Mark Uhart
428 Daves View Dr.
Kalama, WA 98625
uhartm@sbcglobal.net

22 January 2024

Columbia County Board of Commissioners
230 Strand St.
Columbia County Courthouse Annex
St. Helens, OR 97051

RE: NEXT Renewable Fuels, Inc. (NEXT) Renewable Diesel Plant – Site Design Review Modification

Columbia County Board of Commissioners,

I was present and testified at the January 10th hearing at the Columbia County Courthouse concerning NEXT's request for approval of the site design modifications with respect to the requested railroad branch line. My testimony changed after I did some number crunching on the amount of rail line needed to support the namespace capacity of 50,000 barrels per day (bbl/d) and compared this to other renewable diesel manufacturing facilities in the U.S.

My background is in operations and logistics planning at the corporate. Planning at this level involves knowing how many rail cars are needed to transport various products, railhead capacity (how many railroad track lines are needed to load and unload products simultaneously), and the amount of petroleum products needed to sustain operations 24x7x365. Incorrect facts, invalid assumptions, and inaccurate calculations could result in unsustainable operations. As I listened to some of the facts presented by briefers and NEXT's attorney, I did some quick calculations and determined that the requested railhead/rail line capacity was much more that what is needed for a plant of this size based on data provided. After returning home I conducted more research and determined the nameplate capacity of this plant is even questionable. I will address the nameplate capacity of 50,000 bbl/d first.

According to the U.S. Energy Information Association's Table on renewable diesel fuel production and use, by month, the NEXT facility would be manufacturing about 9.29 percent of the domestic renewable diesel supply at its nameplate capacity of 50,000 bbl/d, or 766.5 million gallons per year (MMg/y). According to the EIA, for only the month of September 2023, the total industry output was 250.656 million gallons, the equivalent of three billion gallons per year using the Sep '23 data. The EIA estimates the capacity of the largest renewable diesel plant in the U.S., the Diamond Green Diesel LLC (DGD) plant in Norco, LA, to have a nameplate capacity of 64,057 bbl/d, higher than the current capacity of 44,000 bbl/d. An article about the Diamond Green Diesel plant expansion from 18,000 to 44,000 bbl/d describes the expansion and supporting infrastructure. At 44,000 bbl/d the nameplate capacity is 674.5 MMg/y, 12 percent less capacity than NEXT's published capacity at full operational capability (FOC.) Is it

possible NEXT will be building the largest plant in the U.S. on acreage much less than the DGD plant? Or is it possible NEXT is basing the benefit to Columbia County and Clatskanie, in the way of tax revenues and employment, based on an unachievable nameplate capacity?

Show here is a table taken from an EIA report. NEXT's renewable diesel capacity at Port Westward would be at the top of Table 1, below, based on December 2022 EIA data.

Table 1. Renewable Diesel Plants and their Location in the U.S., December 2022

Company	City	State	Annual Nameplate Capacity (million gallons)
Diamond Green Diesel LLC	Norco	LA	982
Diamond Green Diesel LLC	Port Arthur	TX	470
Dakota Prairie Refining LLC / Marathon	Dickinson	ND	192
Calumet Montana Refining	Calumet	MT	135
Holly Frontier	Artesia	NM	125
Phillips 66 CO	Rodeo	CA	120
Wyoming Renewable Diesel CO / Holly Frontier	Sinclair	WY	117
Renewable Energy Group / Chevron USA Inc	Geismar	LA	100
CVR Energy	Wynnewood	OK	100
Cheyenne Renewable Diesel Company LLC / Holly Frontier	Cheyenne	WY	92
Seaboard Energy	Hugoton	KS	85
BP Products North America / BP Cherry Point Refinery	Blaine	WA	66
Altair Paramount LLC / World Energy	Paramount	CA	42
Chevron USA Inc	El Segundo	CA	31
Kern Oil & Refining / Kern Energy	Bakersfield	CA	6
East Kansas Agri-Energy Renewable Diesel	Garnett	KS	3

