



CITY OF
West Linn

Memorandum

Date: March 13, 2023
To: Mayor Bialostosky and City Council
From: Darren Wyss, Planning Manager
Subject: AP-23-01 Appellant Testimony

Between the publishing of the Council Packet on March 2, 2023 and the March 13, 2023 noon deadline to submit comments, staff received additional testimony (attached) from Russell Axelrod, Appellant, for the appeal of an approved Water Resource Area Permit at 19679 Wildwood Drive.

Please feel free to contact me at dwyss@westlinnoregon.gov or 503-742-6064 with any questions regarding the materials or process.

Testimony To Deny WAP-22-02 and Protect Our WRA Program and Significant Riparian Corridors

Axelrod / March 10, 2023

Interim Mayor Bialostosky, Council President Baumgardner, and Councilor Relyea,

I'm Russell Axelrod, and I've lived in our City for 32 years at 19648 Wildwood Drive, within 250 ft of the subject property. Myself, at least 14 of our immediate neighborhood property owners, and our Hidden Springs Neighborhood Association request that you deny WAP-22-02 based on the flawed interpretation of our water resource area (WRA) code and its mis-application by planning Staff, the Applicant, and their Consultant (Schott & Associates Inc.). This permit decision is precedent setting - if approved it will allow irresponsible infill development in our *Significant Riparian Corridors* designated for protection, further degrade their many valued functions including water quality control, and put our residents at risk from potential slope instability, downstream flooding, and increased wildfire hazards. These aspects fall within Community Development Code (CDC) Chapters 32, 34, 99, and the duty/capacity of our City Council to protect the safety and welfare of our residents under our City Charter.

I am qualified to assess/appeal this matter based on several factors, including: 1) 40 years experience as geologist/hydrogeologist characterizing sites and watersheds, performing environmental assessment and cleanup of soil/sediment/surface water/groundwater media, and stream/meadow restoration projects with RPG qualifications in Oregon (G1641, retired 2023) and LG-LHG in Washington (1654, active); 2) I was a technical member of the City's Water Resource Committee that wrote our WRA regulations codified in CDC Chapter 32 roughly 10 years ago; and, 3) I served nearly four years on the West Linn Planning Commission (2012-2015), and was Mayor of our City for six years (2015-2020) with direct experience addressing our City's water resource related issues.

BACKGROUND

A little background understanding is critical to sound decisionmaking regarding our WRA protection program and our City's responsibilities. West Linn has 17 named creeks in drainage *Ravines* that control stormwater and shallow groundwater fed discharge to the Tualatin and Willamette Rivers. Before development, the natural landscape and drainages helped control and balance surface water runoff, sediment and pollutant filtering, and surface water/groundwater interactions that minimized the effects of flooding and adverse water quality impacts downstream.

Most of our City platting was completed before the 20th century with limited consideration to the natural drainage landscape and its important functions. This development led to drainage infilling, channel re-routing, and a shell of impervious surface area added across the landscape. As a result, the City must capture the stormwater from these large areas in pipes and dump it into downstream drainage segments bypassing the landscape's natural drainage system functions of sediment filtering, runoff buffering, and water quality control.

These adverse effects put our downstream areas (generally areas below or off the hill) at increased risk of flooding, and it degrades the water quality which the City is required to monitor and control under our State-issued Municipal Separate Storm Sewer System (MS4) Discharge Permit. The MS4 permit is issued to 13 governmental entities in Clackamas County, and overseen by the Oregon Department of Environmental Quality (DEQ) (DEQ 2021). Our City's discharge have already resulted in the DEQ declaring the Robin Creek/Trillium Creek drainage system of this WAP-22-02 permit as "impaired" on its Clean Water Act Section 303(d) listings (DEQ 2022a-c). This impaired drainage discharges to the

Willamette River which DEQ has also declared “impaired.” The listed parameters in West Linn’s discharge impact aquatic life and spawning, and violations put our City at risk for non-compliance. However, these water quality concerns and obligations of the City received no mention by Planning Staff, the Applicant, or their Consultant. Among other water quality program requirements, the City must follow Best Management Practices (BMPs), evaluate long-term trends in receiving waters and assess chemical biological and physical effects of its stormwater discharges. The City also must “assess progress towards meeting Total Maximum Daily Loads (TMDL) pollutant load reduction benchmarks.” However, the Applicant and City have not presented any data or evidence as to how the subject permit would not further compromise our water quality requirements and obligations downstream.

