

# Remand Hearing: LUBA Case No. 2023-001

## Evidence and arguments *against* the Second Assignment of Error

Shannon Hubler  
Felisha Way, Scappoose  
Profession: Stream Ecologist



“current” 100-yr floodplain

- Elevation = 52’

“current” 500-yr floodplain

- Elevation = 53’
- Area ~ 129,000 ft<sup>2</sup>
- Volume ~ 129,000 ft<sup>3</sup>

Data sources:

- Imagery: Google Earth
- Floodplains: FEMA\*
- Elevations: Pioneer Design Group (in record)
- Area/Volume: Google Earth (polygon feature)

\*<https://hazards.fema.gov/femaportal/wps/portal/NFHLWMSkmzdownload>



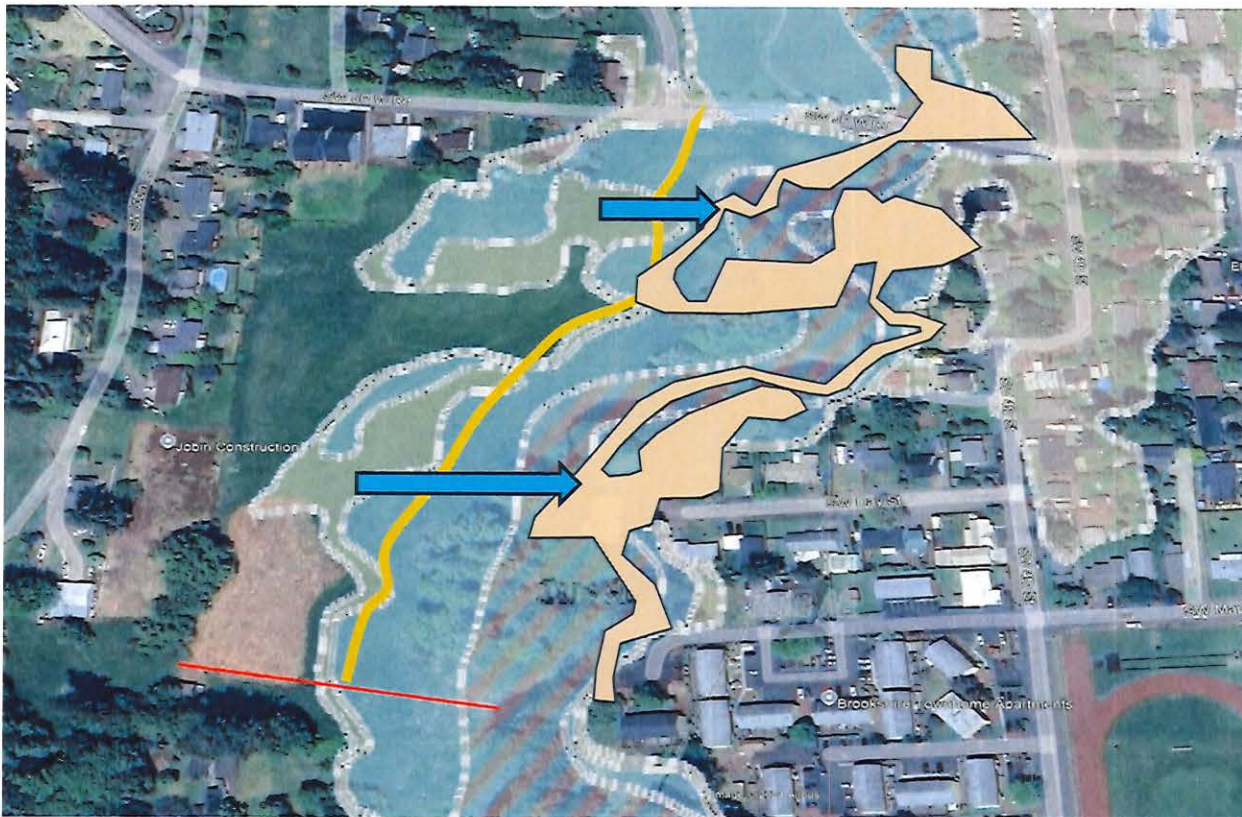


Proposed  
one-sided  
levee

Southern edge of  
proposed Buxton  
development



# Where do flood waters go if Buxton's one-sided levee is approved?



## 1 – Increased flood flows in South Scappoose Creek

- Erosion
- Bank failures
- Sedimentation

### Results:

- Impacts to **threatened and endangered salmonids**
- Riparian **restoration projects** will be at risk
- Cutting off the floodplain above “current” 100-yr flood **will not protect the creek**



# Where do flood waters go if Buxton's one-sided levee is approved?



## 2 - Into existing properties

- Flood damage
- Raised insurance premiums
- Failure to get flood insurance?

### Results:

- Increased pollution to the creek as floods recede
- Why are existing owners facing increased risk due to Buxton?

# Errors made by the City in approving the Buxton Ranch development

- 17.89 SENSITIVE LANDS--FISH AND RIPARIAN CORRIDOR OVERLAY

- 17.89.010 Purpose.

- The purpose of this chapter is to **protect and restore water bodies and their associated riparian areas**, thereby **protecting and restoring the hydrologic, ecological** and land conservation **functions** these areas provide. Specifically, this chapter is intended to **protect habitat for fish and other aquatic life**, protect habitat for wildlife, **protect water quality** for human uses and **for aquatic life**, **control erosion and limit sedimentation**, and **reduce the effects of flooding**. This chapter attempts to meet these goals by excluding structures from areas adjacent to fish-bearing lakes and streams, and their associated wetlands, and by prohibiting vegetation removal or other alterations in those areas. (Ord. 736 § 1, 2003)

# Errors made by the City in approving the Buxton Ranch development

- 17.130 CONDITIONAL USE
  - 17.130.050 Approval standards and conditions.
    - C. The planning commission may impose conditions on its approval of a conditional use, which it finds are necessary to ensure the use is compatible with other use in the vicinity. These conditions may include, but are not limited to, the following:
      - 12. **Requiring the protection and preservation of** existing trees, soils, vegetation, **watercourses, habitat areas and drainage areas;**