Source: EIA, *Render* and *Biodiesel* Magazines

farmdocDAILY

I was skeptical of the nameplate capacity of NEXT's facility so I researched the Diamond Green Diesel (DGD) NORCO facility operational and logistical requirements and layout of the plant. I compared information in an April 2011 Department of Energy (DOE) Environmental Assessment for DOE Loan Guarantee for the DGD NORCO plant to the information provided by NEXT in various submissions to the Columbia County Planning Commission and other entities. The initial DGD NORCO facility, as permitted in 2011 before any expansion plans were approved, was designed to produce approximately 10,920 bbl/d, or 167 MMg/y, of renewable "green" diesel from renewable biomass feedstock (animal fats and waste grease). (The conversion factor for tallow to finished diesel product is 8.5 lbs. of tallow to produce one gallon of renewable diesel.) I believe the Planning Commission should understand the amount of feedstock required on a daily basis, whether it is arriving via vessel or train, the refining process, raw materials, outputs, and amount of railroad track required to support plant operations. This should not be a "build it and they will come" scenario.

Following are extracts from the DOE Environmental Assessment for Loan Guarantee:

Process Design Basis

The green diesel project would require construction of new equipment to support the production of green diesel and co-products (light ends gas and LPG/naphtha). A green diesel plant, including process equipment as well as support facilities, would be constructed at the project site.

As discussed in Section 2.1.3, Bounding Case for Environmental Analysis, for purposes of the environmental impacts analysis, the process design is assumed to be the upper bound of the potential production capacity of the Ecofining™ process, which is greater than the "nameplate" design basis for the facility. The process design basis for the Bounding Case used in this EA is shown in Table 2.1.

Table 2.1

Bounding Case Process Design Basis

Raw Material or Feed	Daily Throughput	Annual Throughput
Raw Material (fats and oils)	12,332 barrels	4,501,180 barrels
Bleaching Earth	77,381 lbs	28,244,187 lbs
Filter Aid	7,738 lbs	2,824,419 lbs
Citric Acid (50%)	26,220 lbs	9,570,243 lbs
Ecofining™ (Intermediate) Feed	12,000 barrels	4,380,000 barrels
Product	**Daily Throughput**	**Annual Throughput**
Green Diesel Product	10,920 barrels	3,985,800 barrels
Light Ends Gas	1.34 million standard cubic feet (MMscf)	489.1 MMscf
LPG/Naphtha	1,310 barrels	478,150 barrels

The two main components of the proposed process include a pre-treatment process designed by the Desmet Ballestra Group (Desmet) and the subsequent hydrotreating/isomerization process referred to as Ecofining™, designed by UOP, Inc. (UOP), a division of Honeywell. An overview of each process is provided below in Sections 2.1.1 and 2.1.2.

In addition to the process facilities for the pretreatment and Ecofining™ steps of the production process, additional support facilities would be required by the Diamond green diesel project, which are described in more detail in Section 2.1.4.

Table 2.2 of the DOE Environmental Assessment for Loan Guarantee, shown on the following page, shows the inputs and outputs of the DGD NORCO planned facility, and a description of the plant infrastructure. The table is long so I only provided nine of the 32 equipment items.

Table 2.2
Green Diesel Project Equipment, Purpose, Inputs, and Outputs

Equipment Description	Purpose	Input	Output
Railroad Spur, Scale, and 4 Rail Sidings	Receipt and unloading of raw materials and pretreatment materials	Fats, oils, bleaching earth (clay), filter aid or citric acid	Fats, oils, bleaching earth, filter aid or citric acid
Truck Unloading Station	Receipt and unloading of raw materials	Fats and oils	Fats and oils
Truck Unloading Station	Receipt and unloading of pretreatment materials	Filter Aid and citric acid	Filter Aid and citric acid
Pneumatic conveyance system	Unloading and transfer of pretreatment materials	Bleaching earth and filter aid	Bleaching earth and filter aid
2 Receiving Silos	Storage of pretreatment materials	Bleaching earth and filter aid	Bleaching earth and filter aid
3 raw material storage tanks, 50,000 barrels each (T-101, T-102, T-103) and associated feed pumps	Storage of raw fats and oils as received	Fats and oils	Fats and oils
3 raw material blend storage tanks, 30,000 barrels each (T-104, T-105, T-106) and associated feed pumps	Blending and storage of raw materials to achieve homogeneous blends prior to pretreatment	Fats and oils	Fats and oils
1 Citric Acid Tank, < 100 barrel capacity (4,200 gallons)	Storage of citric acid	50% citric acid solution	50% citric acid solution
Pretreatment process vessels, including: hot water tank, acid and caustic dosing vessels, hydration tank, soapstock	Pretreatment of blended fats and oils to prepare for Ecofining™ Process, as	Blended fats and oils from blend tanks	Intermediate (pretreated) feedstock material to Intermediate Tanks for

