BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

PCN-2

In the Matter of	)
	)
In the Matter of the Petition of	)
	)
TILLAMOOK PEOPLE'S UTILITY DISTRICT	)
	)
	)
PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY	)
	)
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	)

CROSS ANSWERING TESTIMONY OF KC FAGEN

ON BEHALF OF TILLAMOOK PEOPLE'S UTILITY DISTRICT

March 2, 2018

Q. PLEASE STATE YOUR NAME AND YOUR EMPLOYER.

A. My name is KC Fagen. I am the engineering manager of Tillamook People's Utility District ("Tillamook PUD").

Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A. I am appearing on behalf of Tillamook PUD.

Q. HAVE YOU PREVIOUSLY PROVIDED TESTIMONY IN THIS PROCEEDING?

A. Yes. As part of Tillamook PUD's Petition for a Certificate of Public Convenience and Necessity ("Petition"), I submitted the testimony identified as TPUD/200 and its accompanying exhibits.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide response testimony to the testimony submitted by Commission Staff and the various intervenors.

Q. DID YOU REVIEW THE TESTIMONY FROM COMMISSION STAFF SCOTT GIBBONS AND NADINE HANHAN?

A. Yes.

Q. WHAT IS YOUR GENERAL RESPONSE TO THAT TESTIMONY?

A. Generally, I am in agreement with the testimony submitted by Mr. Gibbons and Ms. Hanhan and I do not dispute any specific factual items or issues. I do, however, have additional information to provide in response to that testimony.

Q. DO YOU HAVE A RESPONSE SPECIFIC TO MR. GIBBONS'S TESTIMONY?

A. Yes. Mr. Gibbons addressed whether the proposed Oceanside Transmission Line ("Transmission Line") is consistent with Statewide Planning Goals. As part of the Petition, Tillamook PUD noted that it had submitted the appropriate land use applications to Tillamook County ("County"). As the land use regulator, the County implements the Statewide Planning Goals through its Comprehensive Plan, which, in turn, is implemented

by the County's Development Code. If the County approves the land use applications necessary to accommodate the Transmission Line, the proposal will by definition be consistent with Statewide Planning Goals.

The County has begun processing Tillamook PUD's land use applications and held an initial evidentiary hearing on February 8, 2018. As part of that hearing process, the Tillamook County Planning Staff ("County Staff") analyzed Tillamook PUD's applications and issued a report. Although the County Staff did not make a formal recommendation to the Planning Commission, its report concluded that the applications could be approved and it included draft findings to support approval. I have included the County Staff's report as Exhibit TPUD/301 to this testimony. The County Staff's analysis is consistent with the testimony provided by Mr. Gibbons and clearly demonstrates that the Transmission Line is consistent with Statewide Planning Goals.

Q. ARE THERE ANY OTHER PARTS OF MR. GIBBONS'S TESTIMONY TO WHICH YOU WOULD LIKE TO RESPOND?

A. Yes. Mr. Gibbons addresses whether the Transmission Line is an outright permitted use within the City of Tillamook ("City"). As part of the discovery process in this proceeding, Commission Staff issued multiple data requests regarding the land use approvals needed from the City. As Mr. Gibbons notes, at the time of Tillamook PUD's response to those data requests, Tillamook PUD had obtained oral confirmation from the City that the Transmission Line is permitted outright, but only preliminary written confirmation. Since that time, the City has responded with more clarity that the Transmission Line is not regulated by the City's land use code and, instead, is subject to a franchise agreement between the City and Tillamook PUD. I have included the written correspondence with the City as Exhibit TPUD/302 to this testimony.

I would also like to add that the City has a separate role in this matter, which is that

of a landowner; the proposed route of the Transmission Line will cross a parcel of land the City owns. The City has provided Tillamook PUD with notice of its intent to grant an easement to Tillamook PUD for that purpose. I have included that notice as Exhibit TPUD/303 to my testimony.

Q. DO YOU HAVE A RESPONSE SPECIFIC TO MS. HANHAN'S TESTIMONY?

A. Yes. Ms. Hanhan's testimony focused, in part, on Tillamook PUD's current and future electric load to be served by the Transmission Line. Portions of that testimony therefore focus on Tillamook PUD's future need for the line. I would like to clarify that my initial analysis shows a need for the line based on Tillamook PUD's current load. While the Transmission Line is also necessary to meet future loads, current loads are sufficient to justify the need for the line. This is demonstrated by the fact that, at current loads under N-1 conditions, the surrounding substations are loaded to 96 percent of the manufacturer's recommended capacities and the existing feeder W51 that services the Netarts and Oceanside communities is in need of upgrading. W51 already requires two sets of voltage regulators (booster stations) to maintain the voltage level.

While Tillamook PUD loads in 2014 and 2015 were lower than previous years, that is attributed to warmer than usual winter temperatures we experienced in our service territory. Loads for 2016 and 2017 show an increase in electricity usage, and new electric meters continue to be connected in the Netarts and Oceanside communities. As Exhibit TPUD/304 to my testimony, I have included data showing the new meters connected to Feeder 51, which serves the Netarts and Oceanside communities. These facts demonstrate that we are highly unlikely to experience any relief on the current lines that are already operating at maximum capacity.

Q. DID YOU REVIEW THE TESTIMONY FROM DAVID MAST?

A. Yes.

Q. DO YOU AGREE WITH THE TESTIMONY MR. MAST PROVIDED?

A. Generally, no.

Q. PLEASE EXPLAIN WHY.

A. The first half of Mr. Mast's testimony criticizes Tillamook PUD's use of a 1.1% load forecast. Specifically, Mr. Mast appears to believe this forecast is overstated and, as an example, he asserts that Tillamook PUD uses a lower forecast of 0.25% when contracting with the Bonneville Power Administration ("BPA").

The 1.1% figure in Tillamook PUD's analysis is a load trend based on data showing the actual average megawatt load on Tillamook PUD's system from 1999 through 2016. Commission Staff, presumably in response to Mr. Mast's testimony, submitted a data request to Tillamook PUD asking for an explanation of that calculation. I have included my response to that data request as Exhibit TPUD/305 to this testimony. This is the best evidence of what the load growth will be on our system.

The BPA forecast is based on different data and used for different purposes. BPA updates its load forecast for each of its load serving customers. For Tillamook PUD, the BPA forecast is used to help predict when loads might exceed an established "high water mark," which is what determines the allocation of Tier 1 power available to Tillamook PUD. Once we reach the high water mark, any additional power would need to be purchased using Tier 2 rates rather than the lower Tier 1 rates we have now.

BPA's forecasts are used to help determine regional growth and are based on coincident loads at the regional level. This is in contrast to Tillamook PUD's calculations, which forecast energy requirements at times of peak demand specifically on Tillamook PUD's system. Tillamook uses these trends in its four-year work plans to determine what system modifications are needed and when (either based on load thresholds or dates). The BPA load forecast Mr. Mast refers to is used for different purposes and is not relevant to

any of the existing 20 Year Long Range Plans or Tillamook PUD's past 4 Year Construction Work Plans.

All of this being said, the need for the Transmission Line is based on Tillamook PUD's loads as they exist today. In other words, the rate of load growth on our system is irrelevant because the line is needed now, and as loads increase, the the need for the line will also increase.

Q. DO YOU HAVE ANY OTHER ISSUES WITH MR. MAST'S TESTIMONY?

A. Yes. Mr. Mast's testimony includes statements about Tillamook PUD's service to the Creamery. It is not clear the exact point Mr. Mast is attempting to make with this testimony, but the implication is that Tillamook PUD is somehow acting in bad faith with respect to this customer. The Creamery is a sophisticated customer with complex operations. It currently has multiple sources of energy and it uses, including electricity, to achieve a least cost solution for its energy needs. Recently the Creamery has expressed an interest in increasing its electrical usage from TPUD's source. Tillamook PUD and the Creamery executed a mutually agreeable contract that balances each side's needs where the Creamery used electricity from Tillamook PUD as its main energy source except during Tillamook PUD's high demand times. This peak shaving reduces Tillamook PUD's electrical demand and associated demand charges, which benefits all rate payers.

Q. DID YOU REVIEW THE TESTIMONY FROM DORIS MAST?

A. Yes.

Q. DO YOU AGREE WITH THE TESTIMONY MRS. MAST PROVIDED?

A. Generally, no.

Q. PLEASE EXPLAIN WHY.

A. Mrs. Mast takes issue with Tillamook PUD's N-1 analysis and provides her own analysis. Her analysis, however, contains multiple flaws and misunderstands the methodology in

Tillamook PUD's analysis.

First, Mrs. Mast used load data from 2016 that was not the recent system peak load. Second, Mrs. Mast used the winter capacity rating of the substation transformers to calculate a 64% loading on the system under an N-1 scenario. Those winter capacities, however, are somewhat arbitrary and are not as useful for planning purposes.

The 96% loading that I calculated was based on the 2009 all-time system peak of 130 MW as applied to the 2016 system configuration. Mrs. Mast used 2016 system peak loads of 119MW at the 2016 system level. As a system planner, it is my opinion that it is more accurate for planning purposes to use the actual system peak reflected onto today's electric system rather than simply taking a snap shot of the peak in the prior year.

The winter capacity ratings listed in the Board reports Mrs. Mast relied on were not consistent and did not follow any industry or other specific guidelines. Without a clear understanding of how the winter capacities were developed, I was unable to use those values in my analysis and had to rely instead on what the manufacturer recommended, which is listed on the nameplate for each of the transformers. In addition, I contacted about a dozen utilities to confirm what capacities they use for planning purposes and the vast majority replied that they use only the manufacturers' nameplate capacity.

Commission Staff, presumably in response to Mrs. Mast's testimony, also inquired through a data request about which capacity ratings are appropriate. I provided a response to that data request, the narrative portion of which I am including with this testimony as Exhibit TPUD/306. There is one correction, however, that needs to be made to the data response Tillmook PUD provided to Commission Staff regarding the reference in that response to IEEE standard C57.91. Despite what appears in that response, there is no difference in margin used in the 1995 to 2011 versions of the IEEE standard C57.91. When I first interpreted the 1995 version, I read that there was a 5 degree margin that needed to

apply to the ambient temperature. When Tillamook PUD's engineering consultant, Ken Morgan, interpreted the 2011 version, he indicated that there was a 10 degree margin that would apply to the ambient temperature. Based on that information, I wrongfully concluded that there must be a change in the margin from the 1995 to 2011 version of the IEEE standard. After Tillamook PUD ordered the 2011 version, however, it was clear that both versions had the same margins - 5 degrees applied to the average winter temperature calculation and 5 degrees applied when using the table for determining the increase or decrease in transformer capacity for temperatures other than the standard 30 degrees Celsius ambient temperature. I note this misstatement in the data response solely to clear up any confusion. That misstatement did not cause any errors in my loading analysis, nor does it warrant a change to that analysis.

Q. DO YOU HAVE ANY RESPONSE TO HOW MRS. MAST CHARACTERIZED THE RELIABILITY OF TILLAMOOK PUD'S SYSTEM?

A. Yes. Mrs. Mast indicated that there were 39 hours and 29 minutes of outages listed in the Board reports compared to the information I provided showing 805 hours of outages for just Feeder 51. As I have explained to Mrs. Mast in the past, however, the units she is using to calculate outages are different and, therefore, not capable of comparison to what I calculated. The Board reports show the system average interruption duration index ("SAIDI") statistics, whereas and the statistics I provided are outages by customer hours out. The SAIDI is the customer hours out, but divided by the total number of customers in Tillamook PUD's service territory.

Q. WHAT IS YOUR RESPONSE TO MRS. MAST'S SUGGESTION THAT OUTAGES COULD SIMPLY BE PREVENTED BY MEASURES SUCH AS INSTALLING GUARD RAILS ALONG ROADS TO PREVENT POLE CRASHES?

A. Tillamook PUD has investigated these types of solutions. Unfortunately, the Oregon

Department of Transportation ("ODOT") does not allow a third party to use guard rails to protect their facilities within ODOT's right of way in most situations. To be sure, however, I contacted ODOT again in January and received confirmation that, for example, NW Natural was not allowed to install such protective equipment around its facilities. I have included that communication as Exhibit TPUD/307 to this testimony.

Q. DO YOU HAVE ANY OTHER RESPONSES YOU WOULD LIKE TO PROVIDE TO MRS. MAST'S TESTIMONY?

Yes. Mrs. Mast's testimony questions why one outage that affected 586 customers did not affect all 3,800 people Tillamook PUD claims reside in the Netarts and Oceanside areas. First, I need to make one correction to the record regarding population statistics. As part of Tillamook PUD's Petition, we initially looked at generic 2010 census data and determined there was a population of 3,800 people living in these areas. Tillamook PUD has since revisited this statistic, using more accurate GIS data to capture the affected area. Tillamook PUD has determined that there is a full time population of 1,633 in the Netarts and Oceanside areas and 267 in the Cape Mears area, which are the areas that would be served by the proposed Oceanside substation. The total population, therefore, is 1,900.

This revised population number notwithstanding, the outage Mrs. Mast identified would have been for an outage on a part of the feeder, as compared to the entire feeder being out of service. Further, this would be the number of electric meters (accounts) downline of the protective device that operated (i.e. the fuse or recloser), which is different than the number of people that would be affected. Tillamook PUD measures customers using meters and accounts rather than population. This explains why we referred to 586 customers being out of service rather than a population number.

Q. DID YOU REVIEW THE TESTIMONY FROM KRISTI SHERER?

A. Yes.

Q. DO YOU AGREE WITH MS. SHERER'S TESTIMONY THAT THE "REAL" REASON FOR THE TRANSMISSION LINE IS TO ACCOMMODATE OCEAN ENERGY?

A. No. While there was a time when Tillamook PUD worked with others to determine how ocean energy would be transmitted from a generating source across our service territory, as of today existing laws do not allow ocean energy to be built off the coast of Tillamook County. The need to transmit such energy is therefore not part of our current planning process and not in our analysis of the need for the Transmission Line. Furthermore, the Transmission Line was in our plans long before ocean energy was being considered and has always been tied to providing safe and reliable service to existing customers.

Q. DO YOU AGREE WITH MS. SHERER'S TESTIMONY THAT TILLAMOOK PUD HAS NOT CONSIDERED A "DO NOTHING" ALTERNATIVE?

A. No. It is standard practice in an alternatives analysis to consider a "Do Nothing" alternative. This has always been an alternative considered by Tillamook PUD staff, as evidenced by the presentation of that alternative to the Tillamook PUD Board a couple of years ago that appears at Exhibit TPUD/205, Fagen/53.

Q. WHAT IS YOUR RESPONSE TO MS. SHERER'S CLAIM THAT TILAMOOK PUD HAS NO EXPERIENCE WITH TRANSMISSION LINES?

A. Tillamook PUD owns and operates 11.8 miles of existing transmission lines. The Oceanside Transmission Line is exactly like our three existing transmission lines. Each of those originates from a structure just off of BPA's facilities. BPA owns and operates all of the protective equipment for our existing transmission lines, just as it will for the Transmission Line.

Q. WHAT IS YOUR RESPONSE TO MS. SHERER'S CLAIM THAT TILAMOOK PUD IS "FINANCIALLY INVESTED" IN THE SUBSTATION THAT SERVES AS

THE CONNECTION TO BPA'S SYSTEM?

A. I am assuming that Ms. Sherer is referring to BPA's Tillamook Substation where she mentions that Tillamook PUD is coming out of the Wilson River Substation in her testimony. BPA installed and paid for all equipment within its Tillamook Substation, which is the starting terminus of the Transmission Line. Tillamook PUD did not pay for the power circuit breaker, bus work, or metering equipment at BPA's Tillamook Substation. This arrangement was offered by BPA when it decided not to build a 230kV switchyard south of the City of Tillamook, which would have been the source of the original transmission line route called the Netarts transmission line. Contrary to Ms. Sherer's statement, Tillamook PUD has not been investing in that substation, much less as a means of justifying the location as Ms. Sherer implies.

Q. DID YOU REVIEW THE TESTIMONY FROM KURT MIZEE?

A. Yes.

Q. DO YOU AGREE WITH THAT TESTIMONY?

A. No. There are several areas of Mr. Mizee's testimony that I take issue with. Before I address each of those areas, however, I would like to respond to Mr. Mizee's statement that his family has been a "target" of Tillamook PUD. I can appreciate the fact that few people get excited about the prospect of having a transmission line on or near their property. The reality, however, is that the transmission line must go somewhere, and there is no publicly-owned route that can reasonably accommodate the line. It is therefore necessary to site lines like this next to, and sometimes across, private property, just as Mr. Mizee's farm is served by lines that transmit electricity from a point of origin and carry that electricity across other private property. Tillamook PUD has been, and remains, committed to ensuring that any impacts that result from the use of private property are kept to a minimum.

Tillamook PUD has chosen the location of the line based on several factors, none of which "target" Mr. Mizee. The routes originally evaluated included at least six different routes near the Mizee farm, only two of which were shown to actually cross his farm. Included as Exhibit TPUD/308 to this testimony is a figure showing all the various routes Tillamook PUD considered as part of the siting process. Unfortunately, Tillamook PUD's original preferred routes, which would not have impacted Mr. Mizee, are no longer viable options. As Tillamook PUD has explained in other testimony, the first option, referred to as the Netarts line, is no longer viable because of changes BPA made when it decided to cancel the planned construction of a switching station south of the City of Tillamook. This is the location where the Netarts line would have originated, but BPA moved the terminus point of its line to its Tillamook substation, thereby eliminating the Netarts route as an option. Similarly, the City rejected an application to site the Transmission Line through the central portion of the City, which would have been the most direct route to the coast and avoided Mr. Mizee's property.

