



DEPARTMENT OF PUBLIC WORKS
COUNTY OF HUMBOLDT
MAILING ADDRESS: 1106 SECOND STREET, EUREKA, CA 95501-0579
AREA CODE 707

On-line
Web: humboldtgov.org

	Public Works Building		
	Second & L St., Eureka		
	Fax 445-7409		
Administration	445-7491	Natural Resources	445-7741
Business	445-7652	Natural Resource Planning	267-9542
Engineering	445-7377	Parks	445-7651
Facility Management	445-7621	Roads	445-7421

Clark Complex	
Harris & H St., Eureka	
Fax 445-7388	
Land Use	445-7205

Memorandum:

**Public Trust Analysis and Groundwater Sustainability Plan Consistency Determination for
Proposed Modification to a Conditional Use Permit**

Project: Modification to PLN-2019-15835 for Assessor Parcel No. 201-311-016

Prepared by: Humboldt County Department of Public Works, serving as the Humboldt County
Groundwater Sustainability Agency (GSA) Administrator

Date: February 20, 2024

I. Introduction

The purpose of this memorandum is to analyze potential impacts to public trust resources associated with a proposed increase in annual water use at a cannabis cultivation site (Figure 1) located within the Eel River Valley groundwater basin and to evaluate whether the proposed modification to the conditional use permit is consistent with the Eel River Valley Groundwater Sustainability Plan and common law public trust doctrine.

II. Project Description

Applicant proposes to increase annual water use from 334,000 gallons to 937,000 gallons associated with cannabis cultivation activities using a well installed in 2018. The GSA received this request for consultation on January 30, 2024. Documents reviewed include:

- Letter (dated August 31, 2023) from Lindberg Geologic Consulting to Kamino, LLC regarding Hydrogeologic Well Assessment, WCR 2018-008876
- Letter (dated August 29, 2023) from Kamino, LLC to Humboldt County Planning and Building Department regarding the County's letter dated August 24, 2023
- Water Use Report (dated August 17, 2023 in digital filename) from Kamino, LLC
- Site Diagram (dated May 8, 2022) prepared by Kamino, LLC
- Well Completion Report WCR 2018-008876
- Letter (dated September 13, 2019) from Stillwater Sciences to Humboldt County Planning Department regarding well connectivity

Subject Property

Address:	604 Highway 36, Alton
Assessor Parcel No.:	201-311-016

Geomorphic setting:	The site is situated within the alluvial valley of the Van Duzen River
Distance from nearest navigable water:	The well is located approximately 2,200 feet from the Van Duzen River
Distance from nearest tributary to a navigable water:	None nearby
Nearest County monitoring wells:	The well is located approximately 3,900 feet from MW-13

Well Information

Use of Water:	Cannabis cultivation
Boring Depth:	160 feet below ground surface
Sanitary surface seal:	From surface grade to 20 feet below ground surface
Casing Diameter:	5 inches
Screened interval:	100 to 160 feet below ground surface
Capacity:	Not determined

Estimated Water Use

Annual Consumption:	937,000 gallons per year (2.9 acre-feet per year)
Average Daily Consumption:	2,567 gallons per day
Equivalent average flowrate:	1.8 gallons per minute

III. Proposed Conditions of Approval

The Humboldt County GSA does not propose any Conditions of Approval.

IV. Background

Water Rights

Landowners hold an overlying right to pump groundwater from underneath that land for reasonable and beneficial use. An overlying right is inherently attached to the land overlying a groundwater basin. A landowner's overlying right to utilize groundwater is of equal priority and correlative with the overlying rights of other landowners within the basin. Humboldt County does not allocate or administer water rights; however, a County permit is required to construct or replace a water well (described below) and certain land use activities are subject to conditional use permits. Water rights are subject to the overriding constitutional limitation of Article X, section 2 of the California Constitution which requires that "the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such water is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare."

Well Permitting

Humboldt County Code (Title VI, Division 3, Chapter 1, Section 631)¹ establishes requirements for construction, reconstruction, repair, and destruction of water wells, cathodic protection wells, and monitoring wells to protect the health, safety, and general welfare of the people of the State of California. These requirements are consistent with State of California well standards (Bulletin 74-81 and Bulletin 74-90) and apply county-wide. Applications for water well permits are administered through the DEH².

