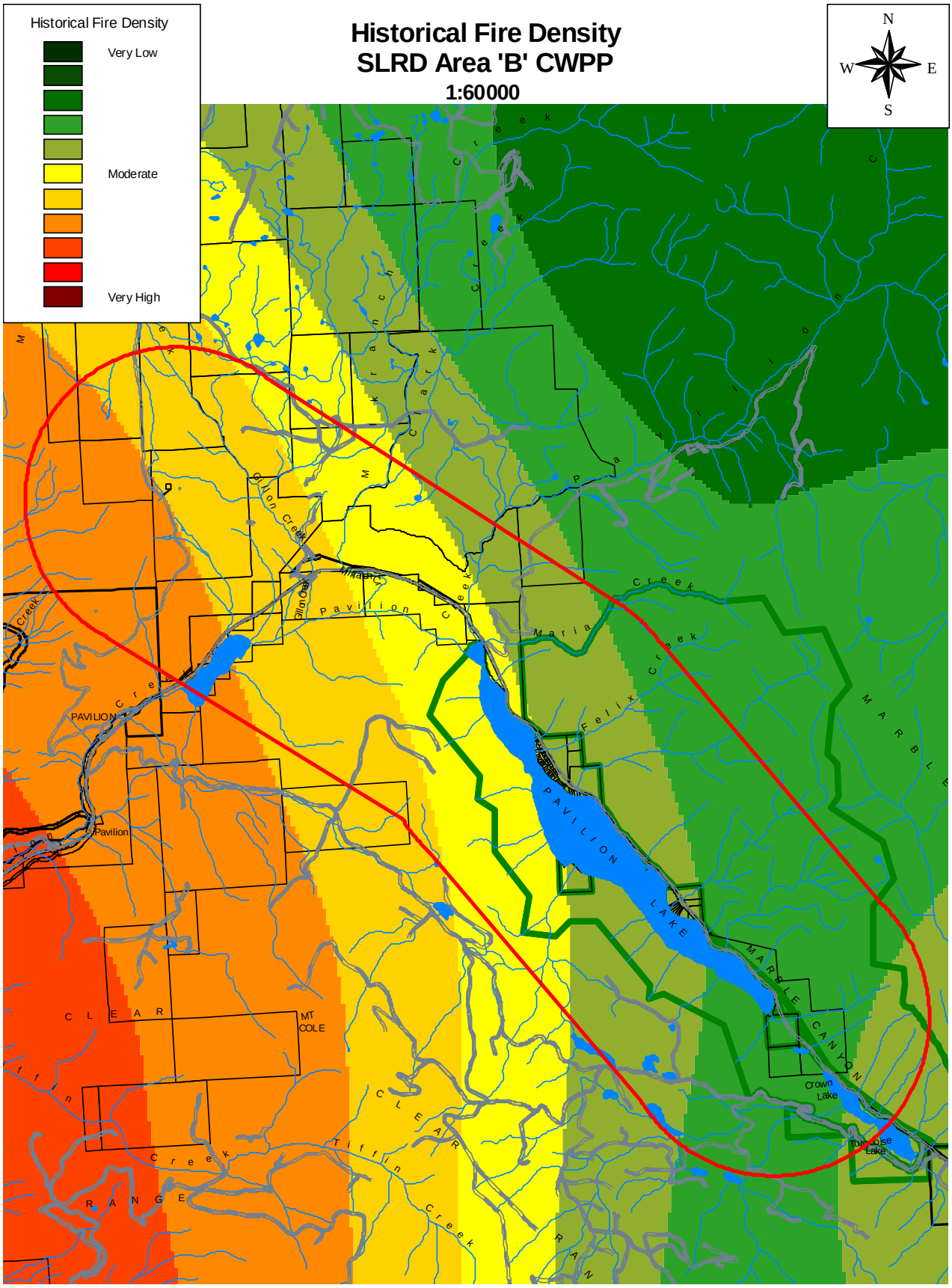

Figure 75: PSTA Mapping – Historical Fire Density: Pavilion Lake WUI Area.

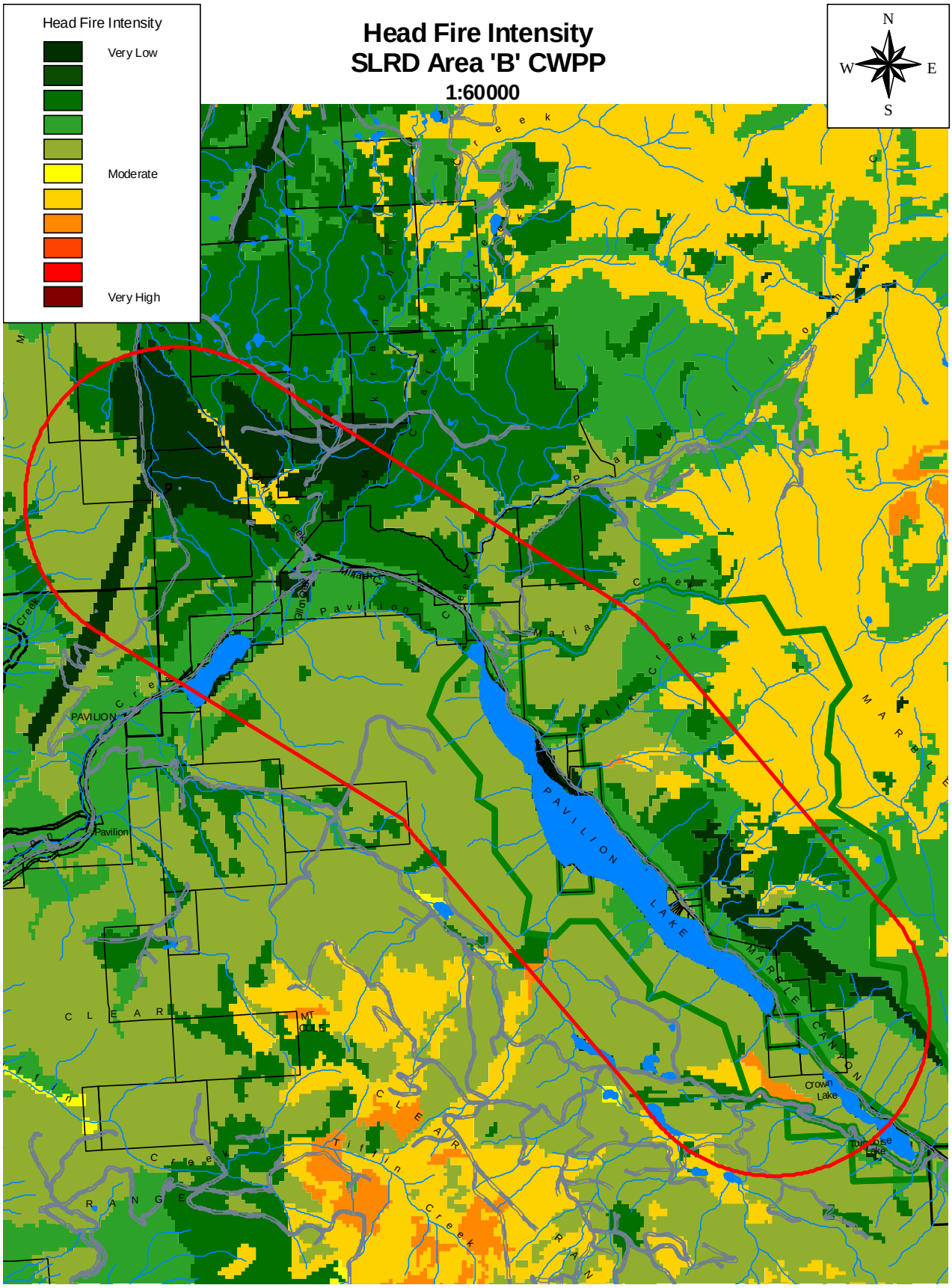

Figure 76: PSTA Mapping – Head Fire Intensity: Pavilion Lake WUI Area.