Q. WHAT IS YOUR RESPONSE TO MR. MIZEE'S TESTIMONY THAT THE TRANSMISSION LINE VIOLATES STATEWIDE PLANNING GOAL 11?

A. Ultimately, whether or not the proposal is consistent with Statewide Planning Goal 11 will be a determination made by the County as the local land use regulator. However, there is sufficient evidence in the record to demonstrate that the proposal is not inconsistent with that goal.

As I noted above in response to Commission Staff's testimony, it is my understanding that the Statewide Planning Goals are implemented by the County through the application of its Comprehensive Plan and its Development Code. The County is processing Tillamook PUD's land use application and County Planning staff provided a Staff Report (Exhibit TPUD/301) which states that the transmission line is in compliance

will all applicable goals and rules.

Even if Statewide Planning Goal 11 were independently applicable, section A.6 of that Goal states that "[a]ll utility lines and facilities should be located on or adjacent to existing public or private rights-of-ways to avoid dividing existing farm units." The County Staff confirms on page 21 of its report that the section referenced is a guideline and not an approval standard. The Transmission Line is consistent with this guideline because it was located where possible to collineate with existing rights of way in the farm zone, including the Port of Tillamook Bay rail road, Wilson River Loop Road, and Goodspeed Road. In fact, approximately 60% of the Transmission Line is co-located with existing corridors in the farm zone, and approximately 52% of the Transmission Line is col-located with existing corridors in the forest zone. There were no other rights of way or easements within 1,000 feet of the proposed alignment that would accommodate moving the route. There is an 800-foot length of existing distribution line within the Mizee farm approximately 1,700 feet to the south of the proposed alignment. Tillamook PUD considered a route segment to include this area, but ultimately rejected that segment because it was longer, required the placement of more poles, and, importantly, would occupy more than 800 feet of additional farm property.

While the proposed route does cross farm tax lots, the existing uses of the farm properties can continue under the Transmission Line with little to no impact. Given this situation, the Transmission Line does not divide farm property in the same manor a road or railroad would.

Q. WHAT IS YOUR RESPONSE TO MR. MIZEE'S TESTIMONY THAT THE TRANSMISSION LINE WILL CAUSE STRAY VOLTAGE PROBLEMS FOR HIS FARM?

A. Mr. Mizee indicates that the Tillamook PUD has caused stray voltage issues as recent as 2

months ago. The only issue that Tillamook PUD is aware of was an incident where the customer's electrical wire broke. The incident had nothing to do with Tillamook PUD equipment or facilities. If a customer's equipment is installed according to the National Electrical Safety Code and State of Oregon laws, the likelihood of stray voltage issues is greatly reduced, as all metal objects would be bonded together and grounded to earth, reducing any opportunity for voltage differences between metallic objects (i.e. stray voltage).

Because the Transmission Line does not connect to any customers, the only way stray voltage could occur is from induction from the transmission line produced by electromagnetic fields ("EMF"). Tillamook PUD performed EMF calculations showing that the Transmission Line would produce only approximately 50 percent of the EMFs generated by a typical distribution circuit or the circuit that feeds a home or barn. I have included graphs depicting these comparisons as Exhibit TPUD/309 to my testimony. A logical conclusion is that if the distribution lines and services to existing homes and barns are not causing typical EMF-related interference, including to radio health monitors used by Mr. Mizee, then the lower EMF generated by the Transmission Line would be of no impact.

Q. WHAT IS YOUR RESPONSE TO MR. MIZEE'S TESTIMONY THAT THERE ARE OTHER OPTIONS THAT SHOULD BE EXPLORED IN LIEU OF THE TRANSMISSION LINE?

A. While options other than a Transmission Line do exist, we have demonstrated that those options are not as viable or cost effective as the Transmission Line. Further, those other options would still impact property owners, albeit not necessarily the same property owners. These options have been explored and presented to the public, the County, and now the Public Utility Commission. The overall need for a substation in the Oceanside

area is due to the number of customers and magnitude of the electric usage in that area. Mr. Mizee's specific suggestion that Tillamook PUD could upgrade the transformer capacity at existing substations does not address this need. Continuing to serve the coastal areas from substations that are 10 and 12 miles from the start of that load center is not good practice and would not provide the same reliability that Tillamook PUD currently provides to the rest of its service territory.

Q. WHAT IS YOUR RESPONSE TO MR. MIZEE'S TESTIMONY THAT THE TRANSMISSION LINE WILL IMPACT BIRD AND OTHER WILDLIFE HABITAT?

A. The Transmission Line has gone through extensive environmental review, including by biologists working for Tillamook PUD's consultant CH2M and the Oregon Department of Fish and Wildlife.

With respect to bird species specifically, Tillamook PUD has an Avian Protection Plan ("APP") that follows all local, state, and federal guidelines. Tillamook PUD is in the process of updating the APP and has recently received comments on the 2017 draft APP from David Leal with the USFWS. With one exception, Tillamook PUD will incorporate his comments into the final APP. The one comment that Tillamook PUD would apply selectively rather than across all circumstance is his suggestion that <u>all</u> new construction be avian friendly. To do so in all circumstances is unreasonable because it is costly, is in conflict with scenic roadway areas (which require reduced spacing as opposed to larger spacing), and is better managed based on conditions that would create increased avian activities. Tillamook PUD has already identified these potential areas and does build new construction to avian friendly standards, and has retrofitted our facilities in these areas to be in compliance with avian friendly designs. The Transmission Line far exceeds the recommended avian friendly 60 inch spacing between conductors and, in the area of the

Mizee farm, the spacing between conductors is of the order of 150 inches. In addition, Tillamook PUD will be installing visual markers on the conductors that will increase the visibility of the conductors in accordance with avian friendly guidelines.

In his testimony, Mr. Mizee refers to the Bandon Marsh power line as an example how power lines can cause an impact. That line and the proposed Transmission Line are not comparable. As noted, the spacing between wires for the Transmission Line is much larger than the minimum space outlined in USFWS guidelines that the Bandon Marsh line did not satisfy. Similarly, the poles will be spaced 800 to 1,200 feet apart, as compared to the approximate 300-foot spans for the 25kV Bandon March line, thereby reducing the number of poles that birds could come in contact with.

Q. DID YOU REVIEW THE TESTIMONY FROM DON AUFDERMAUER?

A. Yes.

Q. DO YOU AGREE WITH THAT TESTIMONY?

A. No. Mr. Aufdermauer raises issues similar to those raised by other intervenors that I have already addressed. For example, like Ms. Sherer, he claims that the line is not needed except that it creates an opportunity for ocean energy, which simply is not part of our analysis. I would refer you to my earlier testimony in response to those issues.

Mr. Aufdermauer also testifies that repairing the existing line will improve reliability. While there is some merit to this claim, even a repaired line will still result in there being only a single power source supplying a 10MW load with 1,800 electric meters 12 miles from the power source. Further, the outage statistics show that the feeder to that line is the worst performing feeder in the system. This is true even after recent logging occurred that has reduced the number of trees that could hit the line. A repaired line, therefore, would address only a portion of the problem we are trying to address.

With respect to impacts on private property, Tillamook PUD has made very

concerted efforts to reduce such impacts. For example, we adjusted the route to follow more existing rights of way within 1,000 feet of the original route proposed by the Citizens Advisory Group. This removed six pole structures from the middle of production farm fields.

Finally, I want to take issue with Mr. Aufdermauer's claim that the Tillamook PUD is indifferent to local interests. Tillamook PUD is a local governmental body governed by five elected Commissioners. Based on my observations, those elected officials are as deeply tied to the community as anyone else. Further, they have a statutory obligation to look out for the public interest and to treat everyone in their service territory fairly.

Q. DID YOU REVIEW THE TESTIMONY FROM ERIC PETERSON?

A. Yes.

Q. DO YOU AGREE WITH THAT TESTIMONY?

A. While I do agree with some of Mr. Peterson's points, there are many points he makes that are inaccurate or that reflect points of view with which I disagree. For example, Mr. Peterson takes issue with the process Tillamook PUD has undertaken to obtain easements from landowners and refers to that effort as insincere. To the contrary, Tillamook PUD has tried repeatedly to meet with Mr. Peterson and in the two years I have been working on this project he has only met with us on one occasion. The easement negotiation process is typically iterative in nature and necessarily requires the parties to work with each other to ensure the agreement meets both sides' needs. I understand Mr. Peterson was not willing to accept Tillamook PUD's first offer, but it is simply not correct to state that Tillamook PUD is not willing to work with property owners. For example, as shown on Exhibit TPUD/201, Fagen/1 included with my initial testimony, the form of easement Tillamook PUD seeks has an express provision in it, to be informed by the land owner and tailored to each property, ensuring that farm practices on farm land can continue in the easement area.

Once the Transmission Line is completed, over 99.5 percent of the total compensated area will still be available for Mr. Peterson's existing farm uses.

Tillamook PUD is willing to work with property owners to ensure their property is protected during construction activities and ongoing maintenance activities. Tillamook PUD addressed concerns that were present to Tillamook PUD by the land owners. Most of the issues raised by Mr. Peterson in his comments were not brought to Tillamook PUD's attention until his December 13, 2017 correspondence, which is included in his testimony. TPUD has reached out to Mr. Peterson in response to his December 13, 2017 correspondence on three occasions, to which Mr. Peterson finally responded on February 8th, 2018, indicating he was being represented by legal counsel and he would have his attorney contact me. As of this response, I have not heard from Mr. Peterson's attorney.

The iterative nature of the easement process should also address Mr. Peterson's concern that Tillamook PUD has not fully identified his ownership. Tillamook PUD relied on County GIS records, including tax lots and property boundaries contained on the County's Web site, to determine ownership of each parcel of land the Transmission Line crossed. Before any final easement interest is transferred to Tillamook PUD, any discrepancies in ownership will be cleared up both by the underlying property owner and by a title company.

Mr. Peterson's testimony includes a statement that there is a lack of biological inventory on his property. This is partially true; Mr. Peterson would not allow Tillamook PUD's biologists or archeologists any access to his property to perform a survey. However, Tillamook PUD has consulted with the local fish and wildlife biologists who have provided input to the county permitting process, which is acceptable in circumstances where access to a property cannot be obtained. They found that no significant impacts to fish or birds would be introduced by the construction and operation of the Transmission Line. Included

as Exhibit TPUD/310 to this testimony is a letter from the Oregon Department of Fish and Wildlife and the biological report.

Q. WHAT IS YOUR RESPONSE TO MR. PETERSON'S CLAIM THAT THE POLES PLANNED FOR HIS PROPERTY WILL REQUIRE SIGNIFICANT FOUNDATIONS THAT TILLAMOOK PUD HAS NOT PLANNED FOR?

A. No significant foundations are required on the Peterson property. The foundations as identified in the preliminary design are planned to be directly embedded concrete pilings that will be vibrated into the earth. Further, contrary to Mr. Peterson's statement, the construction area will be contained within the easement as identified in Tillamook PUD's Petition and in the County land use permit applications.

There will be two structures located on the Peterson property, each consisting of three 24-inch poles where each conductor will be supported by a single monopole. Tillamook PUD had a preliminary design performed for the structures to determine pole strengths and design, and has had a structural engineer determine the foundation sizes and types. While there is always the chance of adjustments to pole locations, height and sizes during final design, Tillamook PUD is confident that any changes will be minor given the level of effort performed during the preliminary design.

Q. WHAT IS YOUR RESPONSE TO MR. PETERSON'S CLAIM THAT THE DIKES MAY BE COMPROMISED?

A. Tillamook PUD has coordinated with the Joe Jenck of the Stillwell Drainage District and with the Army Corp of Engineers. They will both be involved in the final design review to ensure the poles do not interfere with integrity of the dikes.

Q. DID YOU REVIEW THE TESTIMONY SUBMITTED ON BEHALF OF THE OREGON COAST ALLIANCE, THE OREGON FARM BUREAU, TILLAMOOK COUNTY FARM BUREAU, AND OREGON DAIRY FARMERS ASSOCIATION?

A. Yes.

Q. DO YOU AGREE WITH THAT TESTIMONY?

A. In general, I do not. A majority of the testimony from the Oregon Coast Alliance ("ORCA") and the others is legal argument and, therefore, not something I can respond to in testimony. Even so, statements within those arguments mis-state the facts on which they are based. For example, ORCA claims that Tillamook PUD has not determined what types of farming practices could be impacted by the line. To the contrary, a major component of the land use application to the County is a Farm Impacts Assessment, the purpose of which is to identify farm practices that might be impacted by the line and to determine what, if any, measures should be taken to prevent those impacts. ORCA similarly states that Tillamook PUD cannot comply with any of the land use criteria. While the County will ultimately make that determination, the fact that the County Planning Staff determined that all criteria had been or could be met is counter to ORCA's statement. ORCA also states that Tillamook PUD did not include all of the costs of the line in its estimate, like legal and permitting costs. Those costs appear as a specific line item labeled "Permitting" (which includes legal costs) in my original testimony exhibits at TPUD/209, Fagen/1. The remainder of ORCA's testimony and the testimony of the farm bureaus appears to be similar to the issues raised by other intervenors, which I have already addressed.

Q. DOES THIS CONCLUDE YOUR TESTIMONY

A. Yes, it does.

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 301

TO THE CROSS ANSWERING TESTIMONY OF KC FAGEN

ON BEHALF OF

TILLAMOOK PEOPLE'S UTILITY DISTRICT

COUNTY STAFF REPORT

March 2, 2018

Tillamook County

DEPARTMENT OF COMMUNITY DEVELOPMENT
BUILDING, PLANNING & ON-SITE SANITATION SECTIONS

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CONSOLIDATED REVIEW OF CONDITIONAL USE REQUEST (851-17-000448-PLNG-01), FLOODWAY/ESTUARY/FLOODPLAIN DEVELOPMENT PERMIT REQUEST(851-17-000448-PLNG), and ADMINISTRATIVE REVIEW REQUEST (851-17-000448-PLNG-02): TILLAMOOK-OCEANSIDE 115kV TRANSMISSION LINE

STAFF REPORT
Date: February 1, 2018

(This is not Building or Placement Permit Approval)

Report Prepared by: Hilary Foote, Planner and Sarah Absher, CFM, Director

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I. GENERAL INFORMATION:

Request: The Consolidated Review of Conditional Use (851-17-000448-PLNG-01), Floodway/Estuary/Floodplain Development Permit (851-17-000448-PLNG), and Administrative Review (851-17-000448-PLNG-02) requests for the proposed Tillamook-Oceanside 115kV Transmission Line Project (Exhibit B).

Location: The proposed project spans multiple properties within Township 1 South, Range 9 West and Township 1 South, Range 10 West of the Willamette Meridian, Tillamook County, Oregon. Exhibit A to the Staff Report contains a map and a list of impacted properties.

Zone: Segments of the proposed transmission line project are located within the Farm (F-1) zone, the Forest (F) zone, the Estuary Natural (EN) zone, the Estuary Conservation (EC1) zone, the Rural Residential 2-Acre (RR-2) zone and the Rural Commercial (RC) zone.

Applicant: The Tillamook People's Utility District,

Property Owner: Exhibit A to the Staff Report contains a map and a list of impacted properties and ownership information.

Proposal Description: The Tillamook People's Utility District (Applicant) is proposing to develop approximately 8.4 miles of new 115-kilovolt (kV) aboveground transmission line between the Bonneville Power Administration's Tillamook Substation, located to the east of the City of Tillamook on Oregon Route 6 and a new substation (Oceanside Substation) near the community of Oceanside (Exhibit B). Applicant has provided a detailed submittal which includes detailed description of the proposed use and development during construction and operational phases, a variety of map sets and reports including a Farm and Forest Impact Assessment5, a Floodway No-Rise Analysis, A Geologic Hazards Technical Memorandum, and a Biological Resources Report (Exhibit B).

The Project spans several underlying zones (Farm (F-1) zone, the Forest (F) zone, the Estuary Natural (EN) zone, the Estuary Conservation (EC1) zone, the Rural Residential 2-Acre (RR-2) zone and the Rural Commercial (RC) zone) as well as several overlay zones (Flood Hazard Overlay, Shorelands Overlay, Freshwater Wetlands Overlay). The proposed use is allowed conditionally or outright subject to standards depending on what zone certain segments of the proposed transmission line are located in. Applicant has requested consolidated review of the Conditional Use Request, Administrative Review and Flooway/Estuary/Floodplain Development Permit applications required to support the proposed development. The criteria and standards for each of these reviews are addressed below in this Staff Report.

II. APPLICABLE ORDINANCE AND COMPREHENSIVE PLAN PROVISIONS:

The desired use is governed through the following Sections of the Tillamook County Land Use Ordinance (TCLUO). The suitability of the proposed use, in light of these criteria, is discussed in Section III of this report:

III. CONDITONAL USE REQUEST 851-17-000448-PLNG-01
A. TCLUO Section 3.020, 'Rural Commercial (RC) Zone'
B. TCLUO Section 3.010, 'Rural Residential 2 Acre (RR-2) Zone'
C. TCLUO Section 1.060, 'Ordinance Interpretations'
D. TCLUO Section 3.102, 'Estuary Natural (EN) Zone'
E. TCLUO Section 3.120, 'Review of Regulated Activities'
F. TCLUO Section 3.140, 'Estuary Development Standards'
G. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'
H. TCLUO Section 3.545, 'Shoreland Overlay'
I. TCLUO Section 3.550, 'Freshwater Wetlands Overlay'
J. TCLUO Section 4.130, 'Development Requirements for Geologic Hazard Areas'
K. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'
L. TCLUO Section 4.160, 'Protection of Archaeological Sites'
M. TCLUO Section 3.004, 'Forest (F) Zone'
N. TCLUO Article VI, 'Conditional Use Procedures and Criteria'

IV. FLOODWAY/ESTUARY/FLOODPLAIN DEVELOPMENT PERMIT 851-17-000448-PLNG
A. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

V. ADMINISTRATIVE REVIEW REQUEST 851-17-000448-PLNG-02
A. TCLUO Section 3.002, 'Farm (F-1) Zone'
B. TCLUO Section 1.060, 'Ordinance Interpretations'
C. TCLUO Section 3.106, 'Estuary Conservation 1 (EC-1) Zone'
D. TCLUO Section 3.120, 'Review of Regulated Activities'
E. TCLUO Section 3.140, 'Estuary Development Standards'
F. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

G. TCLUO Section 3.545, 'Shoreland Overlay'
H. TCLUO Section 3.550, 'Freshwater Wetlands Overlay'
I. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'
J. TCLUO Section 4.160, 'Protection of Archaeological Sites'

III. ANALYSIS FOR CONDITIONAL USE REQUEST 851-17-000448-PLNG-01:

A. TCLUO Section 3.020, 'Rural Commercial (RC) Zone'

TCLUO Section 3.020(1) PURPOSE: *The purpose of the RC zone is to permit a moderate level of commercial activities to serve the commercial needs of rural areas, and tourist areas. Commercial uses in the RC zone typically provide goods and services that would be required by most households in the area, and they have relatively few impacts on neighboring areas. ...*

TCLUO Section 3.020(3)(n), 'Uses Permitted Conditionally', lists '*Utility substations and power transmission lines*' as a use permitted conditionally in the Rural Commercial zone subject to the provisions of Article IV and the requirements of all applicable supplementary regulations contained in ordinance.