# Errors made by the City in approving the Buxton Ranch development

- 17.84.220 Variances to flood damage prevention.
  - A. A variance is a departure or grant of relief from the strict letter of the flood damage prevention chapter. It is designed for those situations where a proposed action is in keeping with the purpose of the chapter but there are practical difficulties in meeting strict chapter standards. The conditions for granting variances are stringent. **When dealing with a flood hazard there is little margin for error.**
  - B. **All flood hazard variances are deemed to be a major variance as defined in Chapter 17.134** and shall be so administered and appealed.
  - F. **Variances shall only be issued upon:**
    - 1. A showing of good and sufficient cause;
    - 2. **A determination that failure to grant the variance would result in exceptional hardship to the applicant that outweighs the risk associated with the variance;** and
    - 3. **A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense; create nuisances; cause fraud or a victimization of the public.**



# Errors made by the City in approving the Buxton Ranch development

- 17.134.030 **Criteria for granting a variance.**
  - The planning commission or planner shall approve, approve with conditions, or deny an application for a variance based on finding that the following criteria are satisfied. Minor variances shall satisfy criteria (A) through (C) and **major variances shall satisfy criteria (A) through (E):**
    - A. **The proposed variance will not be materially detrimental to** the purposes of this title, be in conflict with the policies of the comprehensive plan, to any other applicable policies and standards, and to **other properties in the** same zoning district or **vicinity**;
    - B. The use proposed will be the same as permitted under this title and city standards will be maintained to the greatest extent that is reasonably possible while permitting some economic use of the land;
    - C. **Existing physical and natural systems, such as** but not limited to traffic, **drainage**, dramatic land forms, **or parks will not be adversely affected any more than would occur if the development were located as specified in the title**; and
    - D. Exceptional or extraordinary conditions apply to the property that do not apply generally to other properties in the same zone or vicinity, which conditions are a result of the lot size, shape or topography or other circumstances over which the applicant has no control; and
    - E. The hardship is not self-imposed and the variance requested is the minimum variance which would alleviate the hardship. (Ord. 828, 2013; Ord. 634 § 1 Exh. A, 1995)