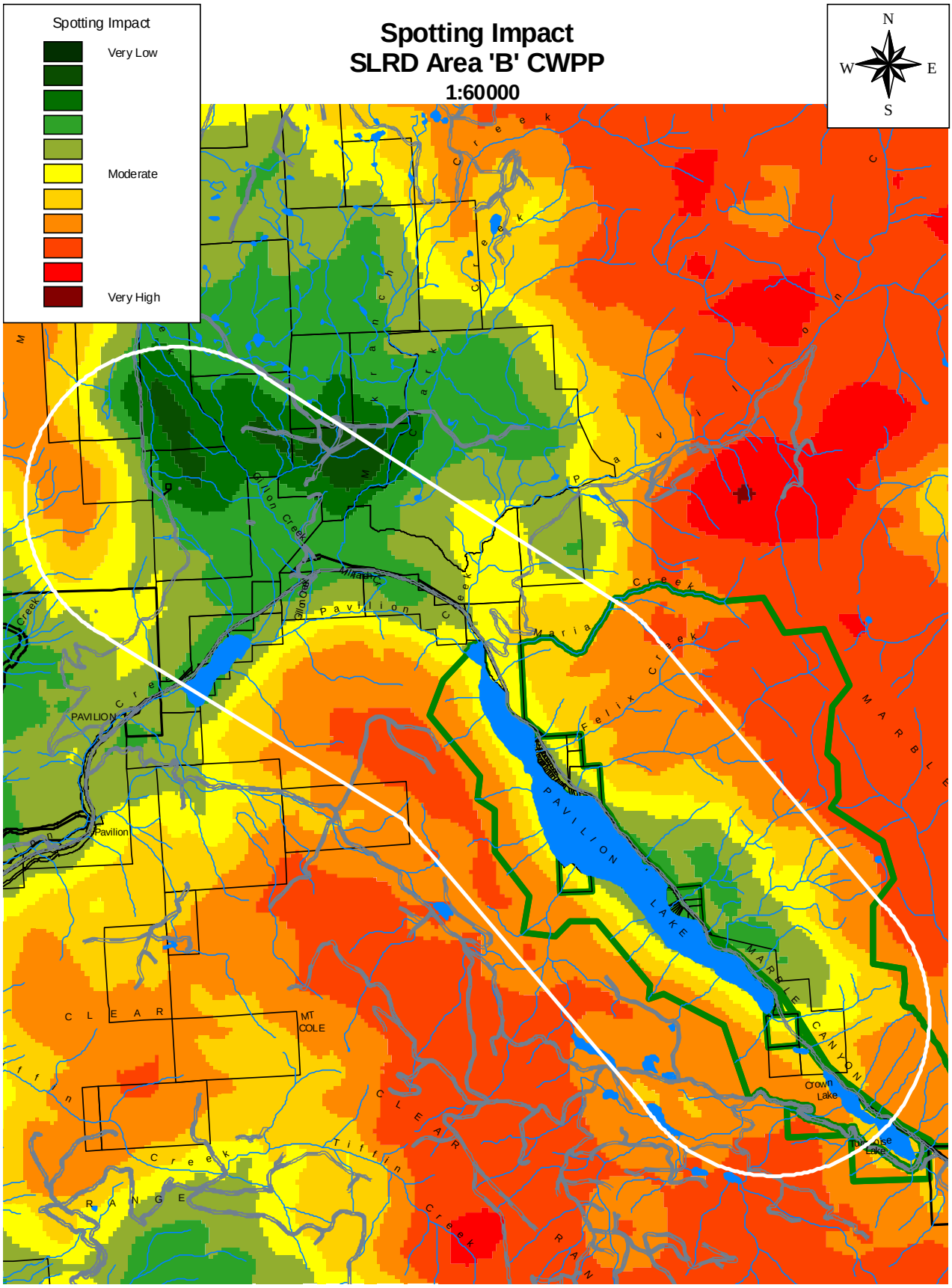

Figure 77: PSTA Mapping – Spotting Impact: Pavilion Lake WUI Area.

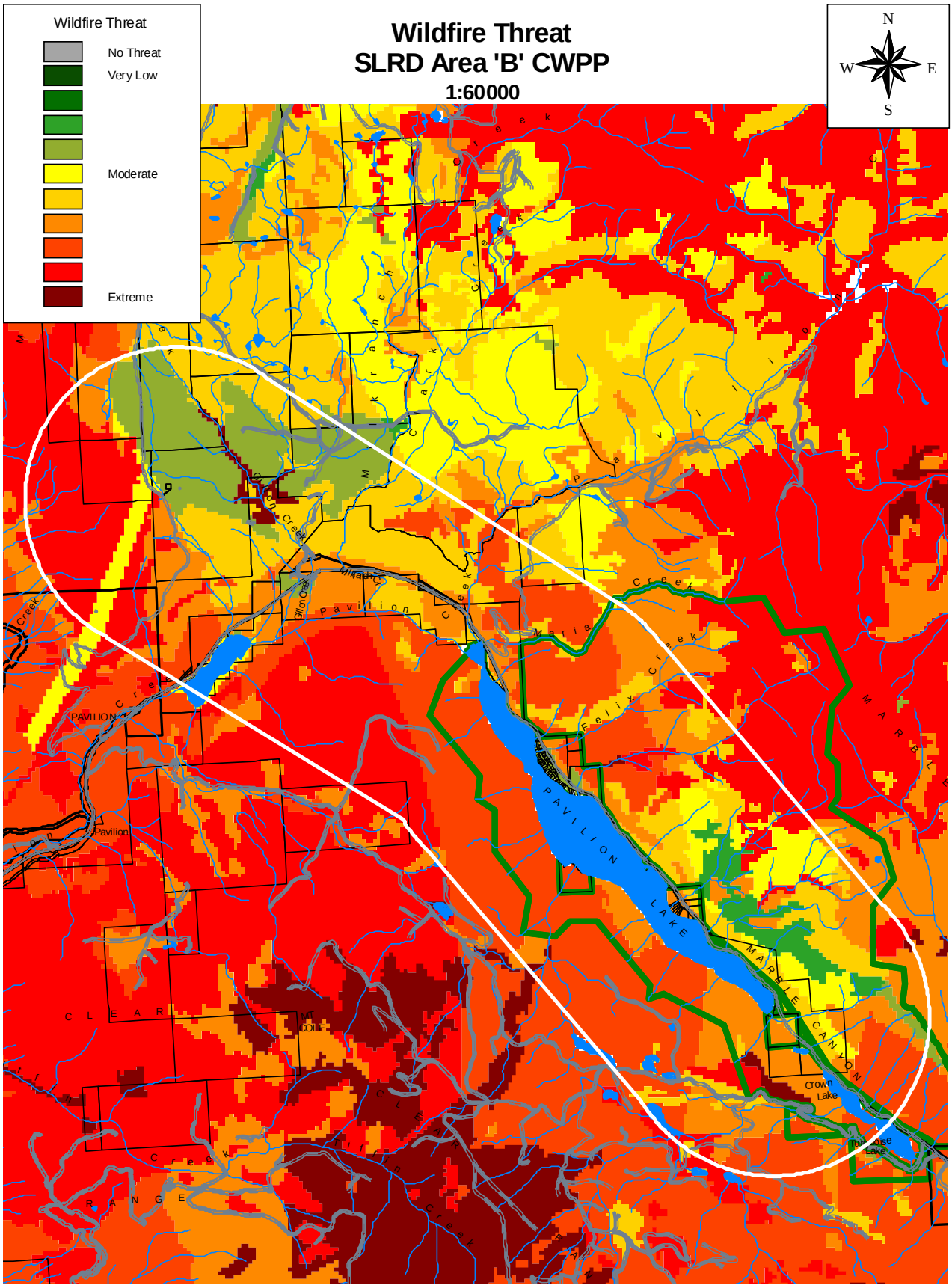

Figure 78: PSTA Mapping – Wildfire Threat: Pavilion Lake WUI Area.

9.5.3 Seton Portage WUI Area

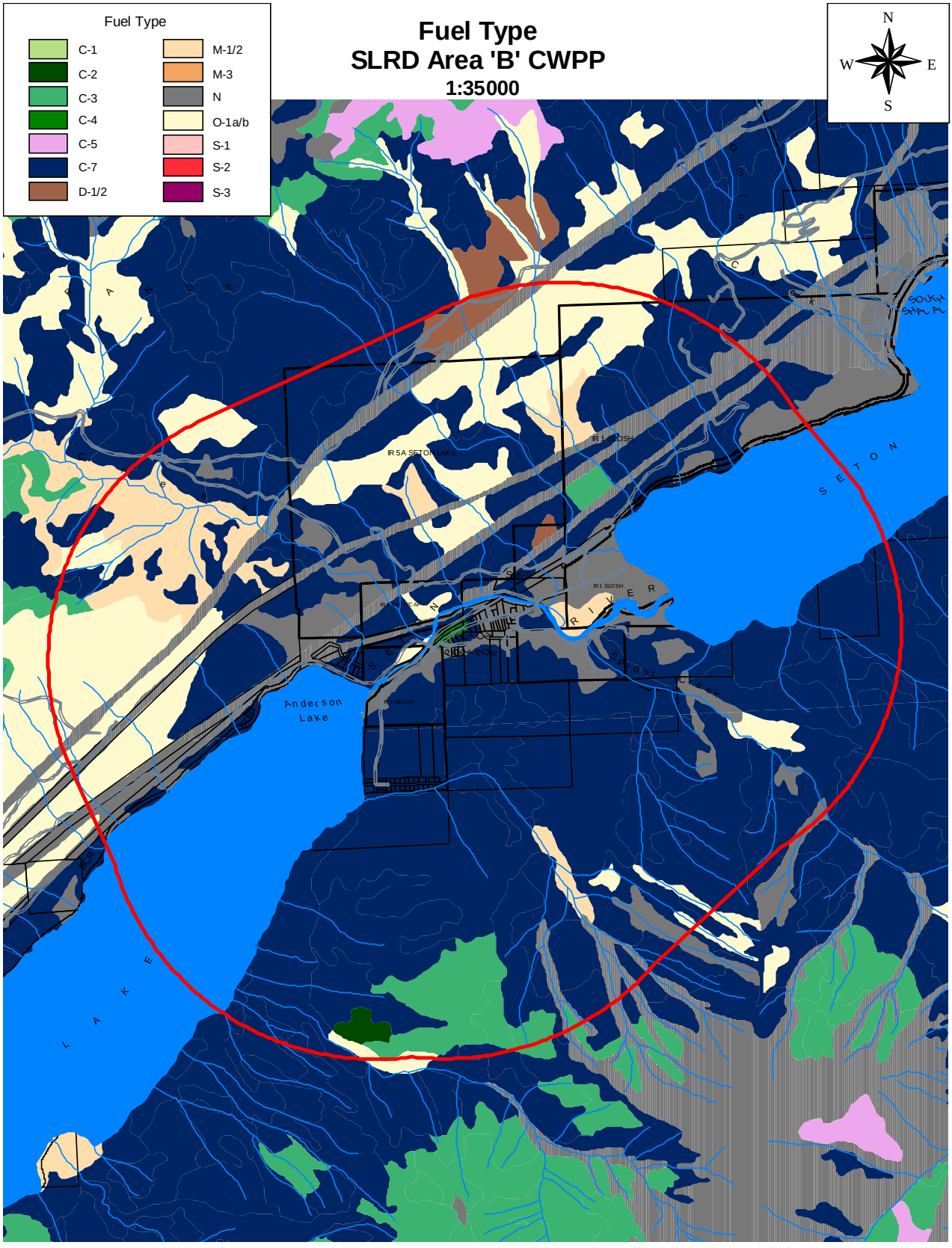

Figure 79: PSTA Mapping – Fuel Type: Seton Portage WUI Area.