Findings: Applicant is proposing to develop a 115kV transmission line (Exhibit B). Staff finds that Staff finds that the proposed use is allowed conditionally in the Rural Commercial zone subject to satisfaction of the conditional use review criteria set forth in TCLUO Article 6 which are addressed below and conformance with applicable development standards.

TCLUO Section 3.020 (4) STANDARDS: Land divisions and development in the RC zone shall conform to the following standards, unless more restrictive supplemental regulations apply:

...

(b) Minimum yards for any structure on a lot or parcel adjacent to a residential zone shall be 5 feet on the side adjacent to the residential zone, and 10 feet in the front yard. No rear yard is required.

...

Findings: Applicant states that two poles will be located in the Rural Commercial zone and both locations comply with the required yard setback (Exhibit B). Staff finds that the proposed pole locations conform with the development standards of the zone.

B. TCLUO Section 3.010, 'Rural Residential 2 Acre (RR-2) Zone'

TCLUO Section 3.010(1) PURPOSE: The purpose of the RR zone is to provide for the creation and use of smallacreage residential homesites. Land that is suitable for Rural Residential use has limited value for farm or forest use; it is physically capable of having homesites on parcels of five acres or less; and it can be utilized for residential purposes without constraining the use of surrounding resource-zoned properties for resource-production purposes...

TCLUO Section 3.010(3)(n), 'Uses Permitted Conditionally', lists '*Public utility facilities, including substations and transmission lines*' as a use permitted conditionally in the Rural Commercial zone subject to the provisions of Article IV and the requirements of all applicable supplementary regulations contained in ordinance.

Findings: Applicant is proposing to develop a 115kV transmission line (Exhibit B). Staff finds that Staff finds that the proposed use is allowed conditionally in the Rural Residential 2 Acre zone subject to satisfaction of the conditional use review criteria set forth in TCLUO Article 6 which are addressed below and conformance with applicable development standards.

TCLUO Section 3.010 (4) STANDARDS: Land divisions and development in the RR-2 and RR-10 zone shall conform to the following standards, unless more restrictive supplemental regulations apply:
...
(f) The minimum front yard shall be 20 feet.
(g) The minimum side yard shall be 5 feet; on the street side of a corner lot, it shall be no less than 15 feet.
(h) The minimum rear yard shall be 20 feet; on a corner lot, it shall be no less than 5 feet....

Findings: Applicant states that the one pole located in the RR-2 zone is located within the County's right-of-way on Wilson River Loop Road over 50 feet from the nearest lot zoned RR-2 which is located north of Wilson River Loop Road from the proposed pole location (Exhibit B). Applicant states that they maintain a utility placement agreement with the Tillamook County Public Works Department for use of County right-of-way and have received a County permit for Utility Facilities within a Public Right-of-way for the proposed transmission line and structures located within the County right-of-way along Wilson River Loop Road, permit number UP#5251.

C. TCLUO Section 1.060, 'Ordinance Interpretations'

(1) Authorization of Similar Uses. Where a proposed use is not specifically identified by this Ordinance, or the Ordinance is unclear as to whether the use is allowed in a particular zone, the Director may find the use is similar to another use that is permitted, allowed conditionally, or prohibited in the subject zone and apply the Ordinance accordingly. However, uses and activities that this Ordinance specifically prohibits in the subject zone, and uses and activities that the Director finds are similar to those that are prohibited, are not allowed. Similar use rulings that require discretion on the part of County officials shall be processed following the Type II procedure of Article 10. The Director may refer a request for a similar use determination to the Planning Commission for its review and decision.

(2) Ordinance Interpretation Procedure. Requests for Ordinance interpretations, including but not limited to similar use determinations, shall be made in writing to the Director and shall be processed as follows:
(a) The Director, within 10 days of the inquiry, shall advise the person making the inquiry in writing as to whether the County will make a formal interpretation.
(b) Where an interpretation does not involve the exercise of discretion, the Director shall advise the person making the inquiry of his or her decision within a reasonable timeframe and without public notice.

Director Findings & Determination: In review of the United States Department of Labor, Occupational Health and Safety Labor website: https://www.osha.gov/SLTC/etools/electric_power/transmission_dist.html, Clarification of the Electric Power Generation, Transmission, And Distribution Standard, 29 (CFR) 1910.269 does not make a distinction between transmission and distribution systems, however the language recognizes that important potential safety differences do exist between them. ...Transmission conductors are normally large to carry the high power and are installed on taller structures than distribution lines and equipment. Substations are considered to be both transmission and distribution facilities in CFR 1910.269.

It is fair to note that in addition to the higher voltage carried through transmission lines (important potential safety differences) and that the structures supporting the transmission lines are taller than those structures supporting distribution lines, the footprint of a transmission line structure is also generally larger.

In review of the uses permitted with standards and conditionally contained in each estuarine zones identified in the Tillamook County Land Use Ordinance (TCLUO), electrical distribution lines and electrical support structures are listed as uses permitted with standards or as a use listed conditionally in all estuary zones with exception to the Estuary Conservation Aquaculture Zone, subject to the procedures of Section 3.120: Regulated Activities and Impact Assessments, Section 3.140: Estuary Development Standards and Article 6: Conditional Use Procedures And Criteria as applicable. While transmission lines are not specifically stated in the underlying estuarine zone language, TCLUO Section 3.140: Estuary Development Standards, Subsection (6)(b) under standards for energy facilities and utilities identifies electrical distribution lines and electrical support structures as "*electrical or communication transmission lines*" with no other language or guidance that would separately identify or differentiate types of energy facilities and utilities.

Because Section 3.140 provides standards for *electrical transmission lines*, the Director finds that the proposed transmission line is of the same general character of electrical distribution lines and that this determination is consistent with the clarification outlined in CFR 1910.269. The proposed use remains subject to the development standards outlined in TCLUO Section 3.120, Section 3.140 and Article 6.

For the reasons outlined above, it was also determined by the Director that this interpretation did not involve the exercise of discretion and the applicant was advised of this determination during the pre-application meeting, within the required reasonable timeframe and without public notice as per TCLUO Section 1.060(2)(b).

D. TCLUO Section 3.102, 'Estuary Natural (EN) Zone'

(1) PURPOSE AND AREAS INCLUDED: The purpose of the EN Zone is to provide for preservation and protection of significant fish and wildlife habitats and other areas which make an essential contribution to estuarine productivity or fulfill scientific, research or educational needs.
Except where a goal exception has been taken in the Tillamook County Comprehensive Plan, the EN Zone includes the following areas:
(a) Development and Conservation Estuaries: Major tracts of tidal marsh, intertidal flats and seagrass and algae beds. The "major tract" determination is made through a consideration of all of the following four criteria: Size; habitat value; scarcity and degree of alteration.
(b) Natural Estuaries: The EN Zone includes all estuarine waters, intertidal areas, submerged or submersible lands and tidal wetland areas.

(3) USES PERMITTED CONDITIONALLY: The following uses may be permitted subject to the procedures of Section 3.120 and Article 6 and the standards in Section 3.140.
(d) Electrical distribution lines and line support structures.

Findings: A similar use determination is outlined in this report. The proposed route for the transmission line spans across the Estuary Natural (EN) zone as depicted in "Exhibit B". The proposed use in the EN zone is subject to the procedures of Section 3.120, the standards in Section 3.140 and Article 6: Conditional Use Procedures and Criteria outlined in the TCLUO. These sections are addressed in the staff report.

TCLUO 3.102(3)(d), 'Estuary Natural (EN) Zone' identifies '*Electrical distribution lines and line support structures*' as a use allowed conditionally in the EN zone. The Director has made a Similar Use Determination in accordance with TCLUO Section 2.040 that the proposed 115kV transmission line is similar in character and impact to '*electrical distribution lines and line support structures*'.

E. TCLUO Section 3.120, 'Review of regulated Activities'

1) PURPOSE: The purpose of this Section is to provide an assessment process and criteria for local review and comment on State and Federal permit applications which could potentially alter the integrity of the estuarine ecosystem.
(2) REGULATED ACTIVITIES: Regulated activities are those actions which require State and/or Federal permits and include the following:
(a) Fill (either fill in excess of 50 c.y. or fill of less than 50 c.y., which requires a Section 10 or Section 404 permit from the U.S. Army Corps of Engineers).
(d) Piling/dolphin installation.

Findings: Significant degradations or reductions of estuarine natural values as defined in the Estuarine Element (Goal 16) of the Tillamook County Comprehensive Plan include dredging, fill, in-water structures, riprap, log storage, application of pesticides and herbicides, flow-lane disposal of dredged material, water-intake or withdrawal and effluent discharge and other activities which will cause significant offsite impacts as determined by an impact assessment.

As depicted in the applicant's submittal, the proposed transmission line will span across areas zoned Estuary Natural (EN) and Estuary Conservation 1 (EC1). Procedures for review of the regulated activities identified above include review of the proposal according to the requirements of the zone(s) in which the proposed use/activity are to be located, the relevant standards outlined in TCLUO Section 3.140, an impact assessment, consideration of requirements for degradations or reductions of estuarine natural values where applicable and consideration of comments from State and Federal agencies having responsibility for permit review.

Included in the applicant's submittal are documentation of both state and federal permits (Exhibit B). The proposed use is allowed permitted with standards in the Estuary Conservation 1 (EC1) zone and allowed as a use permitted Conditionally in the Estuary Natural (EN) zone. The proposed transmission line in relation to the standards outlined in the Shoreland Overlay zone are also addressed in this report.

With the assistance of affected State and Federal agencies, and in conjunction with review of state and federal permits required for this proposal, the following considerations are required to be addressed:

(a) The type and extent of alterations expected.
(b) The type of resource(s) affected including, but not limited to aquatic life and habitats, riparian vegetation, water quality and hydraulic characteristics.
(c) The expected extent of impacts of the proposed alteration on water quality and other physical characteristics of the estuary, living resources, recreation and aesthetic use, navigation and other existing and potential uses of the estuary.
(d) The methods which could be employed to avoid or minimize adverse impacts.

The Applicant has provided a '*Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project*' as part of their submittal which describes the 12 locations where the proposed transmission line route crosses perennial water bodies with riparian buffers regulated by TCLUO 4.140. While the proposed development will require the placement of six poles and the removal of some existing trees within the riparian buffers, all improvements associated with this project will span across the estuary zoned areas with no ground disturbance including fill or grading activities will take place within estuarine areas. All ground disturbance for development of the transmission line and associated structures/improvements are located outside of estuarine zoned areas (Exhibit B).

The Applicant has reviewed the scope of their proposed development and vegetation management activities required for the proposed development within riparian buffer areas with the Oregon

Department of Fish and Wildlife (ODFW) and ODFW has provided documentation confirming that the proposed permanent pole locations meet the exception criteria outlined above in TCLUO 4.140(2)(c) or (d) and that proposed mitigation for riparian buffer crossings is sufficient for proposed tree removal (Exhibit B). As stated elsewhere in this report, Staff recommends that should the request be approved, a Condition of Approval be imposed requiring documentation of satisfaction of the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District be provided to the Department.

Requirements for resource capability determinations is required by TCLUO Section 3.140 and the proposed activity must be found to be consistent with the resource capabilities of a management unit (as described in Section 2 of the Estuarine Resources Element of the Tillamook County Comprehensive Plan) when either the impacts of the use on estuarine species, habitats, biological productivity and water quality are not significant; or that the resources of the area are able to assimilate the use and activity and their effects and continue to function in a manner that is consistent with the purposes of the zone. The resource capability determination shall be based on information generated by the impact assessment.
The Estuarine Resources Element in Section 2 of the Tillamook County Comprehensive Plan lists by management unit those resource areas of the Tillamook Bay estuary where the transmission line is proposed to traverse. Copies of the management unit descriptions and the Management Unit Designation map are included as "Exhibit G". Categories include areas needed for maintenance of enhancement of biological productivity, major tract of saltmarsh, area needed for recreational and aesthetic uses (tracts of significant habitat are smaller or of less biological importance than those in natural management units, and area needed for recreational use. Placement of fill and diking is identified as a historical alteration in each of the identified management units. Fish, birds and nesting areas are identified as those animals present in the identified management units. Significant biological functions include bird use/nesting in conjunction with adjacent riparian/marsh areas, fish feeding, and salmonid passage.

While some of the estuary management units categorize area needed for aesthetic uses, review of Tillamook County Comprehensive Plan Goal Elements 5, 16 and 17 confirm the proposed route of the transmission line is not located within an identified area inventoried in the Comprehensive Plan as an aesthetic resource area or an area identified as a significant shoreland.

The '*Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project*' located in "Exhibit B" addresses the resource capabilities of this area and includes an avian protection plan. Agencies that provided comments regarding these estuarine management units included the Oregon Department of Fish and Wildlife (ODFW) and the Oregon Department of State Lands (DSL). Comments from DSL are limited to the confirmation that a state application has been received and is in review. Comments from ODFW were focused primarily on fish passage requirements. No comments were received from the US Fish & Wildlife Service, the US Army Corps of Engineers, National Marine Fisheries, the Environmental Protection Agency and the Oregon Department of Land Conservation and Development.

The Applicant has stated there is a need (substantial public benefit) and the proposed transmission line does not unreasonably interfere with public trust rights, that there are no feasible alternative upland locations, and adverse impacts are minimized by spanning the transmission line improvements across the estuarine areas and avoiding any ground disturbance. Specifically, the Applicant states that, "The Project will not unreasonably interfere with public trust rights to the County's estuarine areas within the EC1 and EN zones. The Project will be entirely aboveground and landward of the Line of Ordinary High Water except for the aerial conductor, and only the 50-foot wide permanent easement will need to remain free from certain types of vegetation and development consistent with NESC, RUS and

Applicant standards for clearances and use for the operation and maintenance of a transmission line. The Project was specifically routed to avoid existing and planned public access areas and will not preclude the public from using estuarine areas within the EC1 and EN zones. The presence of the Project will not interfere with public use and access to Tillamook Bay estuary in general…"

F. TCLUO Section 3.140, 'Estuary Development Standards'

(6) ENERGY FACILITIES AND UTILITIES: Siting, design, construction, maintenance or expansion of energy facilities and utilities in estuary zones, shall be subject to the following standards:

(a) When new energy facilities and utilities are proposed within estuarine waters, intertidal areas or tidal wetlands, evidence shall be provided by the applicant and findings made by the County that:

(1) A need (i.e. a substantial public benefit) exists and the use or alteration does not unreasonably interfere with public trust rights.

(2) Alternative non-aquatic locations are unavailable or impractical.

(3) Dredging, fill and other adverse impacts are avoided or minimized.

(b) Electrical or communication transmission lines shall be located underground or along existing rights-of-way unless economically infeasible.

(c) Above-ground utilities shall be located to have the least adverse effect on visual and other aesthetic characteristics of the area. Interference with public use and public access to the estuary shall be minimized.

(d) Whenever practicable, new utility lines and crossings within estuarine waters, intertidal areas or tidal wetlands shall follow the same corridors as existing lines and crossings.

(e) Water discharge into estuarine waters, intertidal areas and tidal wetlands from an energy facility or utility shall meet EPA and DEQ standards, and shall not produce increases in temperature in the receiving waters which would have adverse impacts on aquatic life. Water Quality policies shall apply.

(f) When new energy facilities and utilities are proposed in EN zones, evidence shall be provided by the applicant and findings made by the County that the proposed use is consistent with the resource capabilities of the area and the preservation of areas needed for scientific, research or educational needs.

(g) When storm water and sewer outfalls are proposed in EC2 and EC1 zones, evidence shall be provided by the applicant and findings made by the County that the proposed use is consistent with the resource capabilities of the area and the long-term use of renewable resources, and does not cause a major alteration of the estuary.

(h) When new energy facilities and utilities are proposed in Estuary Development (ED) zones, evidence shall be provided by the applicant and findings made by the County that the proposed facility will not preclude the provision or maintenance of navigation and other public, commercial and industrial water dependent uses.

(i) Storm water and sewer outfalls shall go out to channels or areas where flushing will be adequate and shall not empty onto tideflats or intertidal wetlands. Effluent from outfalls must meet DEQ and EPA water quality standards. Water Quality policies shall apply.

(j) Dredge, fill, shoreline stabilization or other activities in conjunction with construction of energy facilities or utilities shall be subject to the respective standards for these activities.

(k) Energy facilities and utilities shall be sited so that they do not and will not require structural shoreline stabilization methods.