The City should also recognize that climate change impacts to our rainfall character and record are increasing flood impacts and hazards downstream on our drainages. Our stormwater management system was designed based on the old concept of the 100-yr storm pattern based on older hydrographic records. Under our new climate regime, the 100-yr storm is largely meaningless from a design perspective, and we are experiencing higher and more frequent rainfall events resulting in what we call “flashy” drainage affects which can significantly increase adverse flooding impacts downstream. *[I can assure you from my tenure as Mayor, and I know at least one of you Councilors also have experienced that the City has faced lawsuits from such flooding events.]* As noted below in my testimony, these occurrences will increase in number and severity in the future if this permit is not denied.

Our WRA Program and Code/Regulations

In approximately 2010-2013, our WRA regulations, now codified in Chapter 32 of our CDC, were significantly revised by Committee through a public engagement process led by Senior Planner Peter Spir. Myself and Mr. Mike Bonoff, also testifying at this hearing requesting denial of WAP-22-02, served on that Committee providing technical expertise. Chapter 32 was/is designed to protect the minimal WRA features remaining in our City because of previously insensitive or irresponsible development, and I’m sorry Mr. Spir is not here today to help educate planning Staff and others on its administration.

The key element of Chapter 32 is our WRA Map approved/adopted by Council in 2014. The WRA Map establishes the baseline elements of the WRA program, such as the *Significant Riparian Corridors* designated for protection and a key focus of this permit decision. It’s important to understand that the *Significant Riparian Corridors* shown on the WRA Map are subject to slight refinement at their boundaries to address scale issues at the project level, but they cannot be fundamentally changed (in this case protections entirely removed by the City) except by demonstrated Hardship (CDC 32.110) or under limited circumstances through an Alternate Review Process (CDC 32.070), and only where it can be demonstrated that the various functions of the WRA are not reduced or impaired by the proposed development or action. As outlined later in this testimony, WAP-22-02 does not meet the Alternate Review Process criteria, and the permit should be denied here or on any similar *Significant Riparian Corridor* designated for protection on our WRA Map.

It should also be noted for the record that most properties along our protected steep *Corridors/Ravines* are oversized because they extend generally to the creek bottom (creek thalweg) in the *Ravine(s)* behind the homes. Thus, these unique properties, while in an R10 or R15 Zone for example, may be as large as 20-30,000 sq ft or more and with a majority portion of the property in the *Ravine* considered protected

and undevelopable under our WRA Protection Program (Chapter 32, and Tables 32-2 and Figures 32-3 thru 32-5).

Recognized Concern/Need for Setbacks or Buffer Zones Along our Steep Riparian Corridors/Ravines

Slope instability and wildfire protection are two critical factors supporting the established setbacks or buffer zones specified in Chapter 32 along our urban interface with steep *Riparian Corridors/Ravines* – these slope and setback criteria are detailed in Table 32-2 and Figures 32-3 thru 32-6. Unstable soils and small and larger scale landslide areas are common in West Linn, and slopes greater than 25% should not be used for residential development and is not allowed under the WRA code in our protected *Ravines*. My testimony below details how the City’s permit approval violates this code.

Wildfire hazards are increasingly recognized as significant safety hazards to address in urban planning along our rural or wildland/vegetated interface – such as the steep *Riparian Corridors* designated on our WRA Map. *[I will say that concern for wildfire impacts was one salient community concern that kept me up at night during hot summer periods when I was Mayor and carrying the responsibility of our City.]*

There is a plethora of guidelines and recommendations for community planning and building structures in wildfire prone areas – for example recent publications from FEMA and the US Fire Administration, Firewise USA (a program of the National Fire Protection Association), the Office of Energy Efficiency and Renewable Energy (Energy.Gov), as well as documentation from established community organizations addressing recent tragic wildfires at the urban interface in California and Oregon especially. Because of the significant number of steep *Riparian Corridors/Ravines* throughout our City, West Linn should be following these wildfire interface recommendations in our planning decisions. Below are example quotes from these sources which demonstrate how dangerous and irresponsible it would be for planning to even consider, yet allow, development in our protected steep *Riparian Corridors/Ravines*:

“Steep ravines can act as funnels or chimneys intensifying and accelerating the upward progression of fires to ridgetops and adjoining canyons or ravines.”