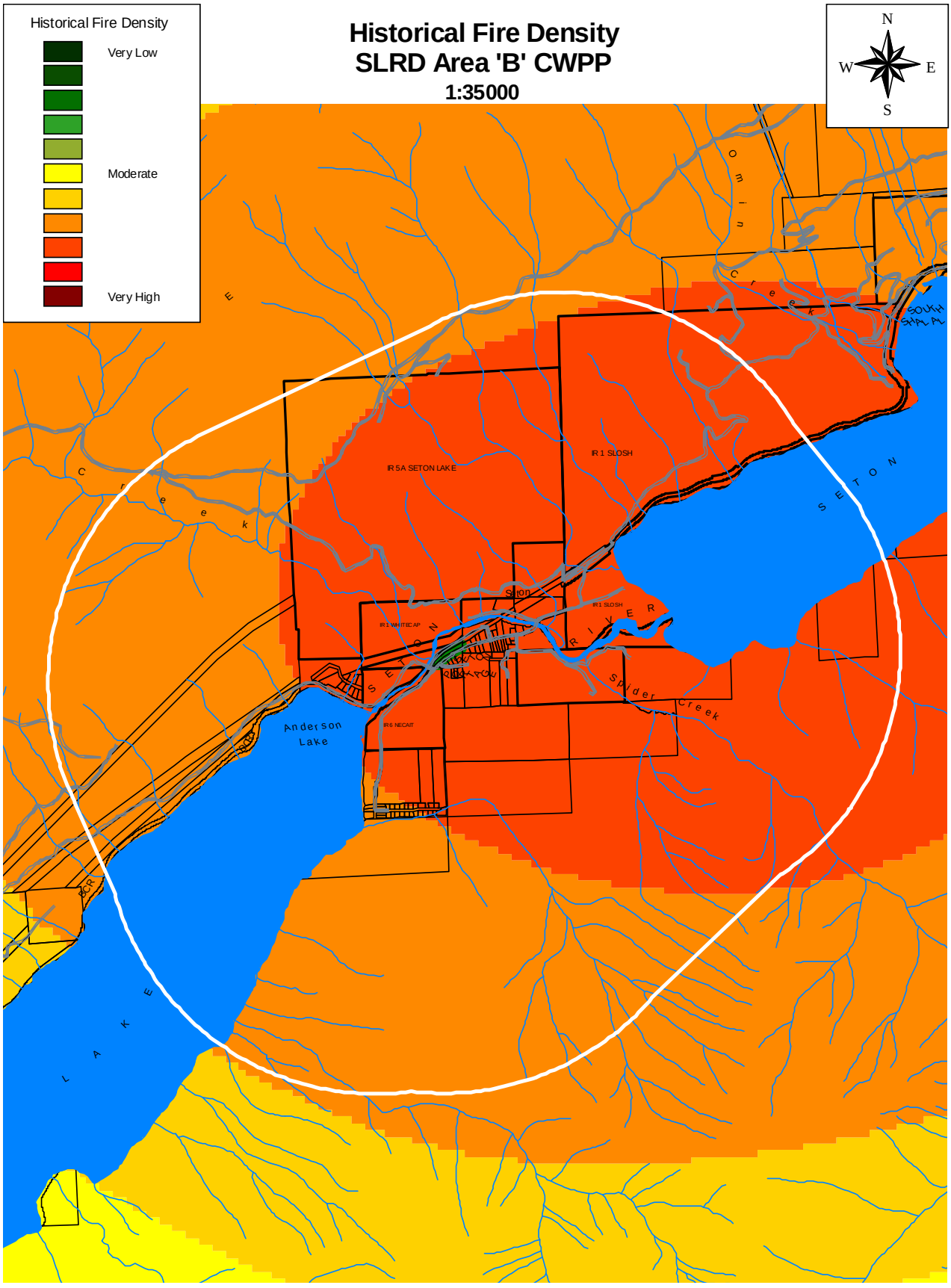

Figure 80: PSTA Mapping – Historical Fire Density: Seton Portage WUI Area.

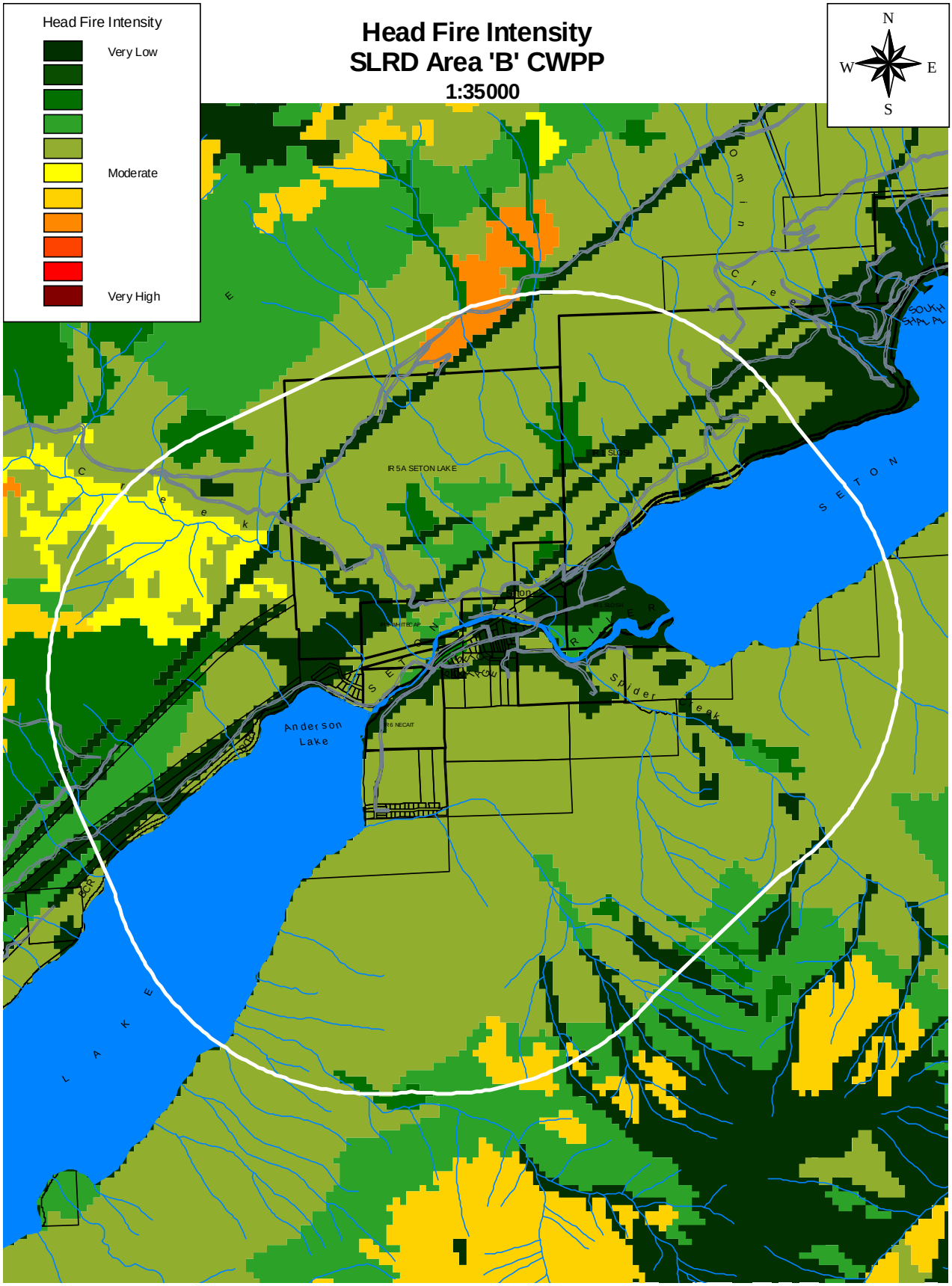

Figure 81: PSTA Mapping – Head Fire Intensity: Seton Portage WUI Area.