Findings: As stated previously in this report, the Applicant has stated there is a need (substantial public benefit) and the proposed transmission line does not unreasonably interfere with public trust rights, that there are no feasible alternative upland locations, and adverse impacts are minimized by spanning the transmission line improvements across the estuarine areas and avoiding any ground disturbance. The Applicant also states that no temporary access roads or conductor pulling and tensioning sites will be located within the Estuary Natural (EN) and Estuary Conservation 1 (EC1) Zone (Exhibit B). In review of the proposed routine and estuary maps, alternative non-aquatic locations are unavailable/impractical.

The applicant is proposing install the transmission lines above ground and within the estuarine areas, there are no existing rights-of-way. Staff did not identify corridors with existing lines and crossings in the estuarine areas. Review of the application indicates there are no plans to discharge water into estuarine areas, intertidal areas and tidal wetlands. The Applicant states they will obtain approval for necessary permits prior to construction and will continue to work with relevant regulatory agencies regarding the timing of construction (Exhibit B). Should the Planning Commission consider approval of this project, staff recommends a Condition of Approval be made to require compliance with EPA and DEQ standards, including compliance with any water quality policies.

The applicant is proposing to install new energy facilities and utilities in the Estuary Natural (EN) and Estuary Conservation 1 (EC1) Zones. The Applicant's responses to the standards outlined in TCLUO Section 3.140 are outlined on pages 5-19 through 5-22 of the narrative included in "Exhibit B".

Findings by the County that confirm the proposed use is consistent with the resource capabilities of the area and the preservation of areas needed for scientific, research or educational needs could be as follows:

- The applicant is proposing minimal disturbance within the Estuary Natural and Estuary Conservation 1 Zones by limiting development within these areas by only spanning the transmission line improvements across the estuary zoned areas.
- The applicant has provided a *'Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project'* that includes an avian protection plan.
- No comments were received from state or federal agencies to indicate or conclude the proposed line would have a detrimental effect on the characteristics, habitats, animals present or significant biological functions of the identified estuary management units.

There are no stormwater and sewer outfalls proposed and no new energy facilities and utilities are proposed in the Estuary Development (ED) Zone. No fill is proposed to be placed within the identified estuary zoned areas. No structural shoreline stabilization methods are proposed (Exhibit B).

G. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

Consistency with the requirements of TCLUO 3.510, 'Flood Hazard Overlay (FH) Zone', is addressed in Floodway/Estuary/Floodplain Development Permit Request (851-17-000448-PLNG) below.

H. TCLUO Section 3.545, 'Shoreland Overlay'

In the vicinity of the proposed project, the Goal 17 element of the Tillamook County Comprehensive Plan identifies land west of a boundary formed by State Highway 131 from its junction in Netarts with Whiskey Creek Road to its junction with the Oregon Coast Highway 101 near Tillamook, and all areas within 1,000 feet of estuaries and 500 feet of coastal lakes as within the Shorelands Boundary which may be subject to the provisions of TCLUO 3.545, 'SH Shoreland Overlay'. TCLUO 3.545 defines those areas within the Shorelands Boundary included within the Shoreland Overlay Zone. Relevant to the proposed development, TCLUO 3.545(2) identifies areas within 50 feet of estuaries as areas included in the Shorelands Overlay zone.

Findings: Staff finds that segments of the proposed development are located within the Shorelands Boundary as identified in the Goal 17 element of the Tillamook County Comprehensive Plan. Staff has reviewed the proposed development and determined that those areas within 50 feet of estuaries along the proposed transmission line route are categorized as 'Rural Shorelands' as described in TCLUO 3.545(3) and are subject to the use limitations identified in TCLUO 3.545(4)(a)(1) and the standards identified in TCLUO 3.545(6). Applicant has identified proposed development within these Rural Shoreland areas as consisting of eight power pole locations (poles 5, 8, 43-46, 48 and 49) which are illustrated on the Figure 4 maps included in Appendix A to the Applicant's submittal (Exhibit B). Additional Rural Shoreland areas will be spanned by the transmission lines and include areas around Hoquarten, Dougherty, Hall and Tomlinson Sloughs, the Trask and Tillamook Rivers and Stillwell Ditch (Exhibit B).

Staff has reviewed the significant shoreland inventory contained in the Goal 17 element of the Comprehensive Plan and has verified that the proposed transmission route does not impact significant shorelands. The nearest described significant shoreland is the Rain River Preserve which is located to the north and west of Goodspeed Road.

TCLUO Section 3.545(4) USES PERMITTED: Uses authorized by the underlying zone as outright or conditional uses are permitted, except at locations identified in (3) above.
(a) Rural Shorelands in General:
(1) Rural Shorelands uses are limited to:
(a) Farm uses
(b) Propagation and harvesting of forest products consistent with the Oregon Forest Practices Act,
(c) Aquaculture,
(d) Water-dependent recreational, industrial and commercial uses,
(e) Replacement, repair or improvement of existing state park facilities,
(f) Other uses are allowed only upon a finding by the County that such uses satisfy a need which cannot be accommodated at any alternative upland location, except in the following cases:
...

Findings: Section 8.6(C)(c) 'Energy Facilities and Utilities in Rural Shorelands' of the Goal 17 element of the Tillamook county Comprehensive Plan provides findings that identify a need to provide for '*normal domestic energy facilities and utility service within rural shorelands*' and states that '*this need can not be met on upland locations or in urban or urbanizable areas*'. In reviewing county zoning maps, Staff finds that it would impractical to map a route between the Bonneville Power Administration's Tillamook Substation and the area surrounding Oceanside entirely on upland areas – Shoreland areas have to be crossed (Exhibit A). Staff finds that the proposed transmission line cannot be accommodated at any alternative upland location.

TCLUO Section 3.545(6) STANDARDS: Uses within the SHORELAND OVERLAY ZONE are subject to the provisions and standards of the underlying zone and of this section. Where the standards of the SHORELANDS OVERLAY ZONE and the underlying zone conflict, the more restrictive provisions shall apply.
(a) Riparian vegetation shall be protected and retained according to the provisions outlined in Section 4.140, REQUIREMENTS FOR PROTECTION OF WATER QUALITY AND STREAMBANK STABILIZATION.
(b) Development in flood hazard areas shall meet the requirements of Section 3.510, FLOOD HAZARD OVERLAY ZONE.

(c) Development in beach and dune and other geologic hazard areas shall meet the requirements of Section 3.085, BEACH AND DUNE OVERLAY ZONE and Section 4.130, DEVELOPMENT REQUIREMENTS FOR GEOLOGIC HAZARD AREAS.

...

Findings: The requirements of TCLUO Section 4.140, 3.510 and 4.130 are addressed below.

(e) The productivity of resource land on Rural Shorelands shall be considered when determining the location of "Other Uses" within a given land parcel in the F-1, F, and SFW-20 zones. "Other Uses" within these zones shall be located so that the productivity of resource land is maintained.

Findings: Applicant has identified proposed development within Rural Shoreland areas as consisting of eight power pole locations (poles 5, 8, 43-46, 48 and 49) which are illustrated on the Figure 4 maps included in Appendix A to the Applicant's submittal (Exhibit B). Additional Rural Shoreland areas will be spanned by the transmission lines and include areas around Hoquarten, Dougherty, Hall and Tomlinson Sloughs, the Trask and Tillamook Rivers and Stillwell Ditch (Exhibit B).

Applicant has provided a Farm and Forest Impacts Assessment as Appendix C to their submission which contains characterizes characteristics of resource lands such as soil capability class, describes current use and discusses potential impacts related to the proposed development (Exhibit B).

Applicant provides a description of the route selection process including alternatives considered and states that the proposed project route was preferred by the Applicant and the Citizen Advisory Group involved in route selection because '*it also minimizes impacts to agricultural land and natural resources compared to other alternatives*'. Applicant states '*The proposed project corridor further reduces impacts on agricultural and resource lands through co-location with existing linear developments within the County*' (Exhibit B). Staff finds that the productivity of resource land was considered in determining the location of the transmission line.

Applicant states that 'wherever possible, power pole locations have been selected along property lines and on the edge of fields to minimize the impact on current farming activities' and states that approximately 77 square feet of resource land within Rural Shorelands will be subject to permanent impacts (Exhibit B). Maintenance of resource land productivity is discussed at length in Administrative Review 851-17-000448-PLNG-02 below.

I. TCLUO Section 3.550, 'Freshwater Wetlands Overlay'

(1) PURPOSE AND AREAS INCLUDED: The purpose of this zone is to protect significant areas of freshwater wetlands, marshes and swamps from filling, drainage or other alteration which would destroy or reduce their biological value. Areas included in this zone are:

(a) Significant Goal 5 Wetlands: wetlands identified as "significant" in the Goal 5 Element of the Comprehensive Plan;

(b) Notification Wetlands: wetlands shown on the Statewide Wetland Inventory (discussed in the Goal 5 Element of the Comprehensive Plan). When required, the verification of zone boundaries shall be carried out in conjunction with the property owner and the Oregon Division of State Lands.

Findings: Staff conducted a review of Goal 5 inventories and determined that the proposed development does not cross or impact any significant Goal 5 wetlands. Applicant

(2) USES PERMITTED:

...

(b) Notification Wetlands:

(1) uses permitted outright or conditionally in the underlying zone shall be permitted subject to approval by the Oregon Division of State Lands.

(1) STANDARDS: The following standard shall be met in addition to the standards of the underlying zone.

...

(b) Development activities, permits, and land-use decisions affecting a Notification Wetland require notification of the Division of State Lands, and are allowed only upon compliance with any requirements of that agency. The applicant shall be responsible for obtaining approval from the Division of State Lands for activities on Notification Wetlands.

Findings: Staff conducted a review of Goal 5 inventories and determined that the proposed development does not cross or impact any significant Goal 5 wetlands.

Applicant has provided a wetland delineation report as part of their application submittal and states that twelve wetlands were identified within a 100 foot study corridor along the proposed transmission line route ten of which were identified by Applicant's consultant as potentially subject to federal and state jurisdiction (Exhibit B). Applicant states that they have submitted their wetland delineation report to DSL and USACE for review and approval in accordance with OARs 141-090-0005 through 141-090-0055 and by the USACE, Portland District (Exhibit B). Mike DeBlasi, Oregon Department of State Lands Acquatic Resource Coordinator for Tillamook County confirmed that the Oregon Department of State Lands has received an application from the Applicant for the proposed project and it is currently under review (Exhibit D).

J. TCLUO Section 4.130, 'Development Requirements for Geologic Hazard Areas'

(1) The following are GEOLOGIC HAZARD AREAS to which the standards of this Section apply:

...

(b) Inactive landslides, landslide topography and mass movement topography identified in DOGMI bulletins 74 and 79 where slopes are greater than 19 percent;

...

(f) Other locally known areas of GEOLOGIC HAZARD based on evidence of past occurrences. (g) As required for development

Findings: Applicant's submittal contains a Geologic Hazards Memo addressing these standards in detail (Exhibit B). Applicant states that an approximately 600 foot segment of the proposed corridor crosses an area identified as landslide topography on DOGAMI Bulletin 74 which contains slopes exceeding 19 percent (Exhibit B). Applicant states that the transmission line also crosses areas of documented landslide deposits and comes in close proximity to two documented landslides near MP 7.3 of the transmission route. Applicant states that power poles will be located to avoid areas of known historical landslides and that the power pole types and foundations will be selected by their engineer, TriAxis Engineering, to safely support the transmission line and maintain the overall integrity of the Project (Exhibit B).

(2) All development within GEOLOGIC HAZARD areas shall comply with the following standards:

(a) Vegetation removal shall be the minimum necessary to accommodate the use.

(b) Temporary measures shall be taken to control runoff and erosion of soils during construction. Such measures include temporary stabilization (mulching or sodding) sediment basins or other performance equivalent structures required by the Planning Department.

(c) Exposed areas shall be planted in permanent cover as soon as possible after construction.

(d) Storm water shall be directed into drainages with adequate capacity so as not to flood adjacent or downstream properties. Finished grades should preferably be designed to direct water flows along natural drainage courses.

(e) Additional requirements contained in a Geologic report required by this Section shall be followed.

Findings: Applicant states that they will comply with these standards (Exhibit B). At the time of applying for Zoning and Building Permit approval, Applicant will be required to submit evidence demonstrating compliance with TCLUO 4.130(2). Staff recommends that these standards be met through compliance with Conditions of Approval.

(3) A GEOLOGIC HAZARD report is required prior to approval of planned developments, coast resorts, subdivisions and partitions governed by the Land Division Ordinance, building permits, mobile home permits, sand mining, occurring in areas identified in (1) with the following exception:
(a) For building or mobile home or manufactured home permits in areas identified in (1) (b), reports are needed for lots 20,000 square feet or larger only where the proposed structure is to be situated on slopes greater than 29 percent or if (1) (f) applies.

Findings: Applicant states that TriAxis Engineering, Inc. who specializes design services and studies for electrical power systems, will provide the design and engineering for the proposed transmission line and will work with the Applicant to select transmission line power pole locations that avoid areas known or believed to be susceptible to landslides (Exhibit B). Applicant states that the power pole types and foundations will be selected to safely support the transmission line and maintain the overall integrity of the Project (Exhibit B). Staff finds that a Condition of Approval can be adopted requiring demonstration of compliance with TCLUO 4.130(3) at the time of applying for Zoning and Building Permit approval.

K. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'

1) The following areas of riparian vegetation are defined:
- *(a) Fifty (50) feet from lakes and reservoirs of one acre or more, estuaries, and the main stems of the following rivers where the river channel is more than 15 feet in width; Nestucca, Little Nestucca, Three Rivers, Tillamook, Trask, Wilson, Kilchis, Miami, Nehalem and North and South Fork Nehalem River.*
- *(b) Twenty-five (25) feet from all other rivers and streams where the river or stream channel is greater than 15 feet in width.*
- *(c) Fifteen (15) feet from all perennial rivers and streams where the river or stream channel is 15 feet in width or less.*

For estuaries, all measurements are horizontal and perpendicular from the mean high water line or the line of non-aquatic vegetation, whichever is most landward. Setbacks for rivers, streams, and coastal lakes shall be measured horizontal and perpendicular from the ordinary high water line.

Findings: Applicant has provided a '*Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project*' as part of their submittal which describes the 12 locations where the proposed transmission line route crosses perennial water bodies with riparian buffers regulated by TCLUO 4.140.

(2) All development shall be located outside of areas listed in (1) above, unless:
- *(a) For a bridge crossing; or*
- *(b) Direct water access is required in conjunction with a water dependent use; or*
- *(c) Because of natural features such as topography, a narrower riparian area protects equivalent habitat values; or*
- *(d) A minimal amount of riparian vegetation is present and dense development in the general*

vicinity significantly degrades riparian habitat values.
Setbacks may be reduced under the provisions of (c) and (d) above only if the threat of erosion will not increase and a minimum 20 foot setback is maintained. Determinations of habitat values will be made by the Oregon Department of Fish and Wildlife.
...
(4) All trees and at least 50 percent of the understory vegetation shall be retained within areas listed in (1) above, with the following exceptions:

Finding: Applicant states that the proposed development will require the placement of six poles and the removal of some existing trees within the riparian buffer (Exhibit B). Applicant has reviewed the scope of their proposed development and vegetation management activities required for the proposed development within riparian buffer areas with the Oregon Department of Fish and Wildlife (ODFW) and ODFW has provided documentation confirming that the proposed permanent pole locations meet the exception criteria outlined above in TCLUO 4.140(2)(c) or (d) and that proposed mitigation for riparian buffer crossings is sufficient for proposed tree removal (Exhibit B). Staff recommends that should the request be approved, a Condition of Approval be imposed requiring documentation be provided to the Department of satisfaction of the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District.

L. TCLUO Section 4.160, 'Protection of Archaeological Sites'

(1) The Planning Department shall review building permits and other land use actions that may affect known ARCHAEOLOGICAL SITES. If it is determined that the proposed action may affect the integrity of an ARCHAEOLOGICAL SITE, the Planning Director shall consult with the State Historic Preservation Office on appropriate measures to preserve or protect the site and its contents. No permit shall be issued until either the State Historic Preservation Office determines that the proposed activity will not adversely affect the ARCHAEOLOGICAL SITE, or the State Historic Preservation Office has developed a program for the preservation or excavation of the site.

(2) Indian cairns, graves and other significant archaeological resources uncovered during construction or excavation shall be preserved intact until a plan for their excavation or reinterment has been developed by the State.

Findings: Applicant conducted a cultural resource study within the Project corridor and did not locate any significant historic, archaeological, or cultural resources that would be impacted by the proposed Project (Exhibit B). Applicant has committed to complying with the standards of TCLUO 4.160 (Exhibit B). No comments on this application were received from the State Historic Preservation Office.

M. TCLUO Section 3.004, 'Forest (F) Zone'

TCLUO Section 3.004(1) PURPOSE:
(a) The purpose of the Forest (F) Zone is to protect and maintain forest lands for grazing, and rangeland use and forest use, consistent with existing and future needs for agricultural and forest products. The F zone is also intended to allow other uses that are compatible with agricultural and forest activities, to protect scenic resources and fish and wildlife habitat, and to maintain and improve the quality of air, water and land resources of the county.
(b) The F zone has been applied to lands designated as Forest in the Comprehensive Plan. The provisions of the F zone reflect the forest land policies of the Comprehensive Plan as well as the requirements of ORS Chapter 215 and OAR 660-006. The minimum parcel size and other standards established by this zone are intended to promote commercial forest operations.

TCLUO Section 3.004(13), 'Use Table', identifies uses permitted in the Forest zone subject to the general provisions, special conditions, additional restrictions and exceptions set forth in ordinance. '*New electric transmission lines with right-of-way widths of up to 100 feet as specified in ORS 772.210*' are identified in this section as a use allowed subject to satisfaction of the conditional use review criteria set forth in TCLUO 3.004(8) and in TCLUO Article 6.