The Energy.Gov organization says the number 1 recommendation to follow when siting a home is:

“Avoid selecting a building site along a gully or in a narrow canyon.”

They also recommend: ***“Avoid constructing a home adjacent to or on a steep slope...choose an area that allows minimum 50 ft setback from downslope side.”*** And they also state the need to: ***“Provide two-way access to the house and turn-around space for fire fighting vehicles near the home.”*** All of these critical mitigation measures are violated by the proposed infill development our planning department has approved for our steep riparian *Ravines* as intended by this permit application.

In addition, the wildfire guidelines require that a ***“defensible space”*** be established around any new home with trees and vegetation removed in progressive zones extending to 100 ft from the home. This necessary landscape management approach would further reduce trees and other critical vegetation (native or non-native) in the *Riparian Corridor/Ravine* from any allowed home building in the *Ravine*.

KEY FACTORS FOR DENYING WAP-22-02

Items **A** thru **G** below demonstrate the City's incorrect interpretation or application of our WRA code, and the protections intended under our WRA Program. Most significantly, the City has taken the position that our designated *Significant Riparian Corridors/Ravines* no longer require protection if they contain a creek that exhibits ephemeral characteristics of flow. This interpretation directly violates/undermines our WRA Protection Program - most significantly CDC 32.060(D) – and as demonstrated below in my testimony the interpretation that the stream is “ephemeral” is also unsubstantiated, and the City's rationale to use the Alternate Review Process (CDC 32.070) to justify not protecting the Corridor/Ravine is incorrect and irresponsible. If allowed, the City's action would put many of our *Riparian Corridors/Ravines* on our WRA Map at risk for infill development behind existing homes, and collectively would significantly increase the risk of adverse flooding and degraded water quality downstream, and hazardous wildfire impacts to our residents and neighborhoods throughout our City. This irresponsible planning approach would also adversely affect the established and valued neighborhood character around these areas.

A. The WRA permit is intended to support a future subdivision of the property in order to build a single-family home in the lower portion of a currently protected *Ravine/Corridor* (a *Significant Riparian Corridor* on the WRA Map). The Applicant claims the slope of the property to be plus or minus 25%, but the slope for the proposed building location (or any possible future building location not in the creek bottom) is actually greater than 40% (as calculated using City of West Linn Atlas Map with Contours, Map No. 4932). These slope conditions are unsuitable for residential development and this approval action directly violates the slope and setback requirements of CDC 32.060(D) and Table 32-2 and Figures 32-4 thru 32-6. This development would also be inconsistent with the long-established character of the neighborhood and present other hazards addressed below in this section.

B. By their approved action, planning Staff have inappropriately reinterpreted (i.e., downgraded and removed from protection) the function and value of our designated *Significant Riparian Corridors/Ravines*, a key feature of our WRA Protection Program. The City claims that because the Consultant interprets the creek to be “ephemeral,” the entire WRA designated as a *Significant Riparian Corridor/Ravine* only qualifies for a “required” setback of 15 ft (setback issue is clarified in last paragraph of this subsection). Aside from the broader issue of eliminating the value/function of the separate WRA feature (i.e., the protected *Corridor/Ravine*), the Applicant's consultant recharacterized the WRA stream as ephemeral after visiting the property only once on September 8, 2022 - the driest season of the year and after 3 months of no appreciable rainfall in the region (see Portland's rainfall record for 2022), and by performing a simplistic single point/time survey (Appendix D of Schott report). The SDAM form in Appendix D provides almost no site or stream-specific data, or information, or notes, or explanation of the hydrologic conditions of the watershed or even potential limitations critical to the interpretation being made. Given the circumstances and degree of interpretation implied, this simplistic one-time survey is simply not sufficiently rigorous for this more complicated hydrogeologic setting. I would note that the latest guidance on the use of the SDAM method includes the following recommendation (EPA 2022): “Assessments should be made over the length of a stream reach, rather than at one point. We recommend walking the stream prior to choosing an assessment reach.” and “If possible, inspect upstream and downstream sections of the stream and make a note of your observations.” Please note further comments on this aspect of the assessment below in this subsection.