The NEXT plant will be 4.6 times as large as the original 10,920 bbl/d DGD NORCO renewable diesel plant. I believe NEXT should be required to provide this kind of information because the number of railcars, by type, is based on what they are hailing, how often they are hauling it, and the amount of rail line needed to bring cars to where they are needed. Inputs like fats and oils are raw materials, but other inputs like bleaching earth and citric acid are consumables used in the preparation and processing and may be hauled by rail or truck, based on capacity need. All this must be taken into account when designing the railhead and roads.

On the following page is another table taken from the DOE Environmental Assessment for Loan Guarantee. Because this facility is much smaller than the proposed NEXT facility, the number of railcars required should be multiplied by 4.6 to get the number of railcars and trucks needed per day for a 50,000 bbl/d facility. The number of railcars per week would be 147, less than half the number of 318 NEXT said it needs for their operations. During the briefing their attorney stated the 318 is the number of railcars travelling to the facility, and there would be another 318 that will return along the same route empty.

Table 3.16
Transport of Materials to and from the Green Diesel Plant via Rail and Truck

Material	Railcars or Trucks per Day	Railcars or Trucks per year
Raw Material (fats and oils)	20 railcars	5,000 railcars
Bleaching Earth	< 1 railcar	177 railcars
Filter Aid	< 1 truck	188 trucks
Citric Acid	< 1 truck	213 trucks
Spent cake	5 trucks	1,350 trucks
Sludge	3 trucks	588 trucks
Miscellaneous solid waste	<< 1 truck	73 trucks

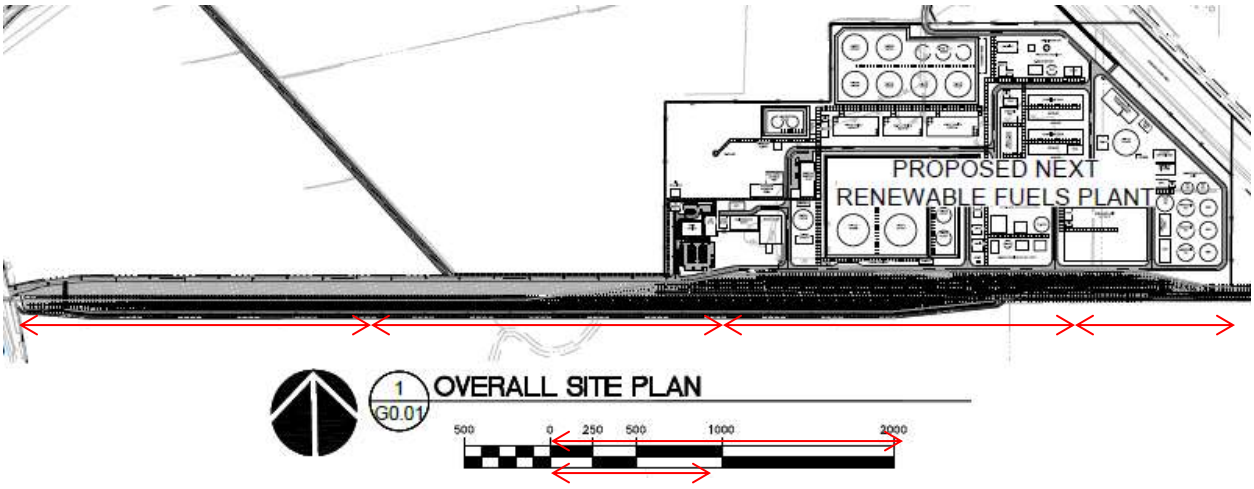
This brings me to my second point, whether the as-designed rail branch is really needed at all. The DGD NORCO facility required three railroad sidings of 300 ft. and one siding of 250 ft. for offloading raw materials, tallow or corn oil, and bleaching earth. Multiplying these numbers by 4.6 the total siding requirement for the NEXT plant would be 4,830 ft. The DGD facility also has a 1,000 ft. siding for a railroad scale to weigh incoming or outgoing products and solid waste, and a 1,000 ft. long tie-in spur. Now I'll compare this with my evaluation of the NEXT SDR Exhibit 03. Site Design, Job No. 2200315.01, Sheets G0.01C1.11, C1.12, C1.13, and C1.50.