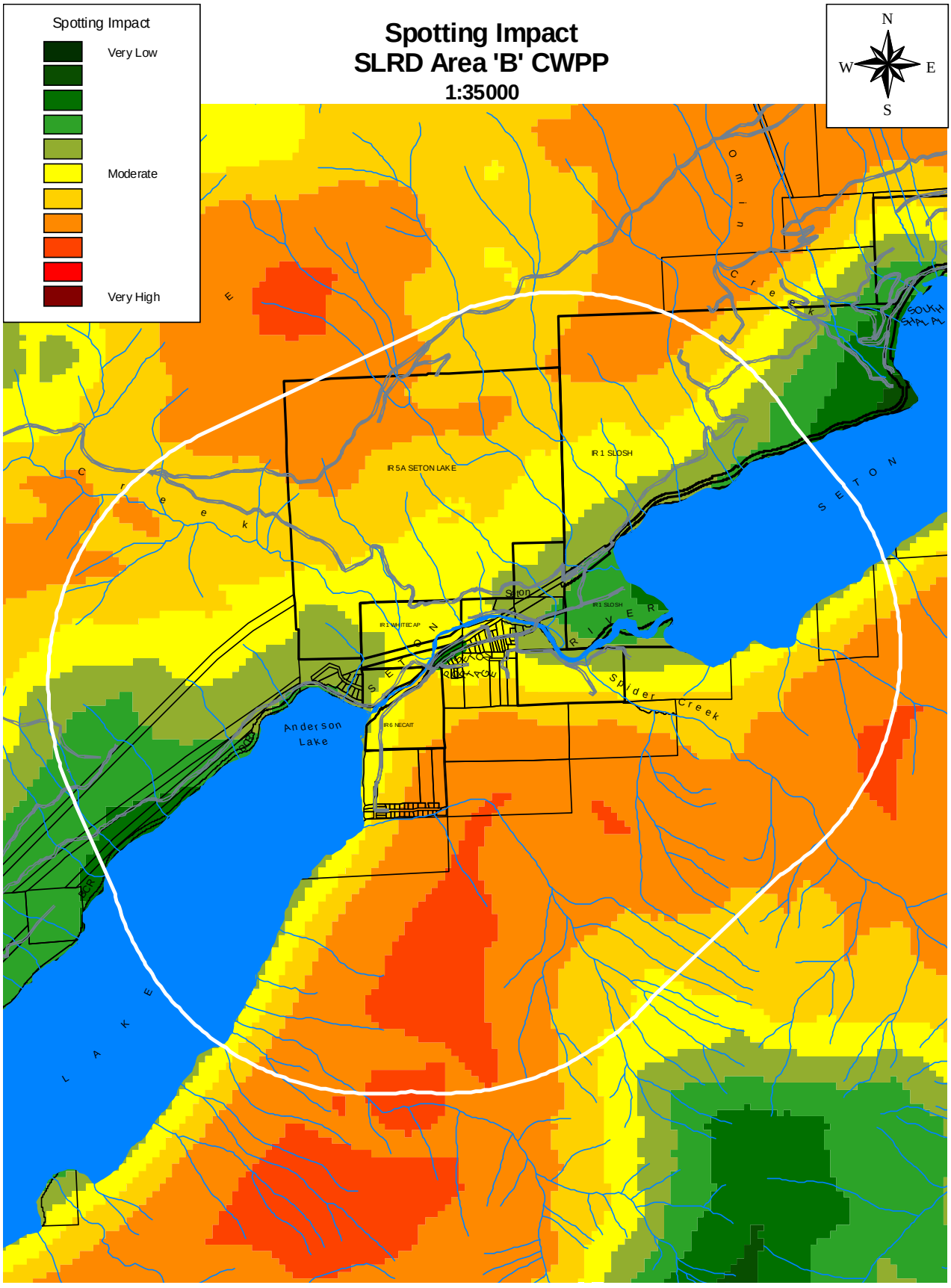

Figure 82: PSTA Mapping – Spotting Impact: Seton Portage WUI Area.

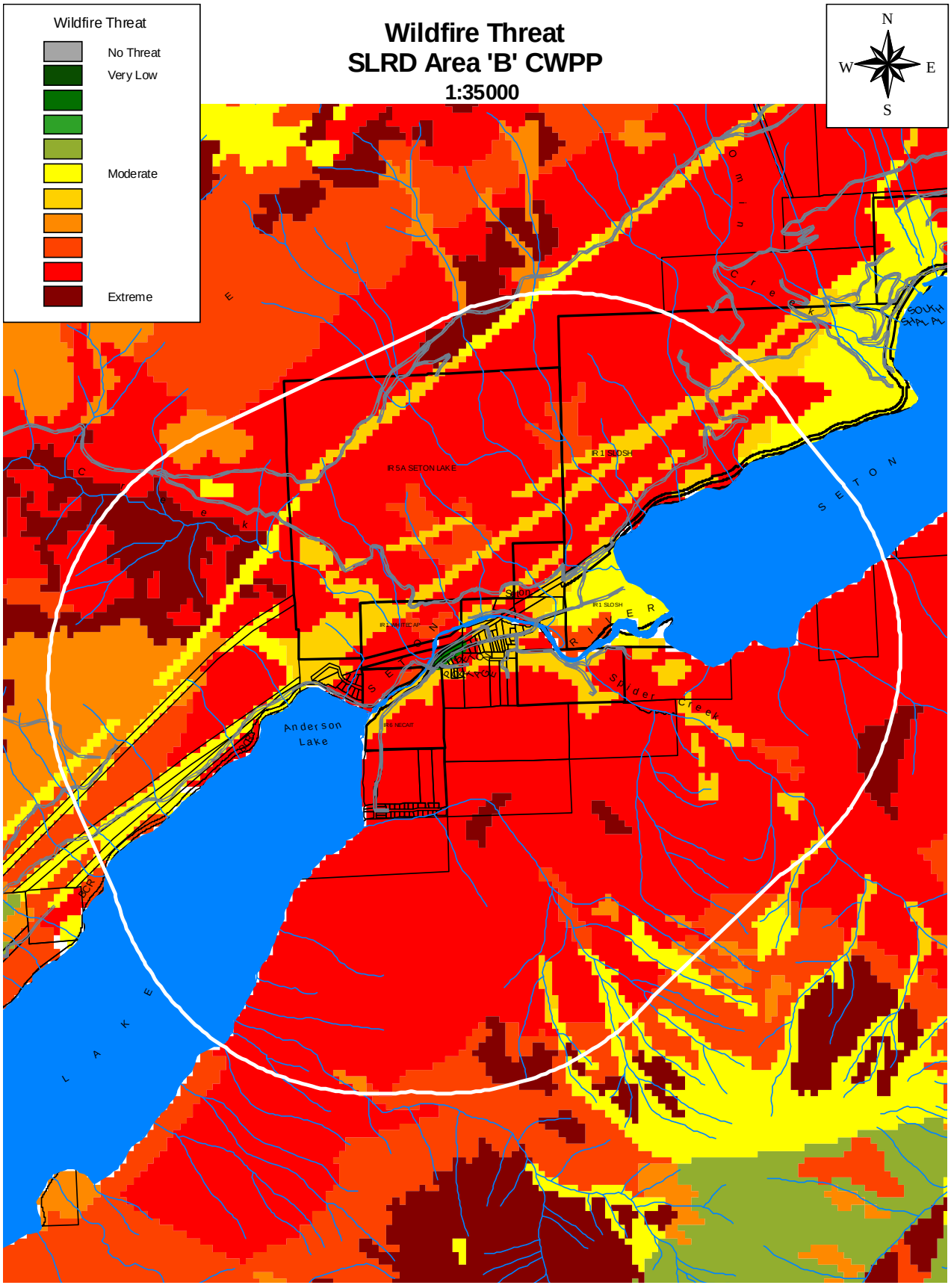

Figure 83: PSTA Mapping – Wildfire Threat: Seton Portage WUI Area.