It's important to understand that the distinction between intermittent and ephemeral can be a gray area when both intermittent and ephemeral characteristics occur, as is the case for upper Robin Creek. The Consultant claims there is no defined stream channel in the drainage and shows pictures of a highly disturbed area of the drainage bottom between the existing houses next to the street where the City completed a storm drain catchment repair last year¹ (Schott report Appendix B, Photo Point 1). However, immediately above this disturbed area there is a small defined flow channel, and water was running in the channel like it periodically does above the disturbed area during a recent site visit (see example photos, pages 10-11 below). In my 30 years of living next to this drainage I have observed stream flow during different times of the year that could also support the upper reach being considered "intermittent." We see this at times in our 'Hidden Springs' area and often from variable bedrock seepage of shallow groundwater reflecting hydrologic influences other than seasonal rainfall patterns.

You should also understand that creek flow in these drainages can sometimes occur a few feet below the bottom of the drainage when there is less water or where different geologic materials with different porosity or conductivity are encountered along a reach. This could reflect slumping of side-slope material common to these drainages or result from complexities in shallow groundwater flow surface water interaction in fractured basalt and other interflow zones which occur throughout this area of West Linn. These geologic variables can give the appearance that stream flow is not present when in fact water is moving through the drainage below grade. It's worth noting that the simplified SDAM approach used by the Consultant includes several other qualifications or recommendations to be effective (EPA 2022), including: *"Streams observed flowing subsurface during the assessment visit may flow on the surface during wetter times of the year; therefore, it is important to check the entire reach for indicators of streamflow. In addition, the accuracy of an assessment can be improved by conducting a follow-up visit during a wetter time of the year."* It's also critical to understand that Robin Creek flows year-round just across the street from the subject property in the drainage below Wildwood Drive, but the Applicant and their Consultant wouldn't appear to know this because they never inspected the entire drainage.

Based on my professional opinion and decades of direct observation of our neighborhood drainages, the Consultant's claim of "ephemeral" based on a single observation in September with no further hydrologic data/analysis presented as evidence for the reach or the entire creek system, is unsupported. However, the "ephemeral" claim is also actually moot in this case because the property is within a designated *Significant Riparian Corridor* with steep slopes and setback criteria which on their own preclude development in the *Ravine* under CDC 32.060(D), Table 3-22, and Figures 32-4 thru 32-6. Denial Factor C below further illustrates the independent treatise of these WRA features under the City's WRA Protection Program.

It's also important to note for the record that the Applicant and Staff misrepresent the 15 ft setback for a water resource feature as a "required" distance, when in fact the 15 ft setback in Chapter 32 in the context of Alternate Review (CDC 32.070) is actually a "minimum" setback. This 15 ft minimum setback was intended only for the limited drainage reaches identified as clearly "ephemeral" and shown with blue stipple pattern on the City's WRA Map approved by Council in 2014; the Rill (incipient channel) features at Oppenlander Park at the top of the hill on Rosemont Rd (see blue stippled lines on the WRA

¹ For the record, neither the City or the property owner restored the soil/vegetation conditions in this highly disturbed area of the creek alignment.

Map) are a classic example of what our code considers ephemeral for purposes of our WRA Protection Program and the minimum (15 ft) setback to be allowed.

C. The WRA Alternate Review Process (CDC 32.070) is purposely focused on actual water features associated with a WRA - namely active streams, ponds, and wetlands – which are treated separately from the code protections for our designated *Significant Riparian Corridors or Ravines*. The Alternate Review section was added to Chapter 32 during the public engagement process to address year-round stream conditions in the large wet lowland areas in Willamette between the Willamette River along Volpp St and the upland bluffs along Fifth Ave where future land development, including further land partitions, were anticipated. This section of the CDC was intended to also help resolve potential similar jurisdictional occurrences for the year-round streams in the lowland regions of Bolton and Robinwood.

This focus on the water feature characteristics for Alternate Review is clearly evident in the conditions required for comparison in Table 32-4 which are all focused on the actual stream/water aspects such as channel and bank configuration, type of organic material, presence/type of woody debris, vegetation types and characteristics, and canopy cover of the aquatic environment and the flood zone elevation up to ordinary high water (OHW). Table 32-4 clearly states the exception or exclusion of 32.060(D) criteria in the Alternate Review process to protect the *Significant Riparian Corridors and Ravines* which provide different functions and value to the WRA program. After noting the Exclusions of 32.040 which are not applicable here, 32.060(D) states: “...**all development is prohibited in the WRA as established in Table 32-2.**” And clearly, the proposed intended use of this property does not meet the slope and setback criteria specified in Table 32-2 for *Ravines* which the subject property represents.