Findings: Applicant states that a 100 foot corridor width will be maintained (Exhibit B). ORS 772.210 addresses right of entry and condemnation of lands and trees for construction of service facilities. A copy of ORS 772.210 has been included here as 'Exhibit 'E' to this Staff Report.

Staff finds that the applicant is proposing a new electric transmission line within a right-of-way not to exceed 100 feet in width. Staff finds that the proposed use is allowed conditionally in the Forest Zone subject to satisfaction of the conditional use review criteria set forth in TCLUO 3.004(8) and in TCLUO Article 6 which are addressed below.

TCLUO Section 3.004 (3) DEVELOPMENT STANDARDS
(a) Land divisions and development in the F Zone shall conform to the following standards, unless more restrictive supplemental regulations apply:

...

2. The minimum front, rear, and side yards shall all be 30 feet.

Findings: Applicant states that all but three pole locations conform to the required 30-foot yard setback standards of the Forest zone (Exhibit B). Applicant states that the three pole structures which are located within the 30-foot yard setback are detached structures accessory to the primary use of the properties and are in conformance with the requirement of TCLUO Section 4.040(1)(b) which states '*An accessory structure that is separate from the main building may be located in the required rear and side yard, except in the required street side yard of a corner lot, provided that it is at no point located closer than three feet to a property line*' (Exhibit B). Staff finds that the proposed pole and substation locations conform with the development standards of the Forest Zone.

TCLUO Section 3.004 (9) SITING STANDARDS FOR DWELLINGS AND STRUCTURES IN FOREST ZONES
The following siting criteria or their equivalent shall apply to all new dwellings and structures in forest zones. These criteria are designed to make such uses compatible with forest operations, to minimize wildfire hazards and risks and to conserve values found on forest lands. The County shall consider the criteria in this section together with the requirements of Section (10) to identify the building site:

...

(d) Dwellings and structures shall be sited on the parcel so that:

1. They have the least impact on nearby or adjoining forest or agricultural lands;

2. The siting ensures that adverse impacts on forest operations and accepted farming practices on the tract will be minimized;

3. The amount of forest lands used to site access roads, service corridors, the dwelling and structures is minimized; and

4. The risks associated with wildfire are minimized.

(e) Siting criteria satisfying Subsection (d) may include setbacks from adjoining properties, clustering near or among existing structures, siting close to existing roads and siting on that portion of the parcel least suited for growing trees.

Findings: Applicant states that an approximately 4.3-mile portion of the proposed route, 36 poles and a new substation are proposed to be located in the Forest zone (Exhibit B). The applicant has provided

a Farm and Forest Impact Assessment as Appendix C to their submittal contained in 'Exhibit B' to this Staff Report.

The applicant states that 'wherever possible, the proposed transmission line route through the County's Forest zone is located directly adjacent to a network of existing private forest roads to minimize the impacts to surrounding lands' (Exhibit B). Staff finds that siting the proposed transmission line adjacent to existing roads reduces the need for new access roads, minimizes the amount of forest land needed to site the proposed development and facilitates access for fire suppression purposes should the need arise.

Applicant has indicated that they will coordinate with Green Crow Corporation and Stimson Lumber Company, the underlying property owners, to minimize impacts to forest operations during the construction phase (Exhibit B). Applicant further states that all methods of timber harvesting and reforestation activities, and the equipment used for these activities, can continue on lands surrounding the proposed development (Exhibit B).

Potential impacts to forest practices and fire hazards are discussed further below in addressing the criteria of TCLUO Section 3.004(8).

TCLUO Section 3.004 (10) FIRE-SITING STANDARDS FOR DWELLINGS AND STRUCTURES: The following fire-siting standards or their equivalent shall apply to all new dwelling or structures in a forest zone:

...

(c) The owners of the dwellings and structures shall maintain a primary fuel-free break area surrounding all structures and clear and maintain a secondary fuel-free break area on land surrounding the dwelling that is owned or controlled by the owner in accordance with the provisions in "Recommended Fire Siting Standards for Dwellings and Structures and Fire Safety Design Standards for Roads" dated March 1, 1991, and published by the Oregon Department of Forestry and shall demonstrate compliance with Table (10)(c)1

Findings: Applicant states that they will comply with the requirement to maintain the required fuel-free breaks around the pole structures, conductor and substation (Exhibit B). Applicant notes that NESC, RUS and Tillamook PUD have additional standards for the maintenance of cleared areas (Exhibit B). Applicant states that their easement agreements will contain provisions addressing Tillamook PUD's commitment to maintain transmission corridors free of potential fuel, providing a fire break to help reduce the spread of forest fires (Exhibit B).

Practices to minimize fire hazards are discussed further below in addressing the criteria of TCLUO Section 3.004(8).

TCLUO Section (8) CONDITIONAL USE REVIEW CRITERIA: A use authorized as a conditional use under this zone may be allowed provided the following requirements or their equivalent are met. These requirements are designed to make the use compatible with forest operations and agriculture and to conserve values found on forest lands. Conditional uses are also subject to Article 6, Section 040.

1. *The proposed use will not force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agriculture or forest lands.*

Findings: The applicant has provided a Farm and Forest Impact Assessment as Appendix C to their submittal contained in 'Exhibit B' to this Staff Report. Forest zoned property along the proposed transmission line route includes tracts owned by Stimson Lumber Company and Green Crow

Corporation and are primarily devoted to the management of timber stands and timber harvest (Exhibit A). Stimson Lumber and Green Crow Corp were provided notice of this application and have not provided comments. Generally, forest operations are expected to include activities such as reforestation of forest land, road construction and maintenance, harvesting of a forest tree species, application of chemicals, and disposal of slash (OAR 660-06-0025(2)(a)).

Applicant states that:

- The line route has been sited along existing roads to the extent possible, minimizing the need for new access road construction and reducing the need for tree removal to facilitate the project (Exhibit B).
- The proposed project corridor – a 100 foot wide easement running 5,581 lineal feet on Green Crow Corporation property and 17,000 lineal feet on Stimson Lumber Company property – represents a very narrow corridor particularly in the context of the extensive timber tracts managed by Green Crow and Stimson in this area (Exhibit B).
- Since most of the proposed development is located along existing logging roads and scheduled maintenance occurs once a year, impacts to gate management practices and existing logging roads are anticipated to be minimal (Exhibit B).
- The transmission line design provides 25 feet of clear story height under the line in all locations which is sufficient to move logging equipment from one side of the line to the other (Exhibit B).
- If trees adjacent to the right-of-way edge are over 100 feet in height, directional tree falling will be required and that directional tree falling is a common accepted forest harvest practice in response to a variety of conditions. (Exhibit B)
- No significant impacts to aerial spraying operations are anticipated (Exhibit B).
- The substation will be sited adjacent to a property developed with sanitation utility facilities owned and operated by the Netarts Oceanside Sanitary District (Exhibit B)

Potential fire-related impacts are discussed below.

Staff finds that the proposed use will not force a significant change in or significantly increase the cost of accepted forestry practices, such as harvesting and replanting timber species, building and maintaining roads, applying chemicals and disposing of slash on the Green Crow and Stimson Lumber tracts.

2. *The proposed use will not significantly increase fire hazard or significantly increase fire suppression costs or significantly increase risks to fire suppression personnel.*

Findings: Notice of this application was provided to impacted fire suppression districts and the Oregon Department of Forestry. Comments received were from the Oregon department of Forestry requesting that Applicant's contractor comply with industrial fire protection rules when the state declares fire season (Exhibit D). Applicant states in their submittal included here as 'Exhibit B' that:

- Project construction, operation, and maintenance will comply with applicable federal, state, and county laws, ordinances, rules, and regulations pertaining to fire prevention, presuppression, and suppression (Exhibit B).
- During Project construction and operations, a Fire Protection Plan will be implemented in coordination with the local fire districts and the Oregon Department of Forestry and will demonstrate compliance with wildfire prevention and suppression requirements under Oregon Revised Statutes Chapter 477 and its associated administrative rules including the following (Exhibit B).
  - Provide fire-prevention equipment on machinery
  - Limit or stop work during periods of elevated fire danger

- Provide firefighting tools
- Provide water supplies and pumping equipment
- Provide fire watch personnel
- Suppress wildfires originating from construction activity
- Dispose of debris in a specified manner
- Construction contractor to accept liability for the State's cost of suppressing wildfires originating from construction activity

- The Tillamook PUD Emergency Response Plan lists contacts and procedures for responding to incidents, including fire-related events (Exhibit B).
- Tillamook PUD will maintain the transmission line corridor free from potential fuel and Tillamook PUD's ability to do so will be memorialized in easement agreements (Exhibit B).
- The cleared, fuel-free transmission line easement in the forested area will provide a fire break, helping reduce the spread of a fire (Exhibit B).

Staff finds that the Applicant has committed to implementing fire prevention, pre-suppression and suppression plans for the construction and operational phases of the proposed project in accordance with federal, state and county regulations. Should the Planning Commission agree with these findings, this criterion could be met through compliance with a Condition of Approval requiring Applicant to provide letters from the impacted fire protection districts documenting the sufficiency of the fire prevention, presuppression, and suppression plans prepared by its construction contractor for the construction phase of the project and the sufficiency of the fire prevention, presuppression, and suppression plans prepared for the operational phase of the project.

3. *A written statement recorded with the deed or written contract with the county or its equivalent is obtained from the land owner that recognizes the rights of adjacent and nearby land owners to conduct forest operations consistent with the Forest Practices Act and Rules for uses authorized in OAR 660-006-0025(5)(c).*

Findings: Applicant states that they accept the requirement to acknowledge the rights of adjacent and nearby landowners to conduct forest operations consistent with the Forest Practices act and Rules for uses authorized in OAR 660-006-0025(5)(c) (Exhibit B). The underlying property owners in this case are commercial timber companies engaged in forest operations and the Applicant will be obtaining property rights through easement rather than deed (Exhibit B). Applicant states that this acknowledgement will be recorded as part of the easement obtained from the underlying property owners (Exhibit B).

Staff finds that this criterion can be satisfied through compliance with a Condition of Approval requiring demonstration at the time of applying for Zoning Permit approval that the easement agreements recorded between the Applicant and underlying property owner contain an acknowledgement by the Applicant recognizing the rights of adjacent and nearby land owners to conduct forest operations consistent with the Forest Practices Act and Rules for uses authorized in OAR 660-006-0025(5)(c). Staff recommends that this criterion can be met through compliance with the recommended Conditions of Approval.

N. TCLUO Article VI, 'Conditional Use Procedures and Criteria'

TCLUO Section 6.040, 'Review Criteria' requires that any Conditional Use authorized according to TCLUO Article VI shall be subject to the following criteria, where applicable:

(1) The use is listed as a CONDITIONAL USE in the underlying zone, or in an applicable overlying zone.

Findings: As noted above, the proposed use is listed as a conditional use in the underlying zones as described in TCLUO 3.004(13), 'Forest (F) Zone', TCLUO 3.010(3)(n), 'Rural Residential 2 Acres (RR-2) zone' and TCLUO 3.020(3)(n), 'Rural commercial (RTC) Zone'. As discussed above, TCLUO 3.102(3)(d), 'Estuary Natural (EN) Zone' identifies '*Electrical distribution lines and line support structures*' as a use allowed conditionally in the EN zone and the Director has made a Similar Use Determination that the proposed 115kV transmission line is similar in character and impact.

The Conditional Use review criteria discussed below apply to the proposed development located in the Forest, Rural Residential 2-Acre, Rural Commercial and Estuary Natural zones. The development standards relevant to proposed development located in the Farm and Estuary Conservation 1 zones are addressed in Administrative Review 851-17-000448-PLNG-02.

(2) The use is consistent with the applicable goals and policies of the Comprehensive Plan.

Findings: The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan. In the absence of evidence to the contrary, uses allowed conditionally in the Land Use Ordinance are presumed to be consistent with the Comprehensive Plan.

The Applicant's submittal contains a description the proposed development located in the Forest, Rural Residential 2-Acre, Rural Commercial and Estuary Natural zones is consistent with the applicable policies of the Tillamook County Comprehensive Plan (Exhibit B).

Staff finds that the proposed transmission line development is consistent with the Goal 1, 2, 9, 10, 12, 13, 18 elements of the Comprehensive Plan.

- Tillamook County Comprehensive Plan Goal 3 Element: AGRICULTURAL LANDS

Summary: Goal 3 defines "agricultural lands." It then requires counties to inventory such lands and to "preserve and maintain" them through farm zoning. Details on the uses allowed in farm zones are found in ORS Chapter 215 and in Oregon Administrative Rules, Chapter 660, Division 33.

Findings: The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan and the use and development of land subject to Farm zoning is addressed under TCLUO Section 3.002. Conformance of those portions of the proposed transmission line development located on Farm zoned land are addressed below in Administrative Review 851-17-000448-PLNG-02.

- Tillamook County Comprehensive Plan Goal 4 Element: FOREST LANDS

Summary: This goal defines forest lands and requires counties to inventory them and adopt policies and ordinances that will "conserve forest lands for forest uses."

Findings: The proposed transmission line development will cross approximately 4.2 miles of commercial forest in the Forest zone located between Bayocean Road and Applicant's proposed new Oceanside Substation (Exhibit B). Tillamook County Comprehensive Plan Goal 4 policies require that all non-forest uses proposed for the Forest zone will be reviewed by the County Planning Commission to assure that they are compatible with forest and farm uses on adjacent land, and to assure that these uses meet all other criteria and standards described in the zoning ordinance. These policies also require the productive capacity of the land in each use shall be evaluated. Compatibility with forest and farm uses on land adjacent to the proposed transmission line segments located in the Forest zone are addressed above in response to the criteria of TCLUO Section 3.004(8) and below in response to TCLUO Section 6.040(4).

- Tillamook County Comprehensive Plan Goal 5 Element: NATURAL RESOURCES

Summary: Goal 5 covers more than a dozen natural and cultural resources such as wildlife habitats and wetlands. It establishes a process for each resource to be inventoried and evaluated. If a resource or site is found to be significant, a local government has three policy choices: preserve the resource, allow proposed uses that conflict with it, or strike some sort of a balance between the resource and the uses that would conflict with it.

Findings: Staff has not identified any Goal 5 protected resources along the segments of the proposed transmission line route located in the F, RC, RR-2 or EN zones. The Goal 5 element of the Tillamook County Comprehensive Plan does identify potential mineral and aggregate sites in the vicinity of the Mt Mears Quarry in T1S R10W Sections 28, 29 and 21, however county records indicate that Goal 5 protection has not been sought for these sites. Compatibility of the proposed development with existing quarry use in the Forest zone is addressed below.

- Tillamook County Comprehensive Plan Goal 6 Element: AIR, WATER AND LAND RESOURCES QUALITY

Summary: This goal requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as groundwater pollution.

Findings: Staff finds that the proposed transmission line development would not reduce protections for resources and natural features addressed in the Goal 6 Element or waive requirements for satisfaction of development standards intended to address resource quality such as those contained in TCLUO 4.040 'Requirements for Protection of Water Quality and Streambank Stabilization'. Compliance with TCLUO Section 4.040 is discussed above in this Staff Report. Applicant has obtained a Nationwide Permit Verification Letter from the U.S. Army Corps of Engineers and 401 Water Quality Certification approval from DEQ (Exhibit B). Staff typically imposes Conditions of Approval on development requiring Applicants obtain all required Federal, State, and Local permits and/or licenses and comply with applicable rules and regulations.

- Tillamook County Comprehensive Plan Goal 7 Element: HAZARDS

Summary: Goal 7 deals with development in places subject to natural hazards such as floods or landslides. It requires that jurisdictions apply "appropriate safeguards" (floodplain zoning, for example) when planning for development there.

Findings: The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan and contains ordinance provisions addressing the identification of hazard areas and requirements for development in identified hazard areas. Segments of the proposed development are located in a Special Flood Hazard Area (Exhibits A and B). Applicant has provided a No-Rise hydrological study prepared by Northwest Hydrological Consultants which is the subject of Floodway/Estuary/Floodplain Development Permit request #851-17-000448-PLNG addressed below (Exhibit B). Segments of the proposed development are located within areas of landslide topography as identified on DOGAMI Bulletin 74 and compliance with the requirements of TCLUO Section 4.130, 'Development requirements for Geologic Hazard Areas' is addressed above (Exhibit A).

- Tillamook County Comprehensive Plan Goal 8 Element: RECREATION

Summary: This goal calls for each community to evaluate its areas and facilities for recreation and develop plans to deal with the projected demand for them. It also sets forth detailed standards for expedited siting of destination resorts.

Findings: The County shall has adopted special zoning designations for the preservation of unique open space areas and recreation areas in order to preserve them from incompatible development – the Recreation Management, Recreational Natural and Recreation Development zoning designations as well as a process for establishing a Planned Destination Resort. Applicant's proposed development is not near land subject to these zoning designations.

- Tillamook County Comprehensive Plan Goal 9 Element: POPULATION AND ECONOMY

Summary: Goal 9 calls for diversification and improvement of the economy. It asks communities to inventory commercial and industrial lands, project future needs for such lands, and plan and zone enough land to meet those needs.

Findings: The Goal 9 Element of the Comprehensive Plan summarizes information from several sources to describe in general terms the economic base of the County and trends in population and economic change. Population characteristics are presented however the growth projections only extend to the year 2000. Development potential for the major sectors of the economy are then described including a special section on development potential related to coastal resources. A brief evaluation is made of the existing zones and known potential alternative sites for economic development. Findings and policies for community organization, public services, industrial land, the need for manufacturing employment opportunities, natural resources development and human resources development are outlined in the Goal 9 Element.