The second assignment of error: “44 was the number of lots the applicant could make “pencil” while protecting the creek and providing a minimum lot size of 4,000 square feet”

- Decreasing the development from 48 lots down to 44 lots did nothing to protect the creek
- The same one-sided levee is built,
  - At the same height
  - At the same length
- The hydrological and ecological impacts of removing floodplain storage beyond the 100-yr flood remain
- Maybe the developers should use the other end of the “pencil” and erase enough of the lots to not need a flood wall?
  - Fewer homes, outside of the 500-yr floodplain would allow for truly “protecting the creek”



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City of Scappoose  
Remand Hearing: 9/30/24  
Docket # SB-1-22, ZC1-22, Cu1-22, SLDP (1-22, 2-22, 3-22, 4-22)  
Re: proposed development of Buxton property

To the City of Scappoose and Hearing Officer,

As a stream ecologist with 27 years of experience studying streams and rivers all over the State of Oregon, I am deeply concerned with the Buxton Ranch development (herein "Buxton"), as it is proposed. To be clear, I am not opposed to development of the Buxton property, rather I am opposed to the current proposal to cram 44 homes into the property and by doing so, altering the floodplain of South Scappoose Creek.

The second assignment of error states: "44 was the number of lots the applicant could make "pencil" while **protecting the creek** and providing a minimum lot size of 4,000 square feet"

This development, as planned to include a "retaining wall" to raise new homes out of the 100-year floodplain as required by City code, will actively degrade South Scappoose Creek. How? The proposed retaining wall will act as a levee, forcing flood waters to the east and downstream, resulting in increased erosion of the unarmored stream banks opposite and downstream of Buxton, further downcutting of the stream channel, and increased flooding of existing City residents. This will result in **decreased protections for the creek**.

### **Is Buxton Ranch building a levee?**

According to the US Army Corps of Engineers (USACE, <https://levees.sec.usace.army.mil/levee-basics/what-is-a-levee/>):

- "A levee is a **human-made barrier** with the primary **purpose of reducing the frequency of flooding to a portion of the floodplain...**"

The "retaining wall" proposed for Buxton is designed with large stones/boulders at a height of several feet (see spec sheets submitted by developer and Pioneer Design Group). It is without question a "human-made barrier with the purpose of reducing the frequency of flooding to a portion of the flood plain". Levees are notorious for raising flood levels outside of the levee system. A typical levee system designed to protect homes from flooding would do so on both sides of a stream or river if both sides contained residences. Unfortunately for the citizens of Scappoose, the only residents that will benefit from this reduction in flood risk are those who purchase homes within Buxton. That is because at any floods above the **current** 100-yr flood level the armored wall (levee) will increase stream flows outside of Buxton.

## **What are the impacts of the one-sided Buxton Ranch levee?**

Again, according to the USACE (<https://levees.sec.usace.army.mil/levee-basics/what-is-a-levee/>):

- “Levees also **shift the flood risk** by creating backwater at the levee and accelerating flows within the levee system, and historical levee design did not consider the **destructive impact on floodplain ecosystems.**”

The design for Buxton would effectively build a one-sided levee for a small portion of the South Scappoose Creek watershed. This would without question “shift the flood risk” to other residents. The one-sided levee would also result in decreased creek protections due to cutting off floodplain storage and shifting flood waters away from Buxton and towards the unarmored east bank opposite of Buxton, as well as to unprotected areas downstream. By removing floodplain storage in Buxton, stream flows (i.e., velocities and volumes) will be higher outside of Buxton than if the levee was not in place. Higher velocities bring about increased streambank erosion and channel downcutting (Rosgen 2001, Larsen et al. 2006). Increased erosion and downcutting leads to ecological impacts (i.e., decreased creek protections) including excess sedimentation, decreased water quality, and bank failures.