D. The Applicant failed to address the implications to the overall health and function of Robin Creek resulting from their re-interpretation of the currently designated WRA features (especially downstream). This is clearly revealed in the Consultant’s report (Appendix B, photo #4) where their caption states “*It is assumed the drainage continues on the other side of the road in a very deep ravine.*” As noted under Factor B above, it’s clear from the record that the Consultant (nor Staff) actually walked or further studied or evaluated the drainage and it’s features and status beyond the Applicant’s property boundary. The Applicant and Staff should be familiar with the entire drainage and its health and the potential adverse impacts downstream from proposed changes in upstream use(s), yet no consideration or analysis was made or presented.

By Staff accepting the Consultant’s simplistic analysis and reinterpretation of WRA features and their functions, they are by equivalency declaring the entire upper drainage of Robin Creek above Wildwood Drive to no longer require protection beyond 15 ft of the creek line. By this unsubstantiated declaration, all of the property owners in the neighborhood would be welcome to similarly divide their oversized properties to fill in the rest of the steep *Ravine* with single-family homes behind existing homes. This has broad negative implications here and around our many similarly protected *Ravines* throughout the City, and is simply irresponsible and unacceptable land use planning in violation of our WRA code.

Also as noted previously, Robin Creek drains into Trillium Creek and this watershed is a State/Federal declared impaired waterway draining to the Willamette River (also impaired). The intended proposed development, and subsequent infill that would by default be allowed on other oversized properties in the drainage, would further degrade the water quality downstream in violation of State and Federal

water quality standards, and adversely impact the City's BMPs and water quality goals to reduce pollutant loading in its stormwater discharge.

This narrow, superficial level of analysis/consideration is in violation of the non-degradation criteria and related goals of our WRA Protection Program and presents an unacceptable interpretation/use of the Alternate Review Process – see for example CDC 32.010 (B thru H), 32.060 (A and D), Figures 32-4 thru 32-6, and 32.080 (A).

E. The Applicant and Staff overstate the value of the permit's mitigation plan (largely replanting with native vegetation along a limited portion of the creek channel) as improving the value/function of the WRA, thus justifying the change in land use. In fact, the limited areas planned for native vegetation will not appreciably change the function of the drainage to provide wildlife habitat, absorb and filter pollution and sediment, and provide shade and tree canopy benefits above existing conditions.

In contrast, the proposed development will actually decrease the vegetation benefits of the existing *Ravine* conditions by: 1) adding between 2,000-4,000 square feet of impervious surface; and, 2) requiring significant vegetation and trees be removed for the building area and beyond the development to provide a minimal defensible buffer for the increased wildfire risk posed by developing in the *Ravine*. When you multiply this impact by 13 for the remaining properties upstream that would be free to build in the *Ravine* if this permit is approved, you will very significantly decrease the value/function of the existing *Riparian Corridor*, adversely impact water quality and flooding hazards downstream, and significantly increase the wildfire risk to the homes in the drainage and in the surrounding neighborhood. Again, this is irresponsible land use planning and it violates our WRA code, notably CDC 32.010 (B, C, D, E, and F), 32.060 (A and B), 32.080 (A and B).

F. The 2,000-4,000 sq feet of increased impervious surface area resulting from a proposed development will increase the volume of City stormwater to be managed in pipes and discharged to Robin Creek/Trillium Creek downstream of the property. This is nothing less than a degrading of the function of the current riparian corridor left alone. In addition, when you multiply this impact by 13 for the other properties upstream that would be free to build in the *Ravine* if this permit is approved (equivalent of about an acre/ft unit water increase), this will contribute to hazardous flooding downstream and further degradation of the water quality downstream on Trillium Creek and the Willamette River in violation of State and Federal water quality standards and the City's permit obligations.

G. Our community has raised demonstrably significant concerns with the clear intent of this WRA permit to pave the way for residential development on excessive slopes in our protected *Riparian Corridors/Ravines*. For the planning department to continue to deny or defer this underlying basis or purpose for the permit lacks accountability and is frankly disrespectful to our residents. I'm deeply disappointed by this and the attitude reflected in the City's responses to legitimate community concerns on this critical issue. The City's rationale reflects a lack of understanding of portions of our code intended to protect our vital water resources under our WRA Program, and from an experts' standpoint the lack of due diligence underlying this decision is troubling. If this permit is not denied it will mark a low point for our community planning and it will be further appealed.