Applicant state that the proposed development is required to serve ongoing development and growth in the vicinity of the unincorporated communities of Oceanside and Netarts and the central Tillamook Valley area including the incorporated cities of Tillamook and Bay City (Exhibit B). These are areas that are zoned for residential, commercial and some light industrial uses. The provision of electrical utility service to support growth in these municipal and unincorporated community areas is consistent with the Goal 9 Element of the Tillamook County Comprehensive Plan.

- Tillamook County Comprehensive Plan Goal 11 Element: PUBLIC FACILITIES

Summary: Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection. The goal's central concept is that public services should to be planned in accordance with a community's needs and capacities rather than be forced to respond to development as it occurs.

Findings: The Goal 11 Element of the Comprehensive Plan speaks to public services and facilities in Tillamook County, and requires local governments and special districts "to plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development". There is a significant amount of discussion within the Goal 11 element pertaining to rural versus urban development and concerns about limiting urban sprawl.

Comments have been received questioning the compatibility of the proposal development with Statewide Planning Goal section 11(A)(6), '*All utility lines and facilities should be located on or adjacent to existing public or private rights-of-way to avoid dividing existing farm units.*' Staff notes that Statewide Planning Goals do not apply directly to a quasi-judicial decision governed by the County's acknowledged plan and land use regulations. The referenced section of Goal 11 sets forth guidelines to be considered and are not mandatory.

Applicant states that the proposed development is required to serve ongoing development and growth in the vicinity of the unincorporated communities of Oceanside and Netarts and the central Tillamook Valley area including the incorporated cities of Tillamook and Bay City (Exhibit B). Services and facilities within these areas include public schools, transportation, water supply, sewage disposal, solid waste disposal, police protection, fire protection, planning, zoning and subdivision control, energy service, and communications services. These are areas that are primarily zoned for residential, commercial and some

light industrial uses. Applicant has provided a statement describing the need for improved reliability and expanded electrical service in order to meet projected growth for these areas. Staff finds that the provision of expanded electrical service to these non-resource areas which are zoned for density and development is consistent with the policies of the Goal 11 element of the Comprehensive Plan.

- Tillamook County Comprehensive Plan Goal 14 Element: URBANIZATION

Summary: This goal requires cities to estimate future growth and needs for land and then plan and zone enough land to meet those needs. It calls for each city to establish an "urban growth boundary" (UGB) to "identify and separate urbanizable land from rural land." It specifies seven factors that must be considered in drawing up a UGB. It also lists four criteria to be applied when undeveloped land within a UGB is to be converted to urban uses.

Findings: The purpose of Goal 14 is to provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities. In addition to addressing preservation of the use and integrity of resource lands, the establishment of unincorporated community growth boundaries and the priorities/establishment of urban growth boundaries, concerns about impacts of dense rural development and small lot development are described in this goal element. Four major areas of concern related to allowing small lot sizes and development in rural areas include traffic congestion, water quality, water availability and impacts on resource lands.

Applicant is proposing the transmission line development to serve ongoing development and growth in the vicinity of the unincorporated communities of Oceanside and Netarts and the central Tillamook Valley area including the incorporated cities of Tillamook and Bay City (Exhibit B). These are areas that are zoned for residential, commercial and some light industrial uses. The provision of electrical utility service to support growth in these municipal and unincorporated community areas is consistent with the Goal 14 Element of the Tillamook County Comprehensive Plan.

- Tillamook County Comprehensive Plan Goal 16 Element: ESTUARINE RESOURCES

Summary: This goal requires local governments to classify Oregon's 22 major estuaries in four categories: natural, conservation, shallow-draft development, and deep-draft development. It then describes types of land uses and activities that are permissible in those "management units."

Findings: Applicant states that no transmission line power poles will be located in the EN zone, the proposed 115-kV transmission line conductor will completely span over the top of the EN zone and that there will be no surface impacts from the proposed Project within the EN zone (Exhibit B). The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan and the use and development of estuarine areas is addressed under the ordinances of the relevant estuary zone as well as the general estuary development standards contain in TCLUO 3.140. Conformance of those segments of the proposed transmission line which span areas subject to estuary zoning designation are addressed in this Staff Report.

- Tillamook County Comprehensive Plan Goal 17 Element: COASTAL SHORELANDS

Summary: The goal defines a planning area bounded by the ocean beaches on the west and the coast highway (State Route 101) on the east. It specifies how certain types of land and resources there are to be managed: major marshes, for example, are to be protected. Sites best suited for unique coastal land uses (port facilities, for example) are reserved for "water-dependent" or "water related" uses.

Findings: As discussed above, segments of the proposed development are located within the Shorelands Boundary as identified in the Goal 17 element of the Tillamook County Comprehensive Plan. Staff has reviewed the proposed development and determined that those areas within 50 feet of estuaries along the

proposed transmission line route are categorized as 'Rural Shorelands' as described in TCLUO 3.545(3) and are subject to the use limitations identified in TCLUO 3.545(4)(a)(1) and the standards identified in TCLUO 3.545(6). Staff has reviewed the significant shoreland inventory contained in the Goal 17 element of the Comprehensive Plan and has verified that the proposed transmission route does not impact significant shorelands. The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan and the use and development of areas within the Shoreland Boundary is regulated by TCLUO Section 3.545, 'Shoreland Overlay' which is addressed in above. No Significant Shoreland elements were identified in proximity to the proposed development.

(3) The parcel is suitable for the proposed use considering its size, shape, location, topography, existence of improvements and natural features.

Findings: Applicant's submittal included here as 'Exhibit B' contains a detailed description of the proposed development and the properties over which the transmission easement is proposed.
The proposed Project includes construction and operation of approximately 8.4 miles of the 115-kV electric transmission line located within a 50-100 foot-wide easement corridor and a 115-kV to 24.9/14.4-kV distribution substation (Exhibit B). Applicant states that the proposed route was established through a route siting process which included the formation of a 14-member, volunteer Citizen Advisory Group who reviewed detailed analysis of potential alternative routes and provided recommendations for selection (Exhibit B). Applicant states that wherever possible, the proposed development has been routed adjacent to or collocated with existing linear facilities such as highway and road rights-of-way, utility corridors, or previously developed areas (Exhibit B).

Rural Commercial Zone: Applicant is proposing to locate an approximately 0.1-mile segment of the proposed transmission line easement and two power poles (power pole 1 and 3) in the County's Rural Commercial (RC) zone on property owned by the Bonneville Power Administration and currently developed with the Tillamook Substation and on property owned by Tillamook PUD (Exhibit B). No riparian features, wetlands, special flood hazard or other hazards are identified in this area (Exhibit B).

Staff finds that the properties subject to the proposed development in the Rural Commercial zone are relatively flat, predominantly cleared and graveled, lacking in hazards and are developed with utility facilities and currently devoted to utility use (Exhibits A and B).

Rural Residential Zone: Applicant states that an approximately 0.05-mile portion of the proposed route and one pole are proposed to be located in the RR-2 zone within the public right-of-way of Wilson River Loop Road (Exhibit B). Applicant states that the proposed easement width in the vicinity of pole #16 has been reduced so that no easement will be located on the adjacent private RR-2 land devoted to residential use (Exhibit B). County road right-of-way is irregular in shape along this portion of Wilson River Loop Road (Exhibit A). Tillamook PUD owns and operates an existing power distribution line in this area that runs along the northern side of Wilson River Loop Road which would be relocated to the proposed easement corridor along the south side of Wilson River Loop Road in order to minimize impacts on adjacent private properties in the RR-2 zone (Exhibit B). Tillamook PUD received a County permit for Utility Facilities within a Public Right-of-way for the proposed transmission line and structures located within the County right-of-way along Wilson River Loop Road, permit number UP#5251 (Exhibit B). No riparian features, wetlands, special flood hazard or other hazards are identified in this area (Exhibit B).

Staff finds that the property subject to the proposed development in the Rural Residential 2-Acre zone is relative flat, predominantly cleared and graveled or paved, is developed with transportation facilities, utility facilities and private access drives (Exhibits A and B).

Forest Zone: Applicant states that an approximately 4.3-mile portion of the proposed route, 36 poles and a new substation are proposed to be located in the Forest zone (Exhibit B). The proposed transmission line easement in the Forest zone is 100 feet in width and is co-located to the extent possible with existing logging roads (Exhibit B). The properties subject to development in the Forest zone are large, forested timber tracts managed for forest operations and quarry use, are developed with logging access roads, and consist of terrain of varying slope (Exhibit B).

Segments of this portion of the proposed route traverse Geologic Hazard areas as discussed above (Exhibit B). Staff finds that it would not be possible to map a route between Tillamook and the vicinity around Oceanside without crossing Forest zoned property and without crossing areas of landslide topography as identified in DOGAMI Bulletin 74 or documented landslide deposits as identified in DOGAMI Statewide Landslide Information Database for Oregon (SLIDO). Applicant states that they have worked with their engineering consultant, TriAxis Engineering, to select transmission line power pole locations that avoid areas known or believed to be susceptible to landslides and areas of known geologic hazards including landslides and weak bearing soils (Exhibit B). Applicant states that transmission lines commonly are located in terrain of this type and that the hazard can be addressed through appropriate route design and engineering (Exhibit B).

There are no mapped wetlands or Special Flood Hazard Areas crossed by the segment of the proposed route located in the Forest zone (Exhibit B). There are several perennial stream locations identified along the proposed route in the Forest zone as identified in Applicant's submittal and confirmed by the Oregon Department of Fish and Wildlife which are addressed above (Exhibit B). Applicant states that no ODFW Category 1 habitat was identified in the proposed transmission corridor area and no concerns related to wildlife impacts have been expressed by ODFW staff (Exhibits B and D).

Staff finds that Applicant is proposing to locate a segment of the proposed transmission line within the Forest zone on a comparatively small portion (of two large timber tracts and generally adjacent to existing road improvements in conformance with Forest zone siting requirements discussed above. Staff finds that the proposed pole locations in the Forest zone will not be located in riparian buffer areas and will not be located in areas known or believed to be susceptible to landslides or weak bearing soils and will not be otherwise located in areas of known hazards. Staff finds that the subject properties are currently devoted to forest use and industrial quarry use.

Estuary Natural Zone: Applicant states that the proposed transmission line will span the Estuary Natural zone for 0.2 miles within a 50 foot wide easement area at one location over the Tillamook River on the proposed route (Exhibit B). Applicant states that the Tillamook River is a navigable waterway at this proposed crossing and requires a permit from the USACE under Section 10 of the Rivers and Harbors Act of 1899 (Exhibit B). Diking infrastructure bounds the southwestern edge of the Estuary Natural zone in this area and Applicant states that the underlying area is otherwise undeveloped (Exhibits B and G). This section of estuary is contained in Management Unit 39EN and categorized as a major tract of saltmarsh predominated by shrubs and cleared agricultural land (Exhibit G). Suitability of the development for this zoning designation and the requirements for development in the Estuary Natural zone are discussed extensively above.

(4) The proposed use will not alter the character of the surrounding area in a manner which substantially limits, impairs or prevents the use of surrounding properties for the permitted uses listed in the underlying zone.

Applicant's submittal included here as 'Exhibit B' contains a detailed description of the proposed development, the properties over which the transmission easement is proposed, and uses and development in the areas surrounding those segments of the proposed transmission line subject to Conditional Use

review. Applicant states that the proposed development was specifically routed to be co-located with existing linear facilities, to utilize existing right-of-way to the extent practical and to avoid existing structures and buildings so the easement corridor and transmission line do not limit, impair, or prevent use of the properties crossed in these zones (Exhibit B).

Rural Commercial Zone: As noted above, the subject properties in the Rural Commercial zone are are developed with utility facilities and currently devoted to utility use lines and are under utility ownership (Exhibit B).

Properties to the north of this proposed transmission line segment are zoned Farm (F-1) and include several large parcels which form part of the Hogan farm tract (Exhibits A and B). High Voltage transmission lines are currently located on the southern portion of this farm tract (Exhibits A and B). The Hogan farm tract is developed with a residence and various agricultural buildings and is in farm use (Exhibits A and B). Applicant has provided a detailed Farm and Forest Impact Assessment as part of their submittal which contains information on use and characteristics of the Farm zoned area south of the RR-2 zoned segment of the proposed transmission line (Exhibit B). Staff notes that transmission lines under 200 feet in height are a use allowed outright subject to standards in the Farm zone. Compliance with those standards for segments of the transmission line proposed on property subject to Farm zone zoning is addressed in Administrative Review 851-17-000448-PLNG-02 below.

Applicant states that the transmission line corridor is located in a previously developed commercial area, is similar in character to existing electrical transmission and substation facilities that characterize this Rural Commercial zoned area and will not limit or prevent existing uses on surrounding properties or within this discrete area within the RC zone.

Rural Residential Zone: Applicant states that in the RR-2 zone one power pole will be placed within the public right-of-way for Wilson River Loop Road, and no poles will be placed on private RR-2 zoned property (Exhibit B). Properties to the north of this proposed transmission line segment are zoned Rural Residential 2-Acre, are relatively flat, sparsely vegetated, are developed with residential dwellings and accessory structures and a commercial bait shop and are generally devoted to residential use (Exhibits A and B). Applicant states that the proposed easement width in the vicinity of pole #16 has been reduced so that no easement will be located on the adjacent private RR-2 land devoted to residential use (Exhibit B). Tillamook PUD owns and operates an existing power distribution line in this area that runs along the northern side of Wilson River Loop Road which would be relocated to the proposed easement corridor along the south side of Wilson River Loop Road in order to minimize impacts on adjacent private properties in the RR-2 zone (Exhibit B).

Properties to the south of this proposed transmission line segment are zoned Farm (F-1) and include a substandard parcel improved with a residential dwelling and several larger parcels which form part of the Hogan farm tract (Exhibits A and B). The Hogan farm tract is developed with a residence and various agricultural buildings and is in farm use (Exhibits A and B). High Voltage transmission lines are currently located on the southern portion of this farm tract (Exhibits A and B). Applicant has provided a detailed Farm and Forest Impact Assessment as part of their submittal which contains information on use and characteristics of the Farm zoned area south of the RR-2 zoned segment of the proposed transmission line (Exhibit B). Staff notes that transmission lines under 200 feet in height are a use allowed outright subject to standards in the Farm zone. Compliance with those standards is addressed in Administrative Review 851-17-000448-PLNG-02 below.

Applicant states that one power pole will be developed within the RR-2 zone, will be located within the right-of-way for Wilson River Loop Road, and therefore, will not limit or prevent permitted uses on surrounding properties (Exhibit B). Staff finds that applicant is proposing to develop an approximately 0.05-mile portion of the proposed route and one pole are proposed to be located in the RR-2 zone within

the public right-of-way of Wilson River Loop Road and that Wilson River Loop Road is currently developed with transportation facilities and utility facilities.

Forest Zone: Applicant states that an approximately 4.3-mile portion of the proposed route, 36 poles and a new substation are proposed to be located in the Forest zone (Exhibit B). The proposed transmission line easement in the Forest zone is 100 feet in width and is co-located to the extent possible with existing logging roads in conformance with Forest zone siting standards (Exhibit B). The properties surrounding the proposed transmission line development in the Forest zone are large, forested timber tracts managed for forest operations and quarry use and are developed with logging access roads (Exhibit B). The substation is proposed to be located adjacent to a Forest zoned property developed with existing sanitation utility facilities owned and operated by the Netarts Oceaside Sanitary District (Exhibits A and B). Impacts of the proposed transmission line and substation development on forest operations, which generally include activities such as reforestation of forest land, road construction and maintenance, harvesting of a forest tree species, application of chemicals, and disposal of slash, are discussed in detail above. Applicant states that all methods of timber stand maintenance, harvesting and reforestation can continue on lands surrounding the permanent easements for the proposed transmission line corridor and Oceanside Substation and therefore will not alter the character of the surrounding area in a manner which substantially limits, impairs or prevents the use of surrounding properties for forest use.

The Mt. Meares Quarry is located just north of proposed power pole 72 along an existing access road on taxlot 1S10000002101 (Exhibits A and B). Other quarry operations in the vicinity are the adjacent 600 Pit and the 200 Line Pit located to the north of the proposed substation, and which are listed, along with the Mt Meares Quarry, as potential aggregate sites in the Goal 5 Element of the Comprehensive Plan (Exhibit A). All quarry operations are on land owned by Green Crow Corporation (Exhibit A). Applicant states that anticipated impacts on quarry operations are minor and primarily consist of potential construction traffic impacts which will be of limited duration (Exhibit B). Applicant states that they will coordinate with the underlaying landowners to schedule construction so potential disruptions to planned operations on surrounding lands are limited to the greatest extent possible (Exhibit B).

The Netarts Oceanside Sanitary District operates a treatment plant on property directly west of proposed power pole 87 and north of the proposed Oceanside Substation (Exhibit B). Applicant states that anticipated impacts on treatment plant operations are minor and primarily consist of potential construction traffic impacts which will be of limited duration (Exhibit B). Applicant states that operations and maintenance of the Netarts Oceanside Sanitary District Plant will be improved by reducing the number and duration of electrical power outages that the plant is now being subjected to (Exhibit B).

Estuary Natural Zone: Applicant states that the proposed transmission line will span the Estuary Natural zone for 0.2 miles within a 50 foot wide easement area at one location over the Tillamook River on the proposed route (Exhibit B). The general area is very sparsely developed and generally devoted to farm use, habitat conservation and limited recreational uses (Exhibit B).

The area to the north and east of the proposed transmission line segment within the Estuary Natural zone is zoned Estuary Conservation 1 (EC1) and encompasses portions of the Tillamook River (Exhibits A and B). A small portion of the area to the southwest of this segment is also zoned EC1 (Exhibits A and B). Compliance with the development standards of the EC1 zone are addressed in Administrative Review 851-17-000448-PLNG-02 below.