Sedimentation, or the accumulation of fine sediment deposits, is well documented in scientific literature as a leading cause of ecological degradation (Klein 1979, Bryce et al. 2008, Paulson et al. 2008, Bunida et al. 2013, Hubler et al. 2016). Excess fine sediments fill in spaces between substrates, reducing suitability for salmonid spawning and egg incubation (Jensen et al. 2009) and reduced survivability for juveniles (Suttle et al. 2004). There are three federally-listed fish species on the Endangered Species Act (ESA) and identified by the State of Oregon that will be impacted by the Buxton retaining wall, which will act as a levee and decrease protections for the creek. (See Exhibit 11, [10-27-2022 Planning Commission minutes](#), pp. 266). Coho salmon and steelhead trout were both identified as spawning and rearing in South Scappoose Creek. While Chinook salmon apparently do not reside in South Scappoose Creek, they use the creek below North Scappoose Creek for rearing and migration. These listed species are considered highly sensitive to the effects of fine sediment deposits which are likely to increase due to shifting flood risks outside of Buxton.

Bank failures as a result of the Buxton levee will also put at risk all of the hard, high quality work that the Scappoose Bay Watershed Council is doing to improve instream habitat and riparian conditions for South Scappoose Creek.

## **Increased flows due to Buxton’s one-sided levee**

Using Google Earth and importing flood maps available from FEMA (2024), I was able to coarsely delineate the area listed by FEMA as the 500-yr floodplain. An estimated total of 129,000 ft<sup>2</sup> currently FEMA-identified flood waters will be cut-off by the Buxton levee (Figure 1). Assuming a 1-ft rise in elevations, as identified by Environmental Science & Assessment, LLC (Exhibit 11, [10-27-2022 Planning Commission minutes](#), pp. 266), this means 129,000 cubic feet of flood waters will be cut-off from the Buxton property and pushed to the east and downstream. This increase in flooding



will result in increased flood risks to residents and decreased creek protections to the east and downstream of the proposed development, due to the one-sided levee (Figure 2).



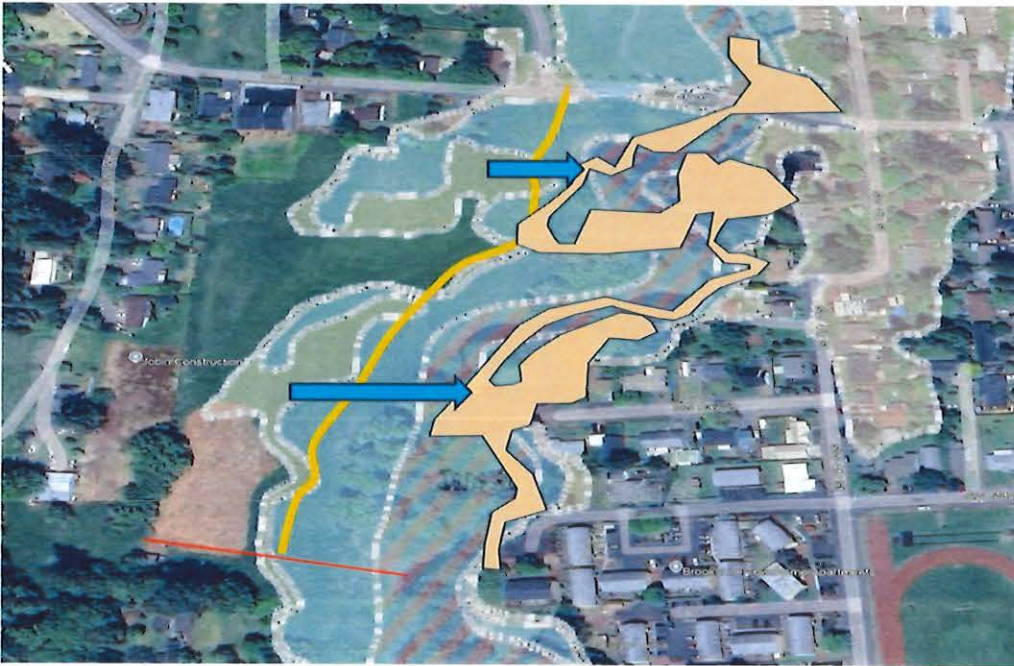
Figure 1. FEMA-identified flood areas for the proposed Buxton Ranch development. The red line represents the approximate southern boundary of the development. Red-hatched areas represent the creek and floodway. Light green areas represent the 100-year floodplain. Tan areas represent the 500-year floodplain and approximately 129,000 square feet.