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Axelrod / March 10, 2023

In summary, this WRA permit application does not meet the City's Community Development Code and is sufficiently flawed in technical application and rationale that it should be denied outright. Approving this permit would undermine foundational elements of our WRA Protection Program codified in Chapter 32, and would result in undesired and inappropriate infill development along portions of our designated *Significant Riparian Corridors/Ravines* which are currently protected. This development would degrade their valued functions and reduce wildlife habitat along and between these corridors, increase slope instability, adversely impact water quality and flooding hazards downstream, and increase wildfire risk to our residents along these corridors and nearby neighborhoods. Council can and should deny this permit application solely on its authority and duty to protect the welfare and safety of our residents under our City Charter, and I strongly recommend such action.

Let me add finally for the record that I understand the pressures that Staff may feel about meeting new regional goals for multi-plex/family and affordable housing resulting from HB 2001. I support such goals intended by the legislation, though not in the manner directed. However, Staff should not be looking to degrade our protected *Riparian Corridors/Ravines* by allowing infill development of single-family homes in drainages behind other homes or anywhere in our WRA protected *Corridors/Ravines* for that matter. Our City should target our principle public transportation corridor areas (such as near/along Hwy 43) to address multi-plex/family and more affordable housing needs in West Linn.

I urge Council to end this irresponsible planning/development approach here and now, and not remand this matter to others such as the Planning Commission. I also recommend that planning Staff receive training in the foundation and administration of our WRA Protection Program that we spent years developing through much hard work with dedicated experts guided by a public engagement process.

Finally, I would request that the City reimburse me the appeal fee of \$400 that I had to pay because of flawed noticing involving the City and our HSNA leadership during the holiday period which resulted in my having to file this appeal independently.

Respectfully,

Russell B. Axelrod, RG/LG-LHG
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Citations/Select Resources

DEQ 2021. Oregon Department of Environmental Quality, National Pollutant Discharge Elimination System, Municipal Separate Storm Sewer Systems, Phase I Individual Permit, Permit No. 101348, File No. 108016; Issued to Clackamas County, City of Gladstone, City of Happy Valley, City of Johnson City, City of Lake Oswego, City of Milwaukie, City of Oregon City, City of Rivergrove, City of West Linn, City of Wilsonville, Oak Lodge Water Services District, and Water Environment Services; Issued Sept 15, 2021; Effective Oct 1, 2021 to Sept 30, 2026.

DEQ 2022a. Oregon Department of Environmental Quality, Submittal of Oregon's 2022 Integrated Report, Letter from J. Wigal, ODEQ, to D. Opalski, USEPA, May 23, 2022.

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DEQ 2022b. Oregon Department of Environmental Quality, Methodology for Oregon's 2022 Water Quality Report and List of Water Quality Limited Waters: Pursuant to Clean Water Act Sections 303(d) and 305(b) and OAR 340-041-0046, May 2022.

DEQ 2022c. Oregon Department of Environmental Quality, 2022 Integrated Report Impaired Waters; Spreadsheet; May 2022.

EPA 2022. Streamflow Duration Assessment Method for the Pacific Northwest, US EPA, July 8, 2022.

<https://www.epa.gov/streamflow-duration-assessment/streamflow-duration-assessment-method-pacific-northwest>.

Portland Rainfall 2022 - <https://weatherspark.com/h/s/757/2022/1/Historical-Weather-Summer-2022-in-Portland-Oregon-United-States#Figures-Rainfall>.

<https://www.transect.com/resources/ephemeral-streams>

Select Wildfire/Urban Planning Resources:

Energy. Gov, Office of Energy Efficiency & Renewable Energy, Design for Wildfire Resistance - <https://basc.pnnl.gov/information/design-wildfire-resistance>

Portola Valley Neighbors United - <https://pvnu.org/how-wildfire-spreads>

Wildfire Hazard Assessments Inform Land Use Planning - <https://headwaterseconomics.org/wildfire/wildfire-hazard-assessments-inform-land-use-planning/>

Wildland Urban Interface: A look at Issues and Resolutions, FEMA and US Fire Administration, June 2022.

Monterey Co. Regional Fire District, Firewise Community Information thru Firewise USA, a Program of National Fire Protection Association.

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Small channel on Robin Creek with stream flow on Applicant's property. View looking downstream with proposed development area immediately to left (out of view). March 2023



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Same location of small channel on Robin Creek with stream flow on Applicant's property. View looking upstream into the ravine. March 2023