Eel River Valley Groundwater Basin

The Eel River Valley Groundwater Basin (“Basin”) encompasses the communities of Ferndale, Loleta, Fortuna, Carlotta, Hydesville, Alton, Metropolitan, Rio Dell, and Scotia. The Basin includes the alluvial valleys of the lower Eel River and Van Duzen River, upland terraces (primarily near Fortuna, Carlotta, and Hydesville), and lower portions of adjacent mountainous areas. The primary water-bearing units within the Basin are the alluvial aquifer and the underlying Carlotta Formation. The alluvial aquifer is most prominent within the central portions of the lower Eel River Valley, where the thickness is in excess of 260 feet, and extends up the Van Duzen River Valley, thinning from approximately 125 feet thick at the confluence with the Eel River to less than 40 feet in the vicinity of Carlotta³. The alluvial aquifer is generally in direct contact and hydraulic connection with the Eel and Van Duzen Rivers. The Carlotta Formation underlies the alluvial aquifer and most, if not all, of the Eel River Valley.

The Basin is a coastal basin with drainage to the ocean along approximately ten miles of coastline. The Basin encompasses the Eel River estuary. The tidally influenced reach of the Eel River extends approximately 12 miles upstream from the river mouth, a few miles upstream of Fernbridge. In addition to the lower reaches of the Eel River and its tributary the Van Duzen River, the Basin contains the lower reaches of several tributary streams including Salt River, Palmer Creek, Rohner Creek, and Yager Creek.

Van Duzen River

The existing well on the subject property is located approximately 2,200 feet from the Van Duzen River. The Van Duzen River is a navigable waterway and a major tributary to the Eel River. The U.S. Geological Survey maintains a stream gauge near Bridgeville, upstream of the Basin. Flows are highest during the wet season (November through April) and drop significantly during the dry season, with the lowest flows typically in August and September.

Groundwater-Surface Water Interactions

Groundwater (flowing in the alluvial aquifer) and surface water (flowing through the river channels of the Eel River, Van Duzen River, and certain tributaries) are interconnected through the hydrologic cycle. Groundwater and surface water interactions are complex and highly variable over space and time⁴. Efforts to understand the dynamics of groundwater-surface water interactions within the Basin are ongoing. In addition to the work performed to prepare the Groundwater Sustainability Plan (described below), the County continues to collect monitoring data and has applied for funding to perform more detailed data collection and analysis.

The existing well on the subject property is screened from 100 feet to 160 feet below ground surface. Based on a review of the well completion report, Stillwater Sciences (2019) noted that a “slowly permeable” blue clay layer separates the surficial alluvium from the underlying sandstone and shale bedrock, which begins at 84 feet below ground surface. Stillwater Sciences concluded that the deeper bedrock aquifer does not appear to be hydraulically connected with shallow perched water in the vicinity of the well, and that water withdrawal from the well is unlikely to affect shallow groundwater elevations in

¹ <https://humboldt.county.codes/Code/631>

² <https://humboldt.gov/685/Land-Use-Program>

³ Hydrogeologic Conceptual Model for the Eel River Valley Basin (GHD, August 18, 2021)

⁴ Preliminary Analysis of 2020/2021 Surface Water and Groundwater Interaction Studies – Eel River Valley Groundwater Basin (SHN, January 24, 2022)

the area or stream flow within the Van Duzen River. Similarly, Lindberg Geologic Consulting (2023) concluded that the well is screened across the Carlotta formation underlying the alluvial aquifer and is not significantly connected to the alluvial aquifer.

Groundwater Sustainability Plan

The Sustainable Groundwater Management Act (SGMA), passed and signed in 2014, required preparation of Groundwater Sustainability Plans (GSPs) in basins designated as medium- and high-priority by DWR within specified deadlines. The Eel River Valley Groundwater Basin is designated as medium-priority by DWR. In 2020, Humboldt County received a grant from DWR to conduct technical studies, perform stakeholder outreach, and prepare a GSP for the Basin. On January 25, 2022, the Humboldt County Board of Supervisors adopted a GSP for the Basin⁵ and authorized its submittal to DWR for review, which is expected to be completed in Summer 2023.

The fundamental goal of SGMA is to support beneficial uses of groundwater while avoiding undesirable results for six sustainability indicators: groundwater levels, groundwater storage, seawater intrusion, water quality, land subsidence, and beneficial uses of interconnected surface water. While SGMA is focused on groundwater conditions, surface waters are inherently involved because they are often hydrologically connected with groundwater. SGMA requires the establishment of sustainable management criteria for six sustainability indicators. Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the basin. Sustainability indicators include adverse impacts to beneficial uses of interconnected surface waters (for example, the Eel River). Undesirable results are based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin. Minimum thresholds quantify the conditions at representative monitoring sites that are used to define undesirable results. Measurable objectives are quantitative goals that reflect the basin's desired groundwater conditions.

The sustainability goal for the Basin is to maintain high-quality and abundant groundwater resources to support existing and long-term community needs without causing undesirable results. The average annual total groundwater use within the Basin from water year 2011 through 2020 was approximately 14,837 acre-feet. This total annual use included approximately 12,559 acre-feet for agricultural irrigation (85%), 1,733 acre-feet for municipal drinking water (12%), 414 acre-feet for domestic drinking water (3%), 98 acre-feet for cannabis (0.7%), and 34 acre-feet for commercial/industrial (0.2%).