By many accounts, flood risks are increasing (Thomas and Nisbet 2007, Schiermeier 2011, Wilby and Keenan 2012). Current officially mapped 100-year floodplains are quite likely woefully inadequate to represent the true risk of a flood with a 1% chance of occurring in any given year. This is especially true in the context of urban development which results in a significant increase in impervious surfaces\*. In an era of increasing intensity storm events and rising flood impacts, approving a project like Buxton that adds in an armored wall or levee to actively reduce floodplain storage and increase erosion and bank failures will undoubtedly not “protect the creek”.

\* Note: ODFW recognizes the importance of limiting impervious surfaces associated with urban development. When consulted about the Buxton Ranch development, ODFW staff recommended the use of construction methods limiting impermeable surfaces. I do not see anywhere in the developer’s application where they implemented the use of permeable construction methods (e.g., porous asphalt, pavers, green roofs) to reduce the impacts of runoff from the development. The failure to comply with ODFW’s recommendations will reduce protections for the creek.



Exhibit 11, pp. 268): “ES&A consulted Oregon Department of Fish and Wildlife (ODFW) and conducted a site visit with Monica Blanchard, the North Willamette Watershed Assistant District Biologist on August 9, 2019. **ODFW recommended** reducing storm water inputs, **use of permeable building techniques** and expanded water quality facility to minimize impacts to aquatic species present in the South Scappoose Creek reach extending through the site (ODFW 2019).”



*Figure 2. Shifted flood and erosion risks into South Scappoose Creek as a result of the one-sided levee associated with the proposed Buxton Ranch development. An estimated 129,000 cubic feet of flood waters will be pushed east of and downstream of the project, with increased erosion, bank failures, and flooding of existing residents' homes.*

### **Errors made by the City in approving the Buxton Ranch development**

The proposed Buxton Ranch development appears to be in violation of the following City Municipal Codes (CMC) and the Comprehensive Plan.

- Chapter 17.89 SENSITIVE LANDS--FISH AND RIPARIAN CORRIDOR OVERLAY
- 17.89.010 Purpose.
  - The purpose of this chapter is to **protect and restore water bodies and their associated riparian areas**, thereby **protecting and restoring the hydrologic, ecological** and land conservation **functions** these areas provide. Specifically, this chapter is intended to **protect habitat for fish and other aquatic life**, protect habitat for wildlife, **protect water quality for human uses and for aquatic life**, **control erosion and limit sedimentation**, and **reduce the effects of flooding**. This chapter attempts to meet these goals by excluding structures from areas adjacent



to fish-bearing lakes and streams, and their associated wetlands, and by prohibiting vegetation removal or other alterations in those areas. (Ord. 736 § 1, 2003)