9.5.4 Texas Creek WUI Area

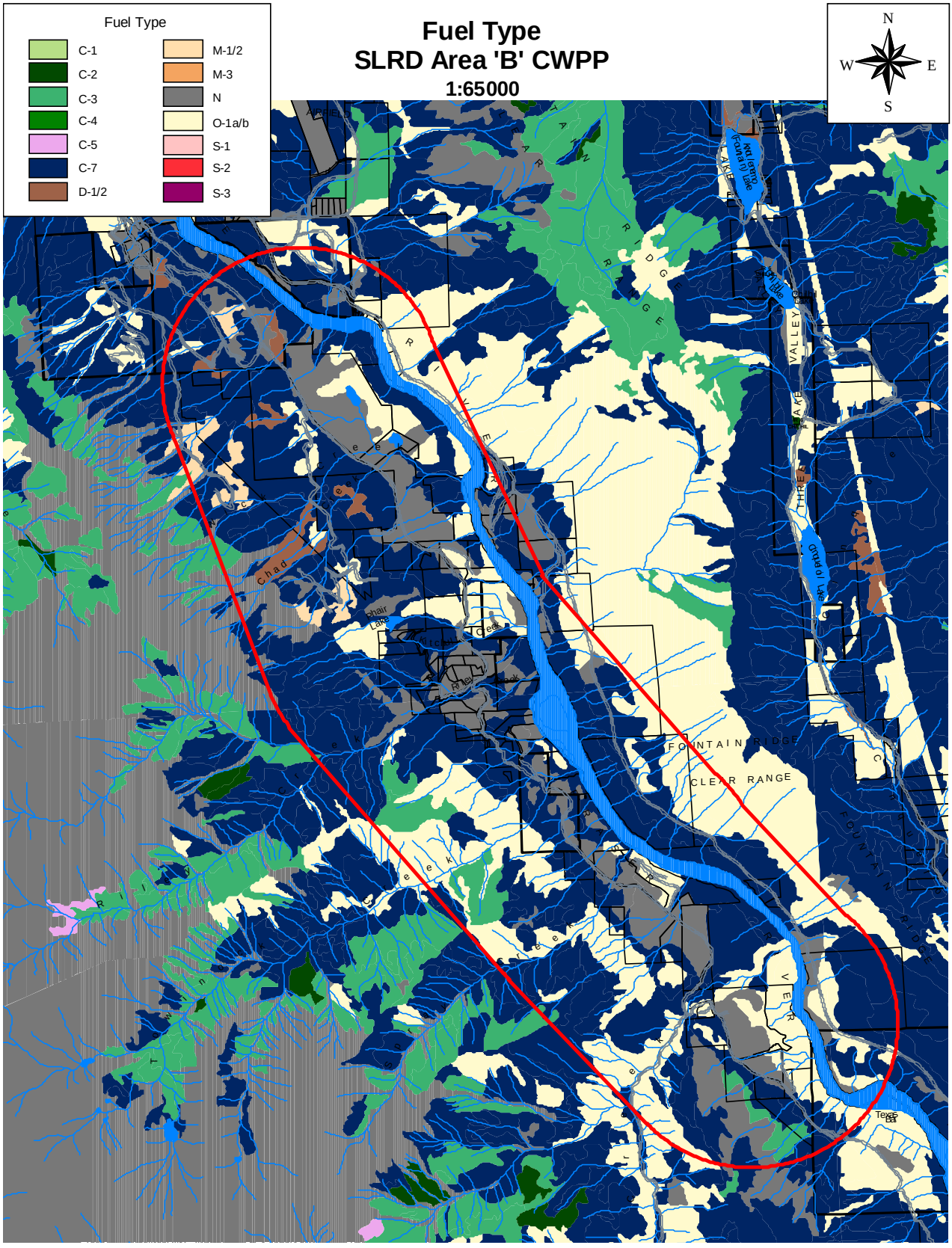

Figure 84: PSTA Mapping – Fuel Type: Texas Creek WUI Area.

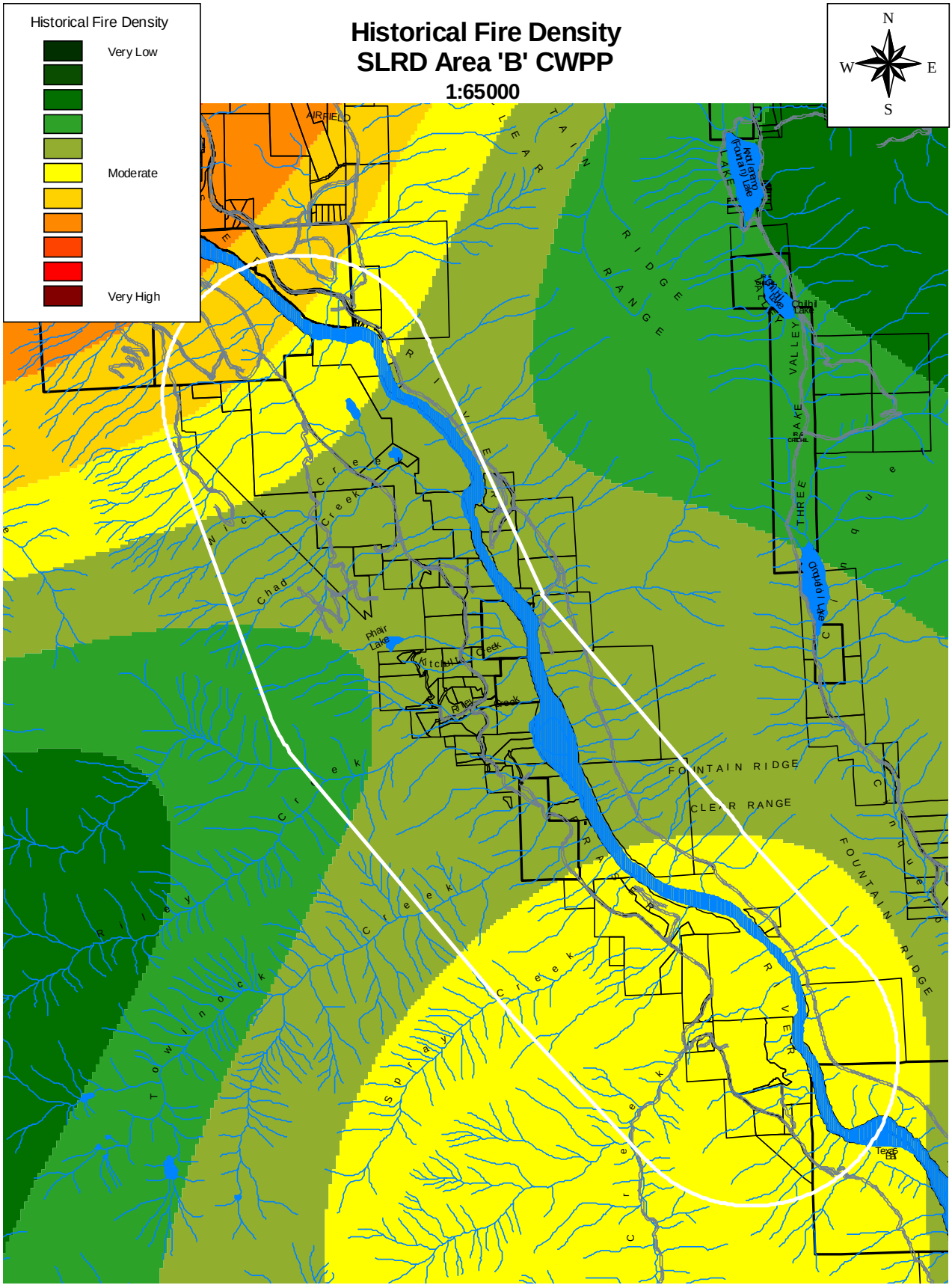

Figure 85: PSTA Mapping – Historical Fire Density: Texas Creek WUI Area.

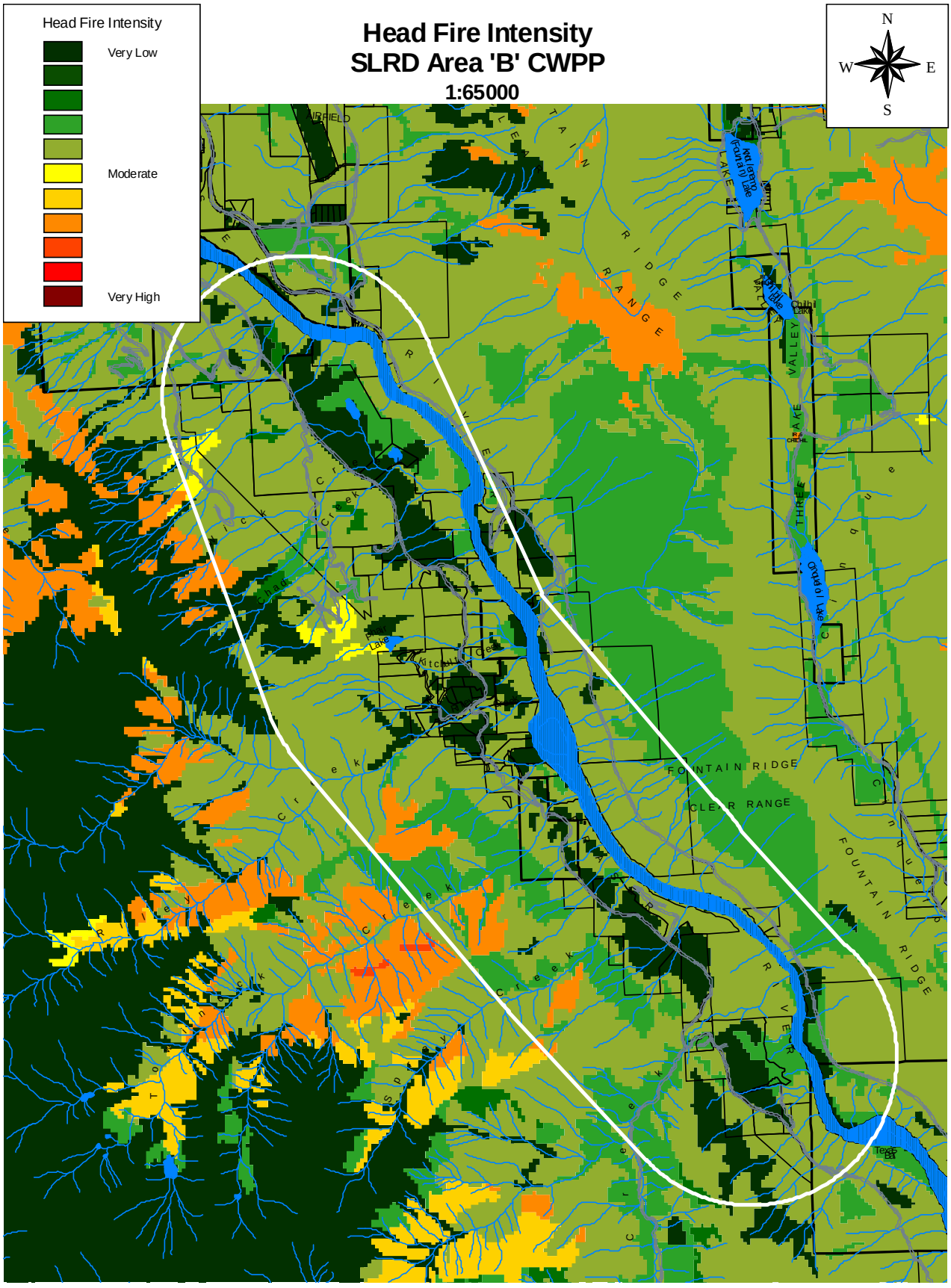

Figure 86: PSTA Mapping – Head Fire Intensity: Texas Creek WUI Area.