Google Earth view of the Diamond Green Diesel plant in Norco, LA.

The above image was taken from a Google Earth view of the DGD NORCO plant in East Airline Hwy, Norco, LA. Note the number of rail lines used to support a facility with three 184' x 48' and four 150' x 48' storage tanks. This satellite image was likely taken and published after the DGD NORCO expansion in 2018. There are four tracks with 14 railcars on each track, for a total of 56 tank cars.

In a staff report a NEXT representative stated, "While the primary mode for transporting feedstock and finished products will be by ship, the applicant plans to use rail for a portion of the feedstock and specific finished products like clay. To accommodate the unloading, loading, and storage of rail cars without obstructing the existing track to the Port Westward Industrial Park, the facility needs an adequate track length. In collaboration with Portland & Westward Railroad (P&W), the proposed rail design aims to provide transportation and storage capacity for 18,000 linear feet of track." (See page 8 of the staff report.) How can NEXT explain the need for 18,000 ft. of track, enough for 305 59 ft. tank cars? This is 249 more than the DGD NORCO plant.

I estimated the linear feet of railroad track using the NEXT SDR Exhibit 03. Site Design, Job No. 2200315.01, Sheets G0.01C1.11, C1.12, C1.13, and C1.50 file. Shown below is a snippet of the drawing from sheet G0.01. The linear length of the complete branch line is about 690 ft. There are 13 tracks of various lengths. I enlarged the three drawings from the CUP Exhibit 03. Conditional Use Permit plans-1.1-Conditional Use - Rail Spur Site Plan drawings and added up the lengths of each track on each drawing.



The total for all rail lines is 30,210 ft. , or enough for 512 fifty-nine (59) ft. tank cars. (See attached file '20240118-MUhart-Railhead Calculations v2.') Based on the provided plans and sum of the lengths of each track I don't believe there is a need for this much track, unless NEXT plans on deviating from their original proposal and will export products not refined at their facility. Add to this the fact that during the January 10th hearing NEXT's attorney stated that only about 15 percent of the product would be shipped by rail. Before any plan is approved NEXT needs to describe exactly how these tracks will be used to import raw materials, bleaching earth and citric acid, and export renewable diesel.

Lastly, all renewable energy facilities will produce liquid or solid waste. Shown below is an extract from the DOE Environmental Assessment for Loan Guarantee. To estimate the amount of waste from the NEXT plant each of these numbers should be multiplied by 4.6. For example, the NEXT plant will likely generate 124.2 million pounds of spent filler cake waste every year. Wastewater waste will be 54.1 million gallons per year. Has this been taken into account in the evaluation of the NEXT biodiesel facility?

Operations

Operation of the green diesel plant would generate non-hazardous industrial solid waste, primarily consisting of sludge from wastewater pretreatment and spent filter cake from the raw material pretreatment process. No hazardous wastes would be generated by the green diesel plant.

Table 3.17 summarizes the estimated solid waste generation by type.

Table 3.17
Green Diesel Plant Annual Industrial Solid Waste Generation Summary

Material	Pounds per Year
Spent Filter Cake	27,000,000
Wastewater sludge	11,764,000
Miscellaneous solid waste	2,190
Total	**38,766,190**