The impacts of the Buxton “retaining wall” (acting as a one-sided levee) were outlined above and include reduced protections for the creek by means of the following: altered hydrology due to cutting off the floodplain and altering flows; impacts to the ecological structure and functions of fish and other aquatic life communities; reduced instream habitat quality for ESA-listed salmon and steelhead due to erosion and subsequent sedimentation; reduced riparian habitat conditions due to increased flows subsequent bank failures; reduced water quality due to erosion; leading to increases in turbidity, total and suspended solids, and nutrient transport; and increasing the risk of “flooding” to areas outside of the Buxton development

While none of the Buxton development is within the fish and riparian corridor, the impacts of the development will be most pronounced within the corridor. The impacts will be observed at floods above the 100-yr floodplain and developers and City staff may argue that they are thus not covered by CMC. However, the impacts from increased flooding due to the Buxton levee are at odds with the “Purpose” outlined in City Code 17.89 to “protect and restore...riparian areas”, “protecting and restoring the hydrologic, ecological...functions”, “control erosion and limit sedimentation”, and “reduce the effects of flooding”.

- Chapter 17.130 CONDITIONAL USE
  - 17.130.050 Approval standards and conditions.
    - C. The **planning commission** may impose conditions on its approval of a conditional use, which it finds are necessary to ensure the use is compatible with other use in the vicinity. These conditions may include, but are not limited to, the following:
      - 12. **Requiring the protection and preservation of existing trees, soils, vegetation, watercourses, habitat areas and drainage areas;**

The City erred in approving the Conditional Use provision (17.130) for the Buxton development because the planning commission was REQUIRED to ensure the “protection and preservation of existing...watercourses, habitat areas, and drainage areas”. The development application includes plans to install a retaining wall acting as a levee to reduce flood impacts only for the development, alter stream hydrology [in the watercourse] above the 100-yr flood levels, resulting in erosion [affecting riparian habitat areas], sedimentation [in the watercourse, as well as the downstream drainage area], and impacts to ESA-listed salmonids.

- Chapter 17.150 LAND DIVISION—SUBDIVISION
  - 17.150.010 Purpose.
    - The purpose of this chapter is to provide rules, regulations and standards governing the approval of plats of subdivisions; to carry out the development pattern and plan of the city; to promote the public health, safety and general welfare; to lessen congestion in the streets; **secure safety from fire, flood,** pollution and other dangers; to provide adequate light and air, prevent

overcrowding of land, and facilitate adequate provision for transportation, water supply, sewage and drainage; and to encourage the conservation of energy resources. (Ord. 727 § 1, 2002; Ord. 634 § 1 Exh. A, 1995)

- 17.150.060 Approval standards--Tentative plan.
  - A. The planning commission may approve, approve with conditions or deny a tentative plan based on the following approval criteria:
    - 1. **The proposed tentative plan shall comply with the city's comprehensive plan, the applicable chapters of this title, the public works design standards, and other applicable ordinances and regulations;**

The City erred in approving this development due to the installation of a retaining wall, acting as a levee, that would increase the effects of “flooding” at the expense and risk of current and future residents outside of the development area. The Buxton development most definitely fails this provision by failing to “secure safety from...flood...” for its residents.

- 17.84.220 **Variances to flood damage prevention.**
  - A. A variance is a departure or grant of relief from the strict letter of the **flood damage prevention** chapter. It is designed for those situations where a proposed action is in keeping with the purpose of the chapter but there are practical difficulties in meeting strict chapter standards. The conditions for granting variances are stringent. **When dealing with a flood hazard there is little margin for error.**
  - B. **All flood hazard variances are deemed to be a major variance as defined in Chapter 17.134** and shall be so administered and appealed.
  - F. Variances shall only be issued upon:
    - 1. A showing of good and sufficient cause;
    - 2. A determination that **failure to grant the variance would result in exceptional hardship to the applicant that outweighs the risk associated with the variance; and**
    - 3. **A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense; create nuisances; cause fraud or a victimization of the public.**

The City erred in approving the Buxton development by allowing an improper “Variances to flood damage prevention” (17.84.220) due to failing to comply with 17.84.220-B, which calls meet all criteria for a major variance as defined in CMC 17.134.030 (see below). In order to grant a variance for “flood damage protection”, the City was required to satisfy all criteria under 17.134.030 (A-E).