The area to the west and south of the proposed transmission line segment within the Estuary Natural zone is primarily zoned Farm (F-1) and consists of several parcels owned by Eric and Loretta Peterson comprising a farm tract devoted to farm use, specifically a dairy operation (Exhibits A and B). Applicant has provided a detailed Farm and Forest Impact Assessment as part of their submittal which contains

information on use and characteristics of the Farm zoned area southwest of the EN zoned segment of the proposed transmission line (Exhibit B). Staff notes that transmission lines under 200 feet in height are a use allowed outright subject to standards in the Farm zone. Compliance with those standards for segments of the transmission line proposed on property subject to Farm zone zoning is addressed in Administrative Review 851-17-000448-PLNG-02 below.

Applicant states that the Project was specifically routed to avoid existing and planned public access areas and will not preclude the public from using estuarine areas within the EN zone, interfere with public use and access to the Tillamook Bay estuary in general and will not unreasonably interfere with the public use and enjoyment of the Tillamook Bay estuary (Exhibit B).

(5) The proposed use will not have detrimental effect on existing solar energy systems, wind energy conversion systems or wind mills.

Finding: Applicant state that no solar energy systems, wind energy conversion systems, or wind mills exist within the vicinity of the proposed Project where it could interfere with their operation (Exhibit B). Staff finds no County records that indicate the presence of such facilities in the vicinity. Staff finds that the proposed use will not have detrimental effect on existing solar energy systems, wind energy conversion systems or wind mills.

(6) The proposed use is timely, considering the adequacy of public facilities and services existing or planned for the area affected by the use.

Applicant has provided a detailed description of the need for the proposed transmission line and substation in their submittal included here as 'Exhibit B' and states that the Project is necessary to:

- *"Ensure the Applicant's system capacity in the central Tillamook Valley does not exceed the RUS recommended peak loading capacity, allow for additional system capacity and growth in the central Tillamook Valley and Netarts-Oceanside areas, and allow for the transfer of load capacity between substations to prevent load curtailments to customers."*
- *"Improve the reliability of service to approximately 1,800 customers in the Tillamook Valley crossed by the proposed Project and substantially reduce the number of customers affected by an outage and the length of the outage."*
- *"Replace the failing infrastructure associated with the existing radial distribution line that is over 50 years old and serves the Netarts-Oceanside area. Based on the age of the infrastructure, industry safety practices require that power is cut to the line during repairs, which creates an outage and cuts power to approximately 1,800 customers during each maintenance event."*

Rural Commercial Zone: Staff finds that existing road access infrastructure and fire protection service is available to those segments of the proposed transmission line located in the RC zone.

Rural Residential 2-Acre Zone Staff finds that existing road access infrastructure and fire protection service is available to those segments of the proposed transmission line located in the RR-2 zone.

Forest Zone: Staff finds that some new access road infrastructure will be required to facilitate the proposed transmission line development, but that as described in Applicant's proposal, wherever possible, the proposed transmission line route has been located adjacent to or near existing private access roads minimizing the requirement for new road development (Exhibit B). Staff finds that the Oregon Departmetn of Forestry can provide fire protection service to the proposed development located in the Forest zone and that they have not expressed significant concerns related to the proposed development (Exhibits B and D).

Estuary Natural Zone: Staff finds that Fire protection service is available to those segments of the proposed transmission line located in the EN zone and that access to these segments will not be located within the EN zone.

IV. FLOODWAY/ESTUARY/FLOODPLAIN DEVELOPMENT PERMIT 851-17-000448-PLNG

TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

(1) PURPOSE: It is the purpose of the FH zone to promote the public health, safety and general welfare and to minimize public and private losses or damages due to flood conditions in specific areas by provisions designed to:

(a) Protect human life and health;

(b) Minimize expenditure of public money for costly flood control projects;

(c) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the public;

(d) Minimize prolonged business interruptions;

(e) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazards;

(f) Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;

(g) Ensure that potential buyers are notified that property is in an area of special flood hazard; and

(h) Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

(i) Maintain the functions and values associated with Special Flood Hazard Areas which reduce the risk of flooding.

(5) GENERAL STANDARDS: In all areas of special flood hazards the following standards are required:

ANCHORING

(a) All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

(b) All manufactured dwellings must likewise be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (See FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for techniques). A certificate signed by a registered architect or engineer which certifies that the anchoring system is in conformance with FEMA regulations shall be submitted prior to final inspection approval.

CONSTRUCTION MATERIALS AND METHODS

(c) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(d) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

(e) Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be elevated to prevent water from entering or accumulating within the components during conditions of flooding. In Flood Zones A, A1-A30, AE, V, V1-V30 or VE, such facilities shall be elevated three feet above base flood elevation. In Flood Zone AO, such facilities shall be elevated above the highest grade adjacent to the building, a minimum of one foot above the depth number specified on the FIRM (at least two feet above the highest adjacent grade if no depth number is specified).

UTILITIES

(f) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood water into the system.
(g) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters.
(h) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

Findings: The Applicant states that 44 power poles will be located in Zone AE and 23 power poles are within the floodway. Poles have been selected based on soil conditions and hydrologic conditions, which will be confirmed during the detailed engineering phase of the project. Poles will be constructed using materials designed to resist flood damage, steel (tubular with a painted galvanized coating) or wool, consisting of single pole, or of two or three poles, depending on soil types and span lengths and designed to minimize flood damage. Specific details regarding pole design and installation detail, height of improvements and installation methods are described on pages 5-32 and 5-34 of the Applicant's submittal (Exhibit B).

(6) SPECIFIC STANDARDS FOR A ZONES (A, AE or A1-A30): In all areas of special flood hazards where base flood data has been provided as set forth in Section 3.510(2) or other base flood data are utilized, the following provisions are required:

NONRESIDENTIAL CONSTRUCTION
(c) New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall have either the lowest floor including basement elevated to three feet above the level of the base flood elevation or higher; or, together with attendant utility and sanitary facilities, shall:
(1) Be floodproofed so that the portion of the structure that lies below the portion that is three feet or more above the base flood level is watertight with walls substantially impermeable to the passage of water.
(2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
(3) Be certified by a registered professional engineer or architect that the design and methods of construction are in compliance with accepted standards of practice for meeting provisions of this Subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the Community Development Director.
(4) Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described for residential construction in Section 3.510(6)(a) and (b).
(5) Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g. a building constructed to the base flood level will be rated as one foot below that level).

Findings: As stated in the previous section, the Applicant states that the poles have been selected based on soil conditions and hydrologic conditions, which will be confirmed during the detailed engineering phase of the project. Details related to the applicable standards listed above are outlined on pages 5-32 through 5-34 of the Applicant's submittal (Exhibit B).

(8) SPECIFIC STANDARDS FOR FLOODWAYS: Located within areas of special flood hazard established in Section 3.510(2) are areas designated as regulatory floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

(a) Encroachments in the regulatory floodway including fill, new construction, substantial improvements and other development are prohibited unless certification is provided by a professional registered civil engineer demonstrating through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that such encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge.
(b) If Subsection 8(a) is satisfied, all new construction and substantial improvement shall comply with all applicable flood hazard reduction provisions of Section 3.510(5) and (6).
(c) If hydrologic and hydraulic analysis indicates an increase in flood levels, the applicant shall obtain a Conditional Letter of Map Revision (CLOMR) from FEMA before any encroachment, including fill, new construction, substantial improvement, or other development, in the regulatory floodway is permitted. Upon completion of the project, but no later than six months after project completion, a Letter of Map Revision (LOMR) shall be submitted to FEMA to reflect the changes on the FIRM and/or Flood Insurance Study. A LOMR is required only when the CLOMR documents an increase in flood levels during the occurrence of the base flood or where post-development conditions do not reflect what was proposed on the CLOMR.

Findings: The Applicant retained Northwest Hydraulic Consultants to complete the no-rise analysis required for development within the regulatory floodway (Appendix D of Exhibit B). The analysis confirms that the proposed encroachments into the regulatory floodway will not result in any increase in flood levels (Exhibit B).

(13) DEVELOPMENT PERMIT PROCEDURES: A development permit shall be obtained before construction or development begins within any area of special flood hazard zone. The permit shall be for all structures including manufactured dwellings, and for all development including fill and other development activities, as set forth in the Definitions contained in this Section of the Land Use Ordinance.
(a) Application for a development permit shall be made on forms furnished by the Community Development Director and shall include but not necessarily be limited to: plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question, existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information in 3.510(13)(a)(1)–(4) is required and Development Permits required under this Section are subject to the Review Criteria put forth in Section 3.510(13)(b):
(1) Elevation in relation to a specific datum of the lowest floor, including basement, of all structures as documented on an Elevation Certificate;
(2) Elevation in relation to a specific datum to which any proposed structure will be floodproofed as documented on an Elevation Certificate;
(3) If applicable, certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Subsection (6)(c)(3) of this Section; and
(4) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

Findings: A Development Permit is required for development within an area of Special Flood Hazard, defined as both AE Flood Zone areas (areas susceptible to a 1 percent annual chance of flood or 100-year flood event) and the floodway. Development Permit review is included in this staff report and Applicant responses to the Development Permit review criteria are outlined on pages 5-34 and 5-35 of the Applicant's narrative (Exhibit B).

(b) Development Permit Review Criteria
(1) The fill is not within a floodway, Coastal High Hazard Area, wetland, riparian area or other sensitive area regulated by the Tillamook County Land Use Ordinance.
(2) The fill is necessary for an approved use on the property.

(3) The fill is the minimum amount necessary to achieve the approved use.
(4) No feasible alternative upland locations exist on the property.
(5) The fill does not impede or alter drainage or the flow of floodwaters.

Findings: The Applicant is proposing the installation of transmission line improvements within the floodway and areas regulated by the Tillamook County Land Use Ordinance. A hydrologic study resulting in a no-rise certification has been provided by the Applicant, demonstrating that the power poles will not impede or alter drainage or flow of flood waters (Exhibit B). The proposed installation of the transmission line and associated improvements is allowed as a use permitted with standards or a use permitted conditionally in the underlying zones of which an analysis of each of those zones in relation to the applicable criteria and standards is outlined throughout this report and also outlined in the Applicant's submittal (Exhibit B). The Applicant states the proposed poles are necessary within the floodway (Exhibit B).

Staff finds that the fill to support the lines (identified as foundations and poles) can be considered necessary for the proposed use in general terms and is necessary for the installation of the transmission line in both the floodway and the AE Flood Zone. The Applicant states that the type, size and location of the specific power poles within the floodway is based on preliminary engineering performed on soil and hydrologic conditions, which will be confirmed during the detailed engineering phase of the project (Exhibit B).

The Applicant describes their process for review of alternative routes on page 5-35 of the narrative (Exhibit B). Each route was considered through public/citizen involvement efforts and examined against a set of established criteria such as permitability, ease of obtaining corridor approval, access, constructability and a series of other environmental, land use, and financial factors. The Applicant states that the proposed route is the conclusion of this alternatives analysis (Exhibit B).

The Applicant states that there are no feasible upland locates as the floodway encompasses a significant area north of the existing Tillamook substation of Highway 101 and cannot be avoided with routes crossing north of the City of Tillamook downtown area (Exhibit B). Based upon the Applicant's analysis, it could be determined that there are no feasible alternative upland locations for the placement of fill outside of the Area of Special Flood Hazard, defined as the floodway and AE Flood Zone.

V. ADMINISTRATIVE REVIEW REQUEST 851-17-000448-PLNG-02

A. TCLUO Section 3.002, 'Farm (F-1) Zone'

TCLUO Section 3.002(1) PURPOSE:
The purpose of the Farm Zone (F-1) is to protect and maintain agricultural lands for farm use, consistent with existing and future needs for agricultural products. The Farm Zone is also intended to allow other uses that are compatible with agricultural activities, to protect forests, scenic resources and fish and wildlife habitat, and to maintain and improve the quality of air, water and land resources of the county. It is also the purpose of the Farm Zone to qualify farms for farm use valuation under the provisions of ORS Chapter 308.

The Farm Zone has been applied to lands designated as Agriculture in the Comprehensive Plan. The provisions of the Farm Zone reflect the agricultural policies of the Comprehensive Plan as well as the requirements of ORS Chapter 215 and OAR 660-033. The minimum parcel size and other standards established by this zone are intended to promote commercial agricultural operations.

TCLUO Section 3.002(15), 'Use Table', identifies uses permitted in the Farm zone subject to the general provisions, special conditions, additional restrictions and exceptions set forth in ordinance. '*Utility facilities necessary for public service, including associated transmission lines as defined in ORS 469.300*

and wetland waste treatment systems but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height' are identified in this section as a use permitted in the zone subject to satisfaction of the standards set forth in TCLUO 3.002(4)(n) as determined through Administrative Review.

TCLUO Section 3.002(2)(pp), 'Definitions', describes Utility facilities necessary for public service as follows '*Unless otherwise specified in this Article, any facility owned or operated by a public, private or cooperative company for the transmission, distribution or processing of its products or for the disposal of cooling water, waste or by-products, and including, major trunk pipelines, water towers, sewage lagoons, cell towers,* ***electrical transmission facilities (except transmission towers over 200' in height)*** *including substations not associated with a commercial power generating facilities and other similar facilities.*'

Findings: Applicant is proposing to develop a 115kV electrical transmission facility and substation with power poles ranging in height between approximately 50 and 125 feet above the ground (Exhibit B). Staff finds that Applicant's proposal is subject to Administrative Review and satisfaction of the standards described in TCLUO 3.002(4)(n) which are addressed below.

TCLUO Section 3.002(4) USE STANDARDS:
(n) A utility facility that is necessary for public service.
1. A utility facility is necessary for public service if the facility must be sited in the exclusive farm use zone in order to provide the service. To demonstrate that a utility facility is necessary, an applicant must:

a. Show that reasonable alternatives have been considered and that the facility must be sited in an exclusive farm use zone due to <u>one or more</u> of the following factors:

i. Technical and engineering feasibility;
ii. The proposed facility is locationally-dependent. A utility facility is locationally-dependent if it must cross land in one or more areas zoned for exclusive farm use in order to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;
iii. Lack of available urban and nonresource lands;
iv. Availability of existing rights of way;
v. Public health and safety; and
vi. Other requirements of state and federal agencies.

Findings: Applicant states that alternatives for achieving the capacity and reliability goals of the Project were considered and that such alternatives had technical and engineering limits and costs that made those alternatives infeasible (Exhibit B). Applicant states that the Project as proposed will provide the greatest capacity and reliability at the least cost to the public (Exhibit B).

Applicant's submittal contains a description of the route selection process it conducted in consultation with a Citizen's Advisory Group (Exhibit B). As further described in their submittal, Applicant states that the route proposed here was selected following a detailed analysis of potential alternative routes as well as recommendations received from the Citizen Advisory Group (Exhibit B).

Applicant has provided in their submittal, which is included here as 'Exhibit B', a discussion of the purpose and need for the facility which they have summarized as follows:

- "Ensure the Applicant's system capacity in the central Tillamook Valley does not exceed the RUS recommended peak loading capacity, allow for additional system capacity and growth in the central Tillamook Valley and Netarts-Oceanside area, and allow for the transfer of load capacity between substations."

- "Improve the reliability of service to approximately 1,800 customers and substantially reduce the number of customers affected by an outage and the length of the outage."
- "Replace the failing infrastructure associated with the existing radial distribution line that is over 50 years old and serves the Netarts-Oceanside area. Based on the age of the infrastructure, industry safety practices require that power is cut to the line during repairs, which creates an outage and cuts power to approximately 1,800 customers."

Staff finds that Applicant has considered alternatives to the proposed development to serve the identified need.

Applicant states that the proposed project is locationally-dependent and that no alternative route exists that can connect the existing and proposed substations without crossing land zoned Farm (F-1) (Exhibit B). In reviewing zoning maps for the County, Staff concurs that it is not possible to map a route, even an indirect route, between Tillamook City and the area surrounding Oceanside without crossing land zoned Farm (F-1) and Forest (F) (Exhibit A). The City of Tillamook is effectively surrounded by land subject to Farm zone designation (Exhibit A).

Applicant states that wherever possible, the Project has been routed adjacent to or co-located with existing linear developments within the County including the Port of Tillamook Bay's railroad right-of-way from the substation north to Wilson River Loop Highway, along Wilson River Loop Highway, along Goodspeed Road, and along various existing access roads through private farmland in Tillamook County (Exhibit B). Staff finds that segments of these rights-of-way are located in the Farm (F-1) zone.

Staff finds that the Applicant considered alternatives to the proposed route and that the facility must be sited in an exclusive farm use zone as it is locationally-dependent, that lands subject to Farm zoning designation must be crossed in order to connect the existing substation in the City of Tillamook and a substation location in the vicinity of Oceanside and that no urban and nonresource lands are available to support an alternative route that does not cross land subject to Farm zone designation.

b. Costs associated with any of the factors listed in subparagraph a of this paragraph may be considered, but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations for substantially similar utility facilities and the siting of utility facilities that are not substantially similar.

Findings: Applicant states that they did not consider cost alone and that the main factors in siting the route were proximity to the existing BPA Tillamook Substation and customers to be serviced by the proposed Oceanside Substation, collocation with existing linear rights-of-way, and avoidance of biological and cultural resources (Exhibit B). As noted above, the City of Tillamook is surrounded by land subject to Farm (F-1) zoning designation and it would not be possible to establish a route between the City of Tillamook and the vicinity of Oceanside without crossing land zoned Farm regardless of cost (Exhibit A).

c. The owner of a utility facility approved under paragraph (n)1 shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this paragraph shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.