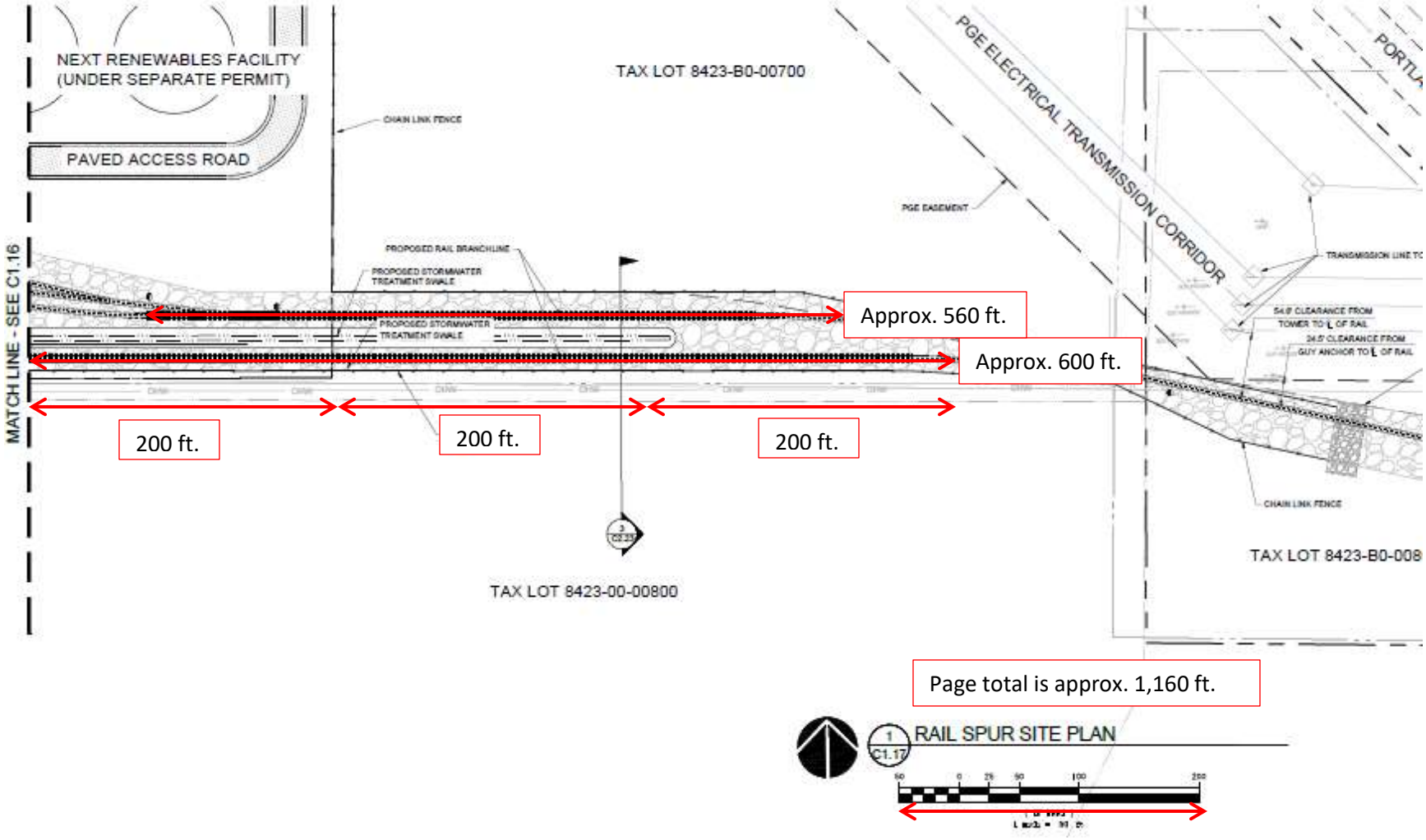
NEXT's proposed modification to their plan is actually a new plan. SDRmod Exhibit 04. NEXT Plans for Revised Rail Corridor, should be denied. There is no justification for this much rail line and the plan would be detrimental to the farmers and landowners in the area. The temporary gravel laydown yard, added ponds 1 & 2, narrowing of McLean Slough, altering of the stormwater flow and drainage, unnecessary destruction of farmland, and impact on wetlands will permanently damage the ecosystem in this area and disrupt the businesses of those who rely on the land.