Criteria A states the variance must “not be materially detrimental to...other properties in the...vicinity”. Clearly, the installation of a retaining wall acting as a levee to shift ~ 129,000 cubic feet of flood waters away from Buxton and towards “other properties in the...vicinity” (Figure 3) represents “material detriment” through increased flood damages and likely increased flood insurance rates that would not have occurred without the retaining wall.



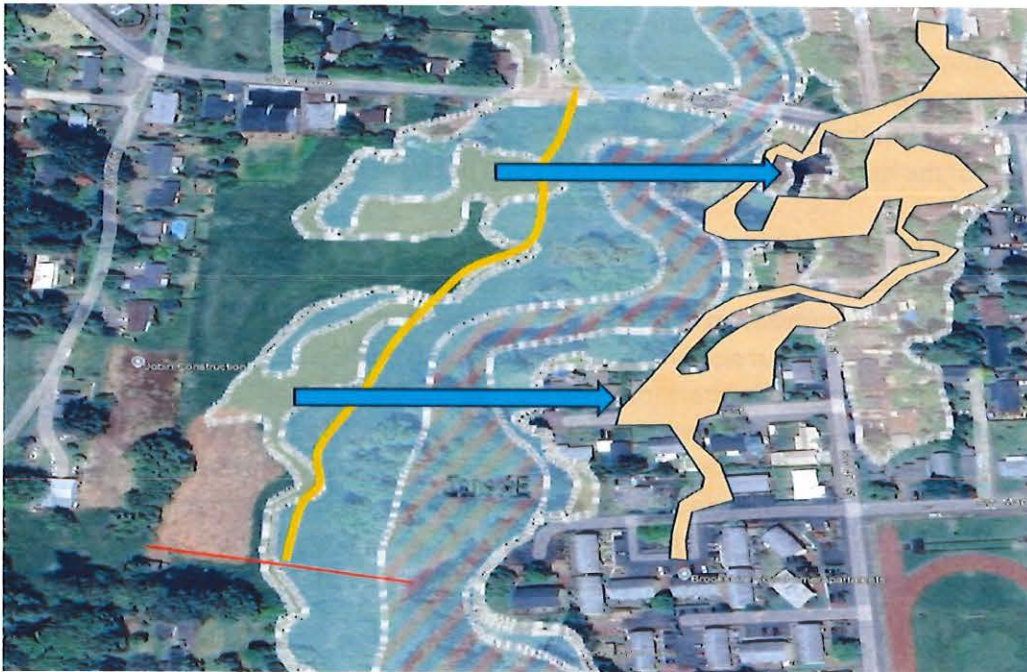
In addition, criteria C states “Existing physical and natural systems, such as...drainage...or parks will not be adversely affected any more than would occur if the development were located as specified in the title”. The property is currently zoned as R-1, with a minimum lot size of 20,000 square feet. The City inappropriately approved a major variance by allowing for lots with as little as 4,000 square feet (2,000 square feet below current city minimums), by building a retaining wall that will adversely affect existing natural systems [the creek], drainage [shifting ~129,000 cubic feet of floodwaters], and parks [Chief Concomoly and Veterans parks, immediately downstream of Buxton, will show increased flooding].

In addition, 17.84.220-F-2 states “A determination that failure to grant the variance would result in exceptional hardship to the applicant that outweighs the risk associated with the variance...” It is unclear how the City determined that the applicant would experience “exceptional hardship”. Based on my own interpretations of the Buxton Ranch development plans and schematics (10-27-2022 meeting packet, pp224 – 246), about half of the development (~20 lots) could be built on the land with grading that did not include a retaining wall that would shift flood risk to the nearby and downstream community or alter floodplain storage and result in decreased stream protections. To me this doesn’t seem like an “exceptional hardship”, where 20 or so homes still results in millions of dollars in profits for both the landowner and developer. Without the City providing proof of the exceptional status of the hardship, the development should not have been approved.