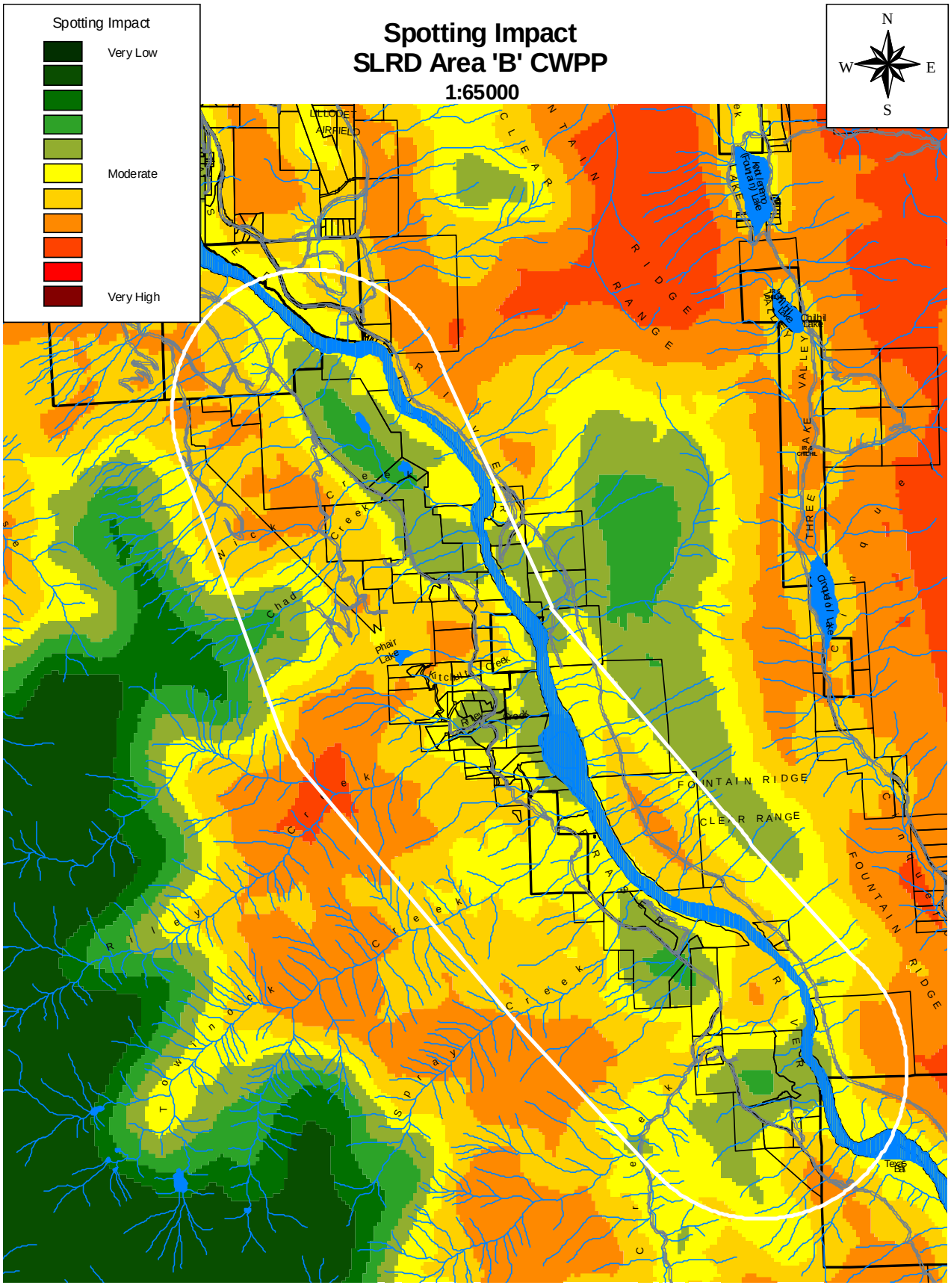

Figure 87: PSTA Mapping – Spotting Impact: Texas Creek WUI Area.

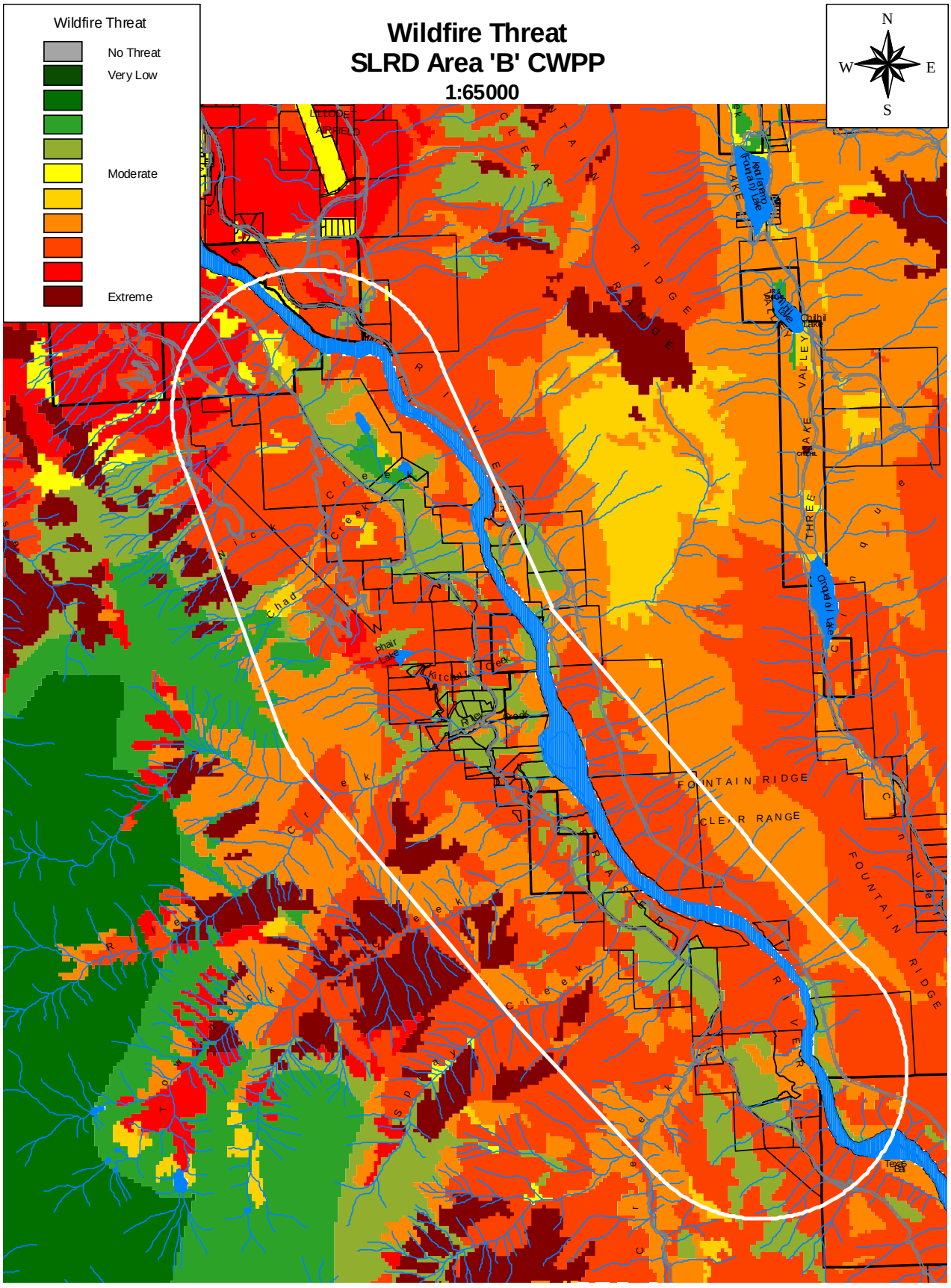

Figure 88: PSTA Mapping – Wildfire Threat: Texas Creek WUI Area.