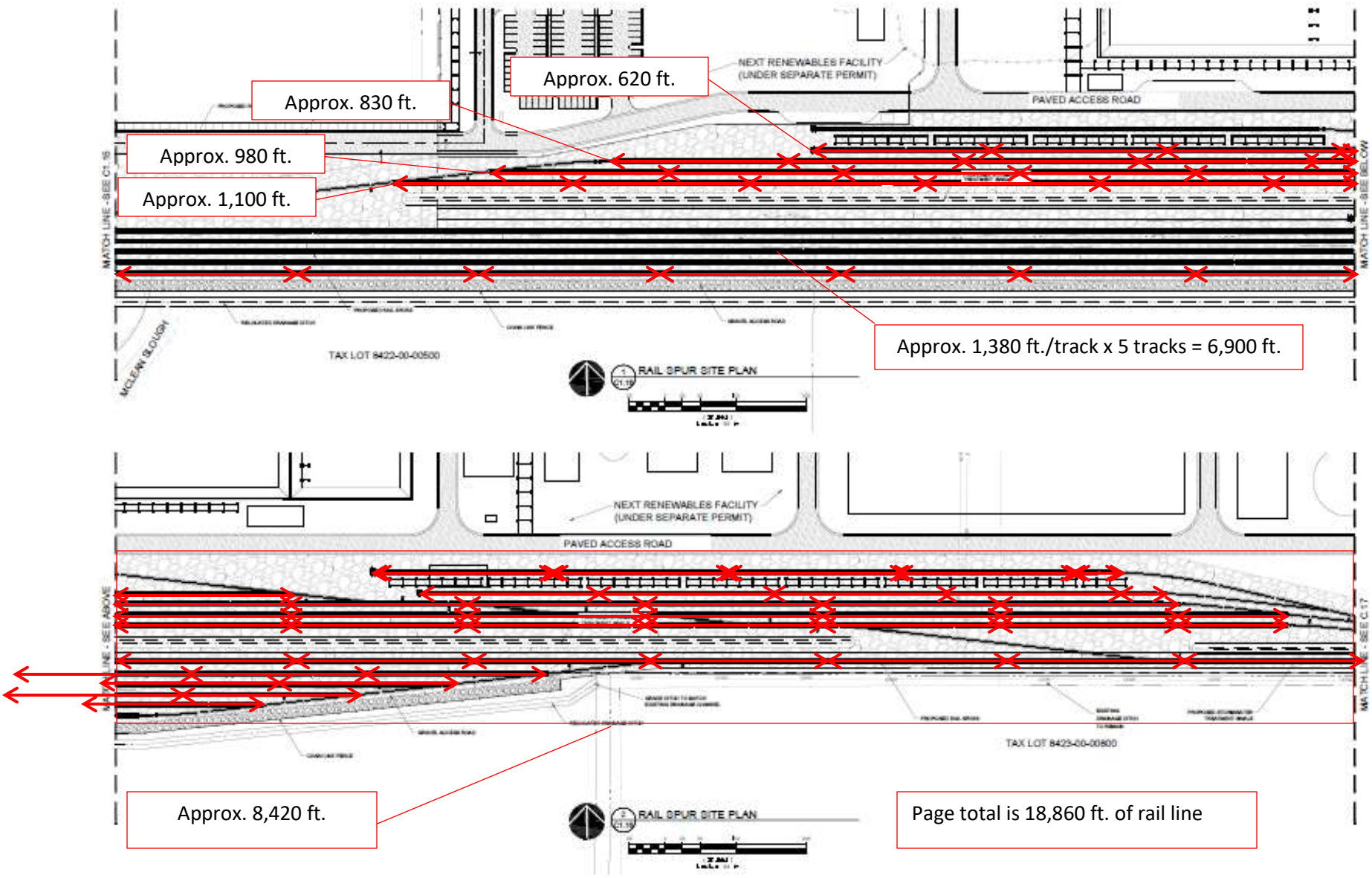
I urge the County Board of Commissioners to allow time for the County Planning Commission to verify the information in this letter and gather more information from NEXT and all stakeholders. There are too many concerns to proceed and making a decision now could be costly for the County and its residents.