An integrated groundwater-surface water computer model (hydrologic model) was created to simulate the movement of groundwater and surface water to support preparation of the GSP. The model was used to gain insight into hydrologic processes within the Basin, simulate potential future scenarios, analyze potential impacts, and support the creation of sustainable management criteria. To analyze potential impacts to interconnected surface water, the GSP focused on criteria for adult fish passage, which is one of the most sensitive indicators of surface water beneficial uses in the lower Eel and Van Duzen Rivers. The GSP incorporated published criteria for the minimum water depth required for passage of adult salmon. The GSP established a benchmark for potential impacts as a lowering in river stage (the height of water in the channel) by 0.1 feet during the time period for potential fish passage (September through November) due to cumulative groundwater pumping.

The GSP synthesized empirical data, stakeholder input, computer simulation results, and geological interpretation to establish a management framework for sustainably managing groundwater resources within the Basin for economic, social, and environmental benefits. A key determination made in the GSP is that the Basin is being managed sustainably and undesirable results caused by groundwater conditions have not occurred and are not imminent, based on the best available data and information. The GSP concluded that groundwater pumping is not creating significant and unreasonable impacts on water levels, water storage, seawater intrusion, water quality, or the beneficial uses of interconnected surface waters.

⁵ <https://humboldt.gov.org/2820/Eel-River-Valley-Groundwater-Basin-Resou>

The sustainable yield for the Basin was estimated to be at least 30,000 acre-feet per year. This amount represents a 100% increase from current groundwater use rates. Therefore, the Basin as a whole is not significantly constrained for groundwater availability. The GSP concluded that future water budgets for the Basin, accounting for climate change, land use changes, and population growth, would generally be equivalent to the current water budget. Minimum thresholds and measurable objectives associated with groundwater levels, annual groundwater pumping, and water quality were developed in specified monitoring wells for ongoing monitoring to assess whether undesirable results remain absent. The GSP includes a minimum threshold to maintain groundwater use below 30,000 acre-feet per year and a measurable objective to maintain groundwater use below 22,500 acre-feet.

Public Trust Doctrine

Under the common law Public Trust Doctrine, the State holds tidelands, submerged lands, and navigable waterways in trust for the benefit of the public, to be used for public trust purposes. Public trust purposes and uses include, but are not limited to, waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. Where governmental actions or decisions affect the public trust, the State must determine whether the proposed use of land is consistent with trust purposes and make findings to that effect⁶.

In its landmark 1983 decision, the California Supreme Court in *National Audubon Society v. Superior Court* applied the public trust doctrine for the first time to limit the appropriation of water from navigable streams and nonnavigable tributaries⁷. Specifically, the court held that “[t]he state has an affirmative duty to take the public trust into account in the planning and allocation of water resources.” The State Water Resources Control Board, the state agency in charge of administering water rights in California, may allocate water resources within its discretion and “despite foreseeable harm to public trust uses” but only as long as it “considers” public trust resources and “preserves” those resources to the extent “feasible.” What is feasible, in turn, includes what is in the “public interest” as determined by the State (or other trustee agency)⁸. Legal subdivisions of the State such as counties and special districts may share responsibility for administering the public trust.

In 2018, the Third Appellate District in California determined that the public trust responsibility extends to consideration of impacts to public trust resources when a trustee agency (there, a county) approves groundwater wells in a basin where there will be harm to public trust uses or values in an interconnected navigable waterway⁹. Although counties do not administer or allocate overlying rights to groundwater use, and groundwater itself is not a public trust resource¹⁰, the 2018 case determined that counties have a duty under the Public Trust Doctrine to consider whether the issuance of a well permit for groundwater extraction would affect public trust resources associated with interconnected navigable waters. The 2018 case also determined that SGMA and the Public Trust Doctrine co-exist as separate and independent laws (i.e., one law does not supplant the other).

V. Public Trust Analysis

Overview

Use of water for agricultural supply is considered a beneficial use of water under the North Coast Basin Plan¹¹.

⁶ *San Francisco Baykeeper, Inc. v. State Lands Commission* (2015) 242 Cal.App.4th 202.

⁷ *Nat'l Audubon Soc'y v. Superior Court* (1983) 33 Cal.3d 419, 446-447.

⁸ *State Water Resources Control Bd. Cases* (2006) 136 Cal.App.4th 674, 777-778.

⁹ *Environmental Law Foundation v. State Water Resources Control Bd.* (2018) 26 Cal.App.5th 844.

¹⁰ *Santa Teresa Citizens Action Group v. City of San Jose* (2003) 114 Cal.App.4th 689.