Further, 17.84.220-F-3 states “A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense; create nuisances; cause fraud or a victimization of the public.” The development may not increase 100-yr flood levels (as they are currently, but surely inaccurately defined), but the use of a retaining wall acting as a levee to push higher flood waters into existing neighborhoods does represent additional threats to public safety. This is most noteworthy for the bridge crossing South Scappoose Creek at JP West Road. Note in figures 2 and 3 how the retaining wall (levee) generally flows in a manner towards this bridge crossing. Flood waters above the 100-year flood will be deeper at this stream crossing than previously due to cutting off the 500-year floodplain, resulting in increased flood heights at this bridge and subsequent increased risk of motorists attempting to cross the flooding stream.

- **17.134.030 Criteria for granting a variance.**
  - The planning commission or planner shall approve, approve with conditions, or deny an application for a variance based on finding that the following criteria are satisfied. Minor variances shall satisfy criteria (A) through (C) and **major variances shall satisfy criteria (A) through (E):**
    - **A. The proposed variance will not be materially detrimental to the purposes of this title, be in conflict with the policies of the comprehensive plan, to any other applicable policies and standards, and to other properties in the same zoning district or vicinity;**
    - B. The use proposed will be the same as permitted under this title and city standards will be maintained to the greatest extent that is reasonably possible while permitting some economic use of the land;

- C. Existing physical and natural systems, such as but not limited to traffic, drainage, dramatic land forms, or parks will not be adversely affected any more than would occur if the development were located as specified in the title; and
- D. Exceptional or extraordinary conditions apply to the property that do not apply generally to other properties in the same zone or vicinity, which conditions are a result of the lot size, shape or topography or other circumstances over which the applicant has no control; and
- E. The hardship is not self-imposed and the variance requested is the minimum variance which would alleviate the hardship. (Ord. 828, 2013; Ord. 634 § 1 Exh. A, 1995)



*Figure 3. The effects of the proposed Buxton Ranch development retaining wall will be to act as a levee and shift floodwaters (above the 100-yr flood) away from the development and into other properties into the vicinity. This represents material detriment to those other property owners.*



## **Closing Remarks**

While much of the City Municipal Codes explicitly limit their definitions of flooding to the 100-year flood, the general purposes of the CMCs define the desire to protect and restore South Scappoose Creek. This is also reflected in the goals outlined in the Comprehensive Plan (see "Policies for Natural Factors and Local Resources", #10, pp. 143):

Attempt to **reduce the flooding and accelerated erosion along North and South Scappoose Creek** through development codes, **addressing stream down cutting, increasing functional floodplain area**, promoting natural bank vegetation, and providing overflow swales and channel reconnection. Implementation of any improvements shall be done in conjunction with the Department of Fish and Wildlife, Department of State Lands, and the Corps of Engineers.

As a professional stream ecologist, studying the impacts of human disturbances on rivers and streams across Oregon for over 25 years, there is absolutely no question in my mind that a development that effectively builds a levee that cuts off floodplain storage will have an adverse impact on the South Scappoose Creek ecosystem. As proposed, this project will further impact ESA-listed coho and steelhead populations in South Scappoose Creek. It will also put at risk the extensive efforts of the Scappoose Bay Watershed Council to restore riparian conditions in the neighboring stream reaches.

In addition, by allowing a levee to shift flood risk to "other properties in the...vicinity", the City is opening itself up to future lawsuits by residents impacted by the Buxton Ranch development. The City has clearly outlined that in order to be approved, major variances must not allow for material detriment to existing properties.

As I have stated in previous hearings on this proposed development, I am not against developing the Buxton property. What I am against is a development that will certainly not be "protecting the creek" and increasing risks to other residents. The applicant could easily make millions of dollars by turning the "pencil" over and erasing a substantial number of lots so as to not require a one-sided levee.

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