9.5.5 Yalakom WUI Area

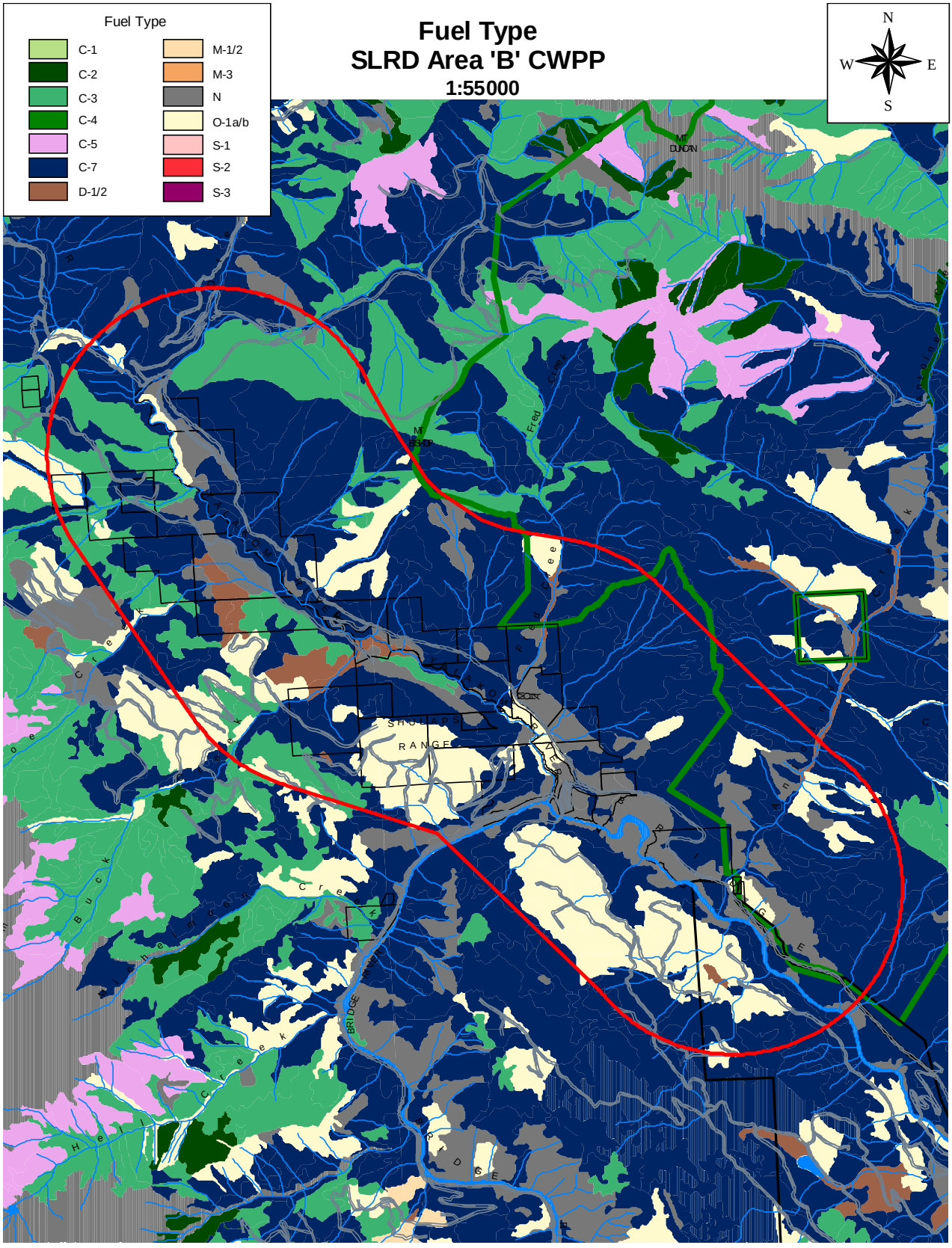

Figure 89: PSTA Mapping – Fuel Type: Yalakom WUI Area.

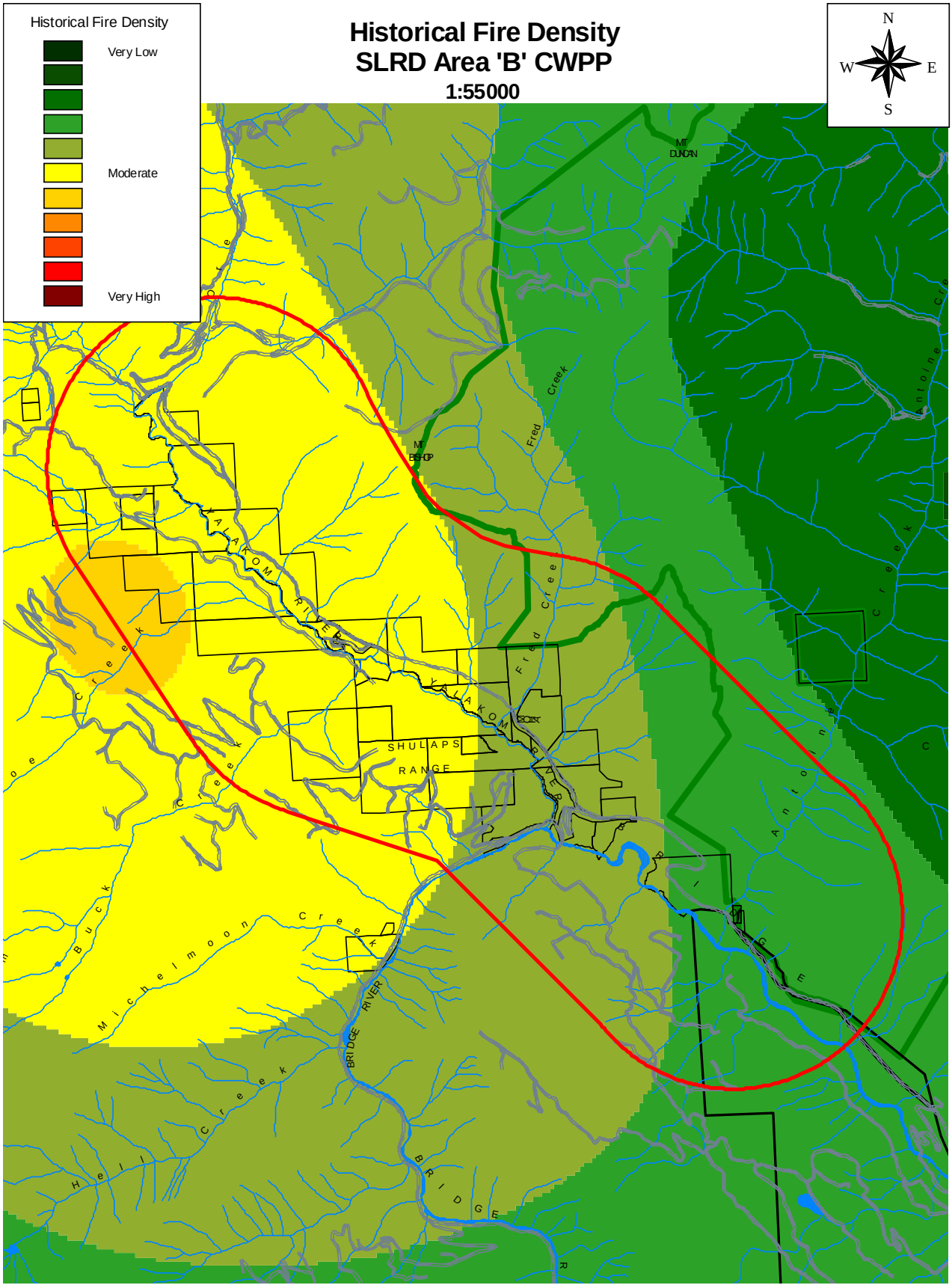

Figure 90: PSTA Mapping – Historical Fire Density: Yalakom WUI Area.