¹¹ https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/

Hydrologic Assessment

Acute Impacts

The existing well on the subject property is located approximately 2,200 feet from the Van Duzen River.

The potential for acute impacts to a waterway depends on multiple factors, including:

- The volume of water used (particularly during the low-flow seasons in the summer and fall).
- The setback distance between the well and the waterway.
- The physical characteristics of the water-bearing unit (especially hydraulic conductivity and the potential presence of aquitards).
- Whether the well draws from the aquifer or perched groundwater.
- Patterns of water use (whether the pumping rate is high and intermittent or low and steady).
- What portion of the extracted water recharges back to groundwater through a septic system.
- The natural (unimpaired) hydrology of the waterway.

The proposed water use rate at the subject property is relatively low. Given that the existing well does not draw from the alluvial aquifer and is not directly interconnected with a navigable water, the risk for acute impacts is considered negligible. With the substantial setback distance between the well location and the Van Duzen River, the risk to streamflow within a navigable water or tributary to a navigable water is considered negligible.

Cumulative Impacts

The annual volume of proposed groundwater extraction (approximately 2.9 acre-feet) is significantly less than the Basin's estimated annual average total groundwater use (14,837 acre-feet) and the estimated sustainable yield (30,000 acre-feet).

Summary

The extraction of a relatively small volume of water at a distance of approximately 2,200 from the Van Duzen River from a water-bearing unit that does not have a direct hydraulic connection to the river is unlikely to have any measurable effect. Therefore, the effects on flowrates or water surface elevations within the Van Duzen River would be *de minimis*.

Public Trust Uses and Values

Waterborne Commerce

Waterborne commerce traditionally refers to the buying and selling of commodities involving transportation by water. The Van Duzen River is used for mining of aggregate from gravel bars during the dry season, but the extracted gravel is transported by land-based vehicles rather than by boat or barge. There are no known uses of the Van Duzen River for waterborne commerce of commodities.

Navigation

Navigation traditionally refers to movement over water by boat, ship, or other watercraft for the purpose of transportation. The Van Duzen River has very limited, if any, use for transportation (recreational boating and paddling are evaluated below). While the Van Duzen River does support watercraft use for recreation, the amount of water produced from this disconnected agricultural supply well is *de minimis*, with no measurable effect on navigation in the Van Duzen River or lower Eel River.

Fisheries

The portion of the Van Duzen River within the Basin provides habitat for anadromous salmonids and other fish and aquatic species, primarily as a migration corridor for juveniles out-migrating in the spring and adults migrating upstream in the fall and winter. The lower river provides very limited rearing habitat due

to high water temperatures and poor habitat quality, and small areas of adult holding and spawning habitat¹². The Van Duzen River is used for recreational fishing.

Based on the hydrologic assessment described above, the proposed extraction from the existing well will have no measurable effect on flows and, therefore, no adverse effect on fisheries within the Van Duzen River or lower Eel River.

Water-related Recreation and Public Access

The Eel River and Van Duzen River are regularly used for recreational boating and paddling when flow conditions are suitable. Based on the significant distance between the well and the Van Duzen River and the absence of direct hydraulic connection, the well will have no measurable effect on flows or water surface elevations and, therefore, no adverse effect on recreational boating and paddling within the Van Duzen River or lower Eel River.

Open Space

The Van Duzen River and the Eel River contribute to scenic vistas and the aesthetics of the Eel River Valley. Based on the significant distance between the well and the Van Duzen River and the absence of direct hydraulic connection, the well will have no measurable effect on flows or water surface elevations and, therefore, no adverse effect on open space or natural values within the Van Duzen River or lower Eel River.

VI. Groundwater Sustainability Plan Consistency Determination

The proposed increased water use from the existing well on the subject property would not affect the Sustainability Goal for the Basin and would not affect the GSA's ability to maintain groundwater levels above the minimum thresholds and measurable objectives established in the Eel River Valley Groundwater Sustainability Plan.

VII. Conclusion

Based on the facts and circumstances described above, staff conclude that the proposed increased water use from the existing well on the subject property will not interfere with the Public Trust or substantially impair the public rights to navigation, fisheries, water-related recreation, public access, open space, or other Public Trust needs and values. In addition, staff conclude that the proposed increased water use is consistent with the Eel River Valley Groundwater Sustainability Plan.

¹² Endangered Species Act Section 7(a)(2) Biological Opinion for the Letters of Permission for Gravel Extraction in Humboldt County (LOP 205-1), National Marine Fisheries Service, August 27, 2015.



Figure 1:
Site Location Map

Proposed Increased Water Use
APN 201-311-016



Created: 2/20/2024
Imagery: USDA NAIP (2022)



0 0.125 0.25
Miles