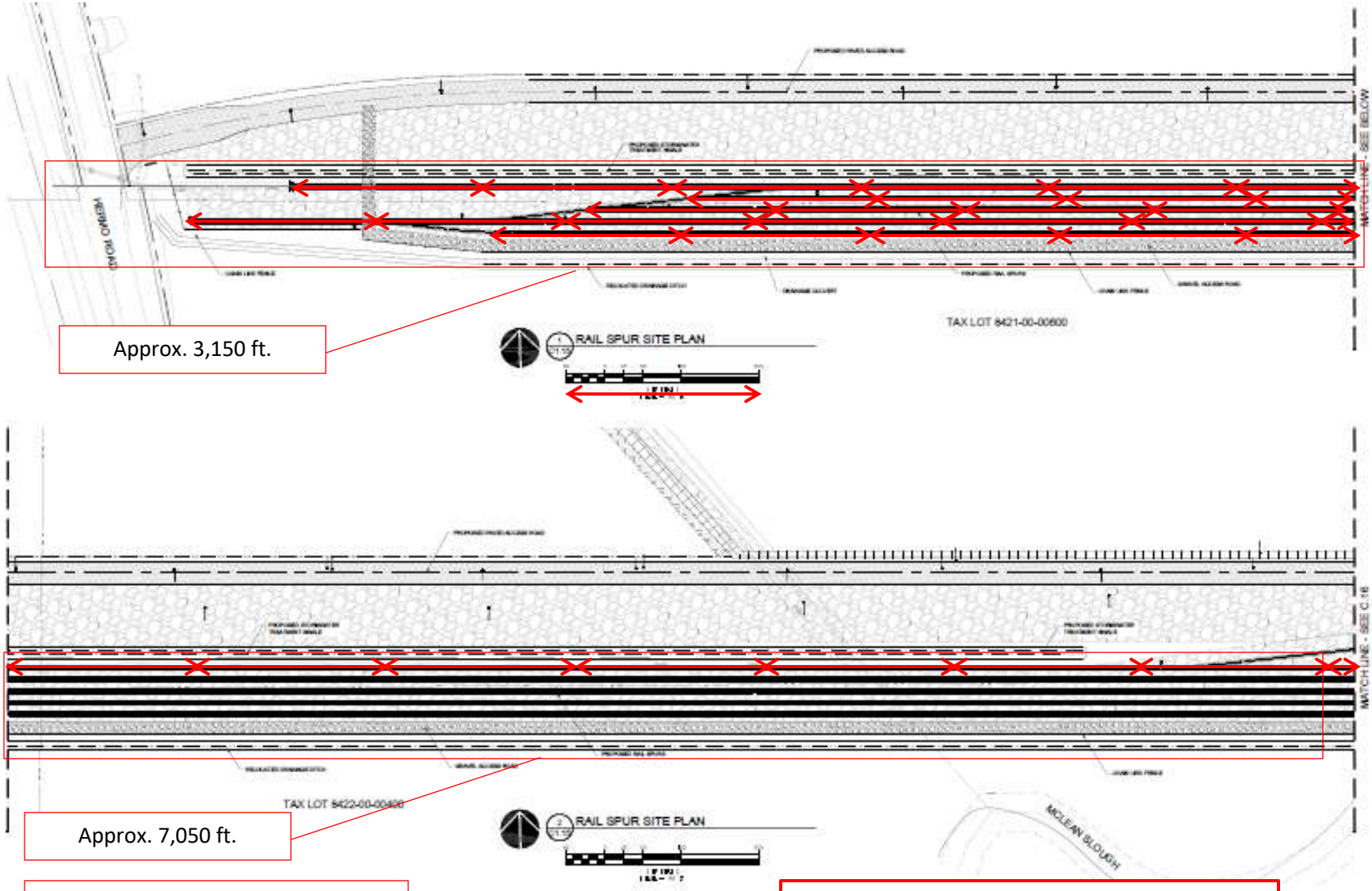
V/r

Mark Uhart
Kalama, WA

CUP Exhibit 03. Conditional Use Permit plans-1.1-Conditional Use - Rail Spur Site Plan (Linear foot calculations)




Approx. 830 ft.
Approx. 620 ft.
Approx. 980 ft.
Approx. 1,100 ft.
Approx. 1,380 ft./track x 5 tracks = 6,900 ft.
NEXT RENEWABLES FACILITY (UNDER SEPARATE PERMIT)
PAVED ACCESS ROAD
TAX LOT 8422-00-00500
RAIL SPUR SITE PLAN
NEXT RENEWABLES FACILITY (UNDER SEPARATE PERMIT)
PAVED ACCESS ROAD
TAX LOT 8423-00-00800
RAIL SPUR SITE PLAN
Approx. 8,420 ft.
Page total is 18,860 ft. of rail line



Page total is 10,200 ft. of rail line

Total for all rail lines is 30,210 ft. of rail line or enough for 512 59 ft. rail cars.