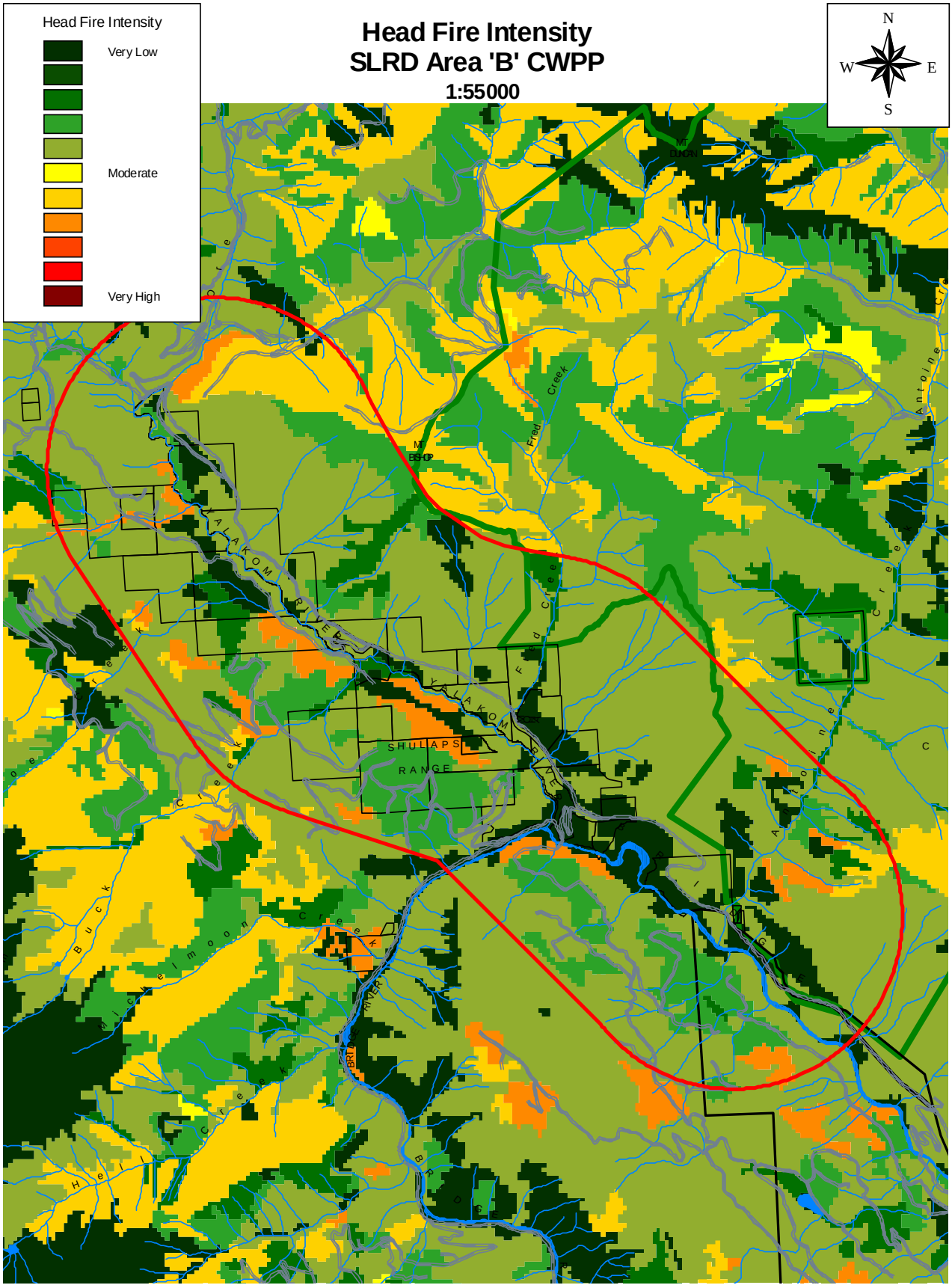

Figure 91: PSTA Mapping – Head Fire Intensity: Yalakom WUI Area.

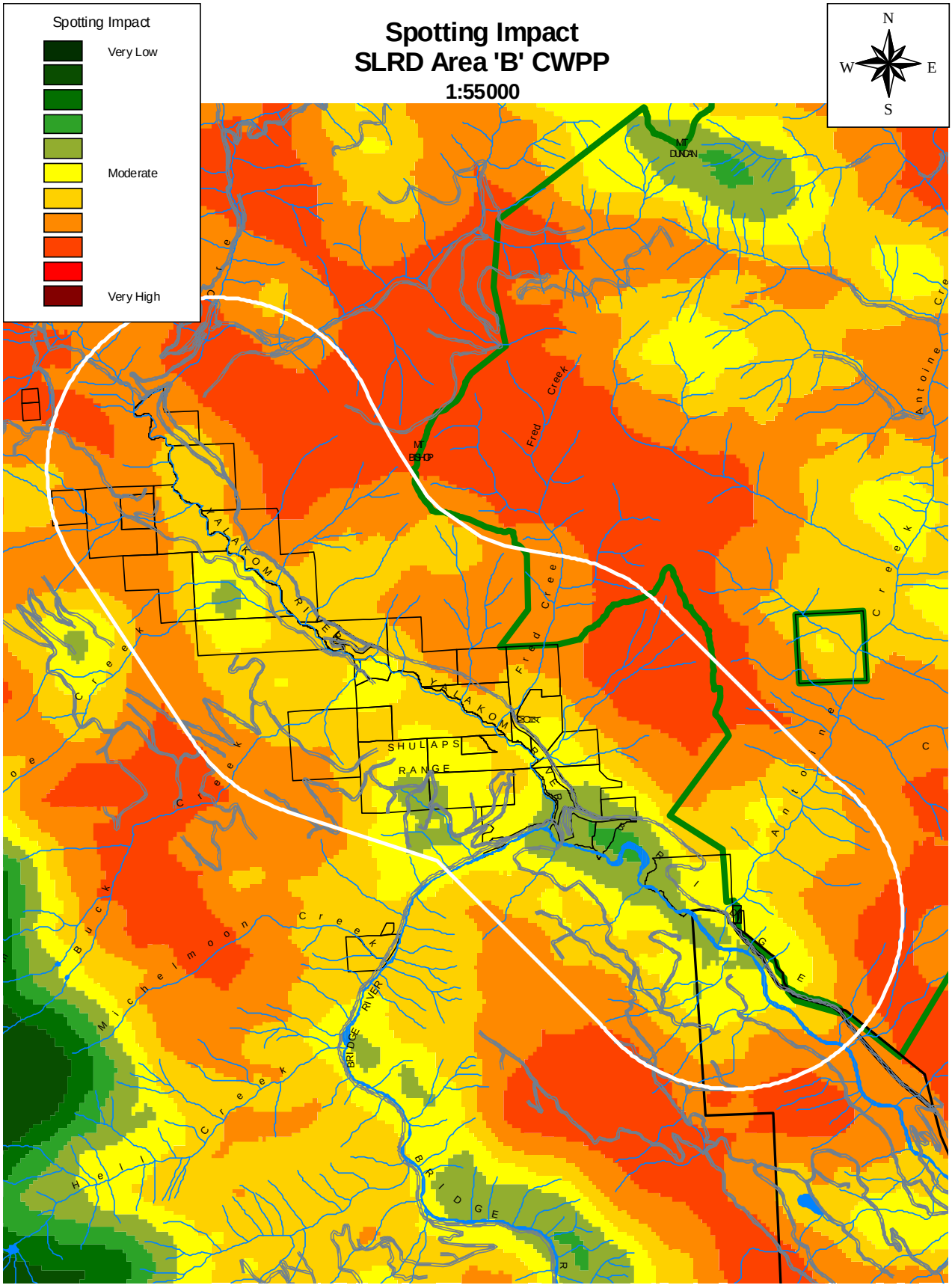

Figure 92: PSTA Mapping – Spotting Impact: Yalakom WUI Area.

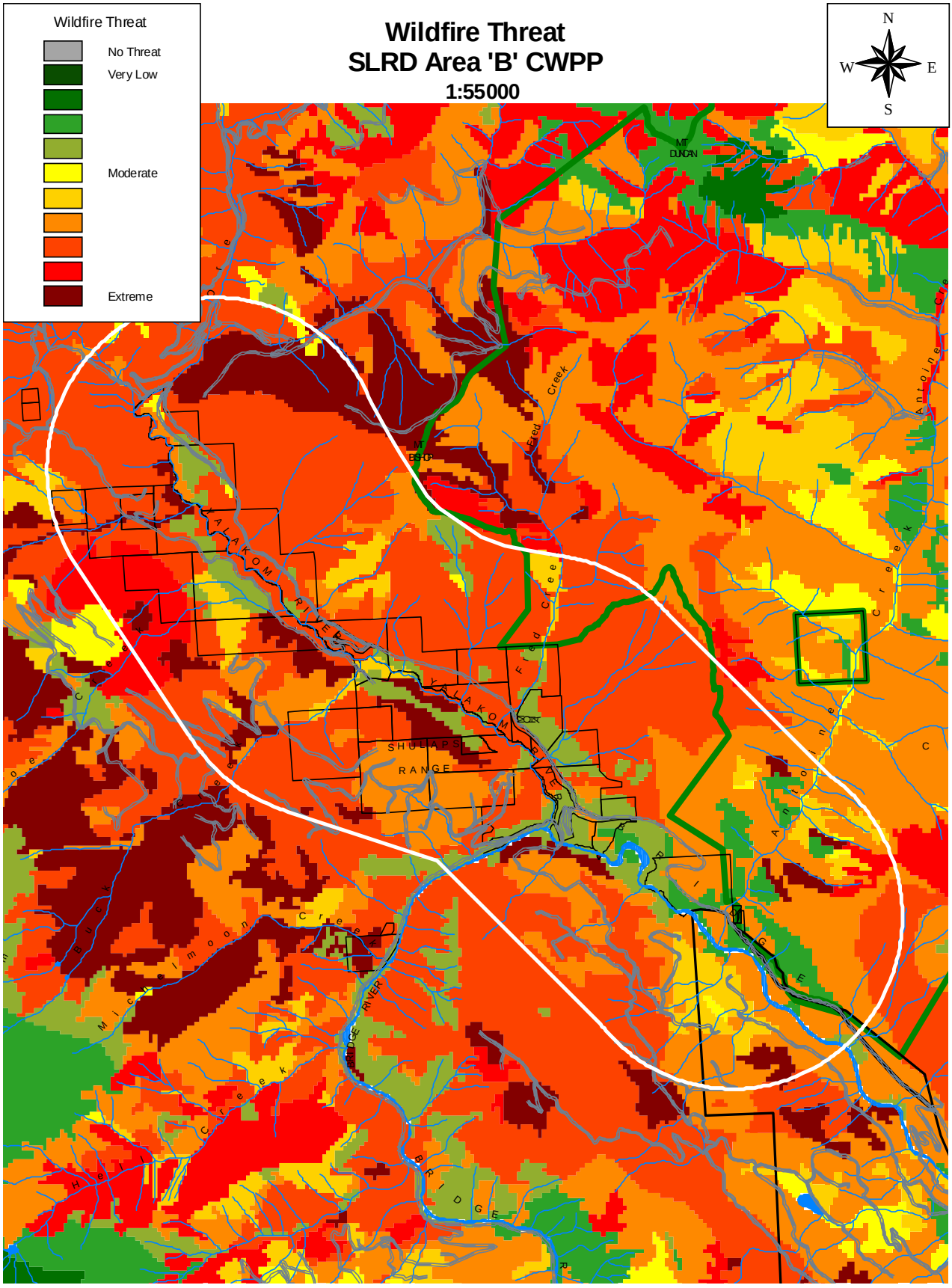

Figure 93: PSTA Mapping – Wildfire Threat: Yalakom WUI Area.

10.0 Literature Cited

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