Findings: Applicant's submittal contains commitments for restoration of temporarily disturbed areas as follows:

- Areas disturbed during construction will be recontoured and seeded and restored to as near original condition as possible for continued use of the land for agricultural production.
- The Applicant will restore all areas disturbed during required maintenance or repair of the proposed Project.
- Surface scarification for seeding will be done where necessary for germination.
- Farming can continue in areas of the proposed corridor that were previously in farm use.
- Low-lying vegetation will be allowed to grow throughout the corridor.
- Excess soil materials, rock, and other non-native materials will be disposed of in a manner approved by the County.
- Applicant is committed to controlling the spread of noxious weeds within the Project area during the construction, reclamation, and maintenance phases of the transmission line and substation development as described in the Noxious Weed Control section of their submittal.

Staff finds that this standard can be met through compliance with the recommended Conditions of Approval.

d. The county shall impose clear and objective conditions on an application for utility facility siting to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on surrounding farmlands.

Findings: Applicant has provided a detailed Farm and Forest Impact Assessment as Appendix C to its submittal which is included here in 'Exhibit B' to the Staff Report. The Farm and Forest Impact Assessment contains a description of farm use and practices on surrounding properties and addresses potential impacts from stray voltage, physical barriers, and gate management and access (Exhibit B). Potential impacts to accepted farm practices or the cost of farm practices on surrounding lands addressed in the Applicant's Farm and Forest Impact Assessment (Exhibit B) are summarized as follows:

- Applicant states that agricultural operators will be able to continue farming areas within the proposed transmission easement area in the F-1 zone and that continued farm use will be ensured through establishment of easements allowing that use (Exhibit B).

- Applicant states that apart from the approximately 0.06 acres (2,614 square feet) of permanent lost farm production resulting from 45 power poles and related guy wires and anchors proposed to be located on land zoned Farm, landowners will be able to continue farming within the easement areas in the F-1 zone (Exhibit B). County records indicate that approximately 37,589 acres are zoned Farm (F-1) in Tillamook County.

- Applicant states that maintenance activities are conducted rarely and in coordination with the landowner and consequently significant impacts related to gate management and associated with maintenance access are not anticipated (Exhibit B).

- For those line segments proposed to be located in the Farm zone, the Farm and Forest Impact Assessment provided by the Applicant contains an analysis of line clearances and the mobility of farm equipment and concludes that with the lowest line heights ranging between 20 to 50 feet, the proposed transmission line should not pose a barrier to the mobility of the majority of farm equipment and should not pose a barrier to irrigation operations, particularly manure gun operations (Exhibit B).

- With respect to stray voltage, Applicant has stated that the distance between existing development and the proposed transmission route is unlikely to create stray voltage issues (Exhibit B). Applicant has committed to grounding metal structures, such as fences, that exist within the proposed right-of-way

and to apply prudent utility practices to correct any measured stray voltage should it occur in the future (Exhibit B).

Comments have been received on this request expressing concerns related to potential impacts to agricultural operations including: permanent removal of farm land from agricultural use, barriers to field spraying, the potential for the project to lead to urbanization, barriers to the introduction of aerial technologies for crop monitoring and nutrient mapping, biosecurity measures, incompatible use of herbicides, introduction of noxious weeds, introduction of hazardous materials, liability, impacts to diking infrastructure and barriers to maintenance of diking infrastructure, soil compaction, cow safety during construction, disruption to cow contentment/milk production during construction and inappropriate and disruptive construction access routing (Exhibit C).

Many of these potential impacts have been addressed elsewhere in Applicant's submittal as summarized below:

- Applicant's submittal included here as 'Exhibit B' addresses reclamation and contains commitments for restoration of temporarily disturbed areas as follows:
  - Areas disturbed during construction will be recontoured and seeded and restored to as near original condition as possible for continued use of the land for agricultural production.
  - The Applicant will restore all areas disturbed during required maintenance or repair of the proposed Project.
  - Reseeding will be done as soon as possible during the optimal period after construction and surface scarification for seeding will be done where necessary for germination. Where applicable, certified "noxious weed-free" seed will be used on areas to be seeded.
  - Farming can continue in areas of the proposed corridor that were previously in farm use.
  - Low-lying vegetation will be allowed to grow throughout the corridor.
  - Excess soil materials, rock, and other non-native materials will be disposed of in a manner approved by the County.
  - Efforts will be made to limit the spread and establishment of a noxious weed community within the disturbed areas.
  - On agricultural lands that are cultivated or pasture lands, this effort will be coordinated with the landowner, so that the appropriate reclamation occurs.

  As noted above, *'restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility'* is a standard that is required under TCLUO 3.002(4)(n)(1)(c).

- Applicant states that during construction, construction equipment, materials, and vehicles will be stored at the sites where construction will occur or at specified construction yards. Personal vehicles, sanitary facilities, and staging areas will be confined to a limited number of specified locations to decrease chances of incidental disturbance and spread of noxious weeds (Exhibit B).

- Applicant states that during maintenance activities, Applicant will use a qualified contractor to control weeds as needed (Exhibit B).

- Applicant states that fences, gates, cattle guards and any additional rock will be added to construction access roads where necessary (Exhibit B). Applicant further states that only temporary construction roads will be used on properties subject to Farm zoning as operational maintenance will be conducted by foot or using track vehicles designed to traverse soft soils (Exhibit B).

- Applicant has addressed potential hydrological impacts through the provision of a No-Rise Analysis prepared by Northwest Hydraulic Consultants which has been reviewed under Floodway/Estuary/Floodplain Development Permit #851-17-000448-PLNG and is addressed elsewhere in this Staff Report (Exhibit B).

For the Planning Commission's consideration, Staff has provided a recommended set of Conditions of Approval intended to impose clear and objective conditions to mitigate and minimize potential impacts of the proposed facility on surrounding lands devoted to farm use as follows:

i. During the construction of the proposed project, Applicant shall install fences, gates and/or cattle guards along construction access routes as necessary to ensure livestock safety during construction.
ii. Applicant shall be responsible for restoring, as nearly as possible to its former condition any agricultural land and associated improvements subject to Farm (F-1) zoning designation that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the proposed 115kV transmission facility. Reseeding required as part of restoration efforts will be done as soon as possible during the optimal period after construction and surface scarification for seeding will be done where necessary for germination. Certified "noxious weed-free" seed will be used on areas to be seeded within those portions of the easement subject to Farm (F-1) zoning designation.
iii. Applicant will ground all existing metal structures located within the proposed right-of-way subject to Farm (F-1) zoning designation.
iv. During operations, should stray voltage be measured and determined to be caused by the proposed 115kV transmission line project, Applicant will implement corrective measures in accordance with good utility practices.
v. Agricultural operators will be able to continue farming areas within the proposed transmission easement area in the F-1 zone. Continued farm use will be ensured through establishment of easements allowing that use.
vi. Applicant will use a qualified contractor to control noxious weeds within the transmission line easement area subject to Farm (F-1) zoning designation.

These recommended Conditions of Approval are also included in Article VI below. Based on the testimony received, the Planning Commission may wish to consider imposing additional mitigating measures.

B. TCLUO Section 1.060, 'Ordinance Interpretations'

(1) Authorization of Similar Uses. Where a proposed use is not specifically identified by this Ordinance, or the Ordinance is unclear as to whether the use is allowed in a particular zone, the Director may find the use is similar to another use that is permitted, allowed conditionally, or prohibited in the subject zone and apply the Ordinance accordingly. However, uses and activities that this Ordinance specifically prohibits in the subject zone, and uses and activities that the Director finds are similar to those that are prohibited, are not allowed. Similar use rulings that require discretion on the part of County officials shall be processed following the Type II procedure of Article 10. The Director may refer a request for a similar use determination to the Planning Commission for its review and decision.

(2) Ordinance Interpretation Procedure. Requests for Ordinance interpretations, including but not limited to similar use determinations, shall be made in writing to the Director and shall be processed as follows:
(a) The Director, within 10 days of the inquiry, shall advise the person making the inquiry in writing as to whether the County will make a formal interpretation.
(b) Where an interpretation does not involve the exercise of discretion, the Director shall advise the person making the inquiry of his or her decision within a reasonable timeframe and without public notice.

Director Findings & Determination: In review of the United States Department of Labor, Occupational Health and Safety Labor website: https://www.osha.gov/SLTC/etools/electric_power/transmission_dist.html, Clarification of the Electric Power Generation, Transmission, And Distribution Standard, 29 (CFR) 1910.269 does not make a distinction between transmission and distribution systems, however the language recognizes that important potential safety differences do exist between them. ...Transmission conductors are normally large to carry the high power and are installed on taller structures than distribution lines and equipment. Substations are considered to be both transmission and distribution facilities in CFR 1910.269.

It is fair to note that in addition to the higher voltage carried through transmission lines (important potential safety differences) and that the structures supporting the transmission lines are taller than those structures supporting distribution lines, the footprint of a transmission line structure is also generally larger.

In review of the uses permitted with standards and conditionally contained in each estuarine zones identified in the Tillamook County Land Use Ordinance (TCLUO), electrical distribution lines and electrical support structures are listed as uses permitted with standards or as a use listed conditionally in all estuary zones with exception to the Estuary Conservation Aquaculture Zone, subject to the procedures of Section 3.120: Regulated Activities and Impact Assessments, Section 3.140: Estuary Development Standards and Article 6: Conditional Use Procedures And Criteria as applicable. While transmission lines are not specifically stated in the underlying estuarine zone language, TCLUO Section 3.140: Estuary Development Standards, Subsection (6)(b) under standards for energy facilities and utilities identifies electrical distribution lines and electrical support structures as "*electrical or communication transmission lines*" with no other language or guidance that would separately identify or differentiate types of energy facilities and utilities.

Because Section 3.140 provides standards for *electrical transmission lines*, the Director finds that the proposed transmission line is of the same general character of electrical distribution lines and that this determination is consistent with the clarification outlined in CFR 1910.269. The proposed use remains subject to the development standards outlined in TCLUO Section 3.120, Section 3.140 and Article 6.

For the reasons outlined above, it was also determined by the Director that this interpretation did not involve the exercise of discretion and the applicant was advised of this determination during the pre-application meeting, within the required reasonable timeframe and without public notice as per TCLUO Section 1.060(2)(b).

C. TCLUO Section 3.106, 'Estuary Conservation 1 (EC-1) Zone

(1) PURPOSE AND AREAS INCLUDED: The purpose of the EC1 zone is to:

(a) Provide for long-term utilization of areas which support, or have the potential to support valuable biological resources.

(b) Provide for long-term maintenance and enhancement of biological productivity.

(c) Provide for the long-term maintenance of the aesthetic values of estuarine areas, in order to promote or enhance the low intensity recreational use of estuarine areas adjacent to rural or agricultural shorelands.

Except where a goal exception has been taken in the Tillamook County Comprehensive Plan, the EC1 Zone includes the following areas within Development and Conservation Estuaries:

(a) Tracts of tidal marshes, tideflats, seagrass and algae beds which are smaller or of less biological importance than those included in EN or ECA Zones.

(b) Productive recreational or commercial shell fish and fishing areas.

(c) Areas that are partially altered and adjacent to existing development of moderate

intensity which do not possess the resource characteristics of Natural or Development management units.
(d) Areas with potential for shell fish culture (excluding platted oyster beds in Tillamook Bay).
(2) USES PERMITTED WITH STANDARDS: The following uses are permitted subject to the procedure of Section 3.120 and the standards in Section 3.140:
(h) Electrical distribution lines and line support structures.

Findings: A similar use determination is outlined in this report. The proposed route for the transmission line spans across the Estuary Conservation 1 (EC1) zone as depicted in "Exhibit B". The proposed use in the EC1 zone is subject to the procedures of Section 3.120, the standards in Section 3.140 outlined in the TCLUO. These sections are addressed in the staff report.

D. TCLUO Section 3.120, 'Review of Regulated Activities'
(1) PURPOSE: The purpose of this Section is to provide an assessment process and criteria for local review and comment on State and Federal permit applications which could potentially alter the integrity of the estuarine ecosystem.
(2) REGULATED ACTIVITIES: Regulated activities are those actions which require State and/or Federal permits and include the following:
(a) Fill (either fill in excess of 50 c.y. or fill of less than 50 c.y., which requires a Section 10 or Section 404 permit from the U.S. Army Corps of Engineers).
...
(d) Piling/dolphin installation.

Findings: Significant degradations or reductions of estuarine natural values as defined in the Estuarine Element (Goal 16) of the Tillamook County Comprehensive Plan include dredging, fill, in-water structures, riprap, log storage, application of pesticides and herbicides, flow-lane disposal of dredged material, water-intake or withdrawal and effluent discharge and other activities which will cause significant offsite impacts as determined by an impact assessment.

As depicted in the applicant's submittal, the proposed transmission line will span across areas zoned Estuary Natural (EN) and Estuary Conservation 1 (EC1). Procedures for review of the regulated activities identified above include review of the proposal according to the requirements of the zone(s) in which the proposed use/activity are to be located, the relevant standards outlined in TCLUO Section 3.140, an impact assessment, consideration of requirements for degradations or reductions of estuarine natural values where applicable and consideration of comments from State and Federal agencies having responsibility for permit review.

Included in the applicant's submittal are documentation of both state and federal permits (Exhibit B). The proposed use is allowed permitted with standards in the Estuary Conservation 1 (EC1) zone and allowed as a use permitted Conditionally in the Estuary Natural (EN) zone. The proposed transmission line in relation to the standards outlined in the Shoreland Overlay zone are also addressed in this report.

With the assistance of affected State and Federal agencies, and in conjunction with review of state and federal permits required for this proposal, the following considerations are required to be addressed:

(a) The type and extent of alterations expected.
(b) The type of resource(s) affected including, but not limited to aquatic life and habitats, riparian vegetation, water quality and hydraulic characteristics.
(c) The expected extent of impacts of the proposed alteration on water quality and other physical characteristics of the estuary, living resources, recreation and aesthetic use,

navigation and other existing and potential uses of the estuary.
(d) The methods which could be employed to avoid or minimize adverse impacts.

The Applicant has provided a '*Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project*' as part of their submittal which describes the 12 locations where the proposed transmission line route crosses perennial water bodies with riparian buffers regulated by TCLUO 4.140. While the proposed development will require the placement of six poles and the removal of some existing trees within the riparian buffers, all improvements associated with this project will span across the estuary zoned areas with no ground disturbance including fill or grading activities will take place within estuarine areas. All ground disturbance for development of the transmission line and associated structures/improvements are located outside of estuarine zoned areas (Exhibit B).

The Applicant has reviewed the scope of their proposed development and vegetation management activities required for the proposed development within riparian buffer areas with the Oregon Department of Fish and Wildlife (ODFW) and ODFW has provided documentation confirming that the proposed permanent pole locations meet the exception criteria outlined above in TCLUO 4.140(2)(c) or (d) and that proposed mitigation for riparian buffer crossings is sufficient for proposed tree removal (Exhibit B). As stated elsewhere in this report, Staff recommends that should the request be approved, a Condition of Approval be imposed requiring documentation of satisfaction of the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District be provided to the Department.

Requirements for resource capability determinations is required by TCLUO Section 3.140 and the proposed activity must be found to be consistent with the resource capabilities of a management unit (as described in Section 2 of the Estuarine Resources Element of the Tillamook County Comprehensive Plan) when either the impacts of the use on estuarine species, habitats, biological productivity and water quality are not significant; or that the resources of the area are able to assimilate the use and activity and their effects and continue to function in a manner that is consistent with the purposes of the zone. The resource capability determination shall be based on information generated by the impact assessment.

The Estuarine Resources Element in Section 2 of the Tillamook County Comprehensive Plan lists by management unit those resource areas of the Tillamook Bay estuary where the transmission line is proposed to traverse. Copies of the management unit descriptions and the Management Unit Designation map are included as "Exhibit G". Categories include areas needed for maintenance of enhancement of biological productivity, major tract of saltmarsh, area needed for recreational and aesthetic uses (tracts of significant habitat are smaller or of less biological importance than those in natural management units, and area needed for recreational use. Placement of fill and diking is identified as a historical alteration in each of the identified management units. Fish, birds and nesting areas are identified as those animals present in the identified management units. Significant biological functions include bird use/nesting in conjunction with adjacent riparian/marsh areas, fish feeding, and salmonid passage.

While some of the estuary management units categorize area needed for aesthetic uses, review of Tillamook County Comprehensive Plan Goal Elements 5, 16 and 17 confirm the proposed route of the transmission line is not located within an identified area inventoried in the Comprehensive Plan as an aesthetic resource area or an area identified as a significant shoreland.

The '*Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project*' located in "Exhibit B" addresses the resource capabilities of this area and includes an avian protection plan. Agencies that provided comments regarding these estuarine management units included the Oregon Department of Fish and Wildlife (ODFW) and the Oregon Department of State Lands (DSL). Comments from DSL are limited to the confirmation that a state application has been received and is in review.

Comments from ODFW were focused primarily on fish passage requirements. No comments were received from the US Fish & Wildlife Service, the US Army Corps of Engineers, National Marine Fisheries, the Environmental Protection Agency and the Oregon Department of Land Conservation and Development.

The Applicant has stated there is a need (substantial public benefit) and the proposed transmission line does not unreasonably interfere with public trust rights, that there are no feasible alternative upland locations, and adverse impacts are minimized by spanning the transmission line improvements across the estuarine areas and avoiding any ground disturbance. Specifically, the Applicant states that, "The Project will not unreasonably interfere with public trust rights to the County's estuarine areas within the EC1 and EN zones. The Project will be entirely aboveground and landward of the Line of Ordinary High Water except for the aerial conductor, and only the 50-foot wide permanent easement will need to remain free from certain types of vegetation and development consistent with NESC, RUS and Applicant standards for clearances and use for the operation and maintenance of a transmission line. The Project was specifically routed to avoid existing and planned public access areas and will not preclude the public from using estuarine areas within the EC1 and EN zones. The presence of the Project will not interfere with public use and access to Tillamook Bay estuary in general…"

E. TCLUO Section 3.140, 'Estuary Development Standards'

(6) ENERGY FACILITIES AND UTILITIES: Siting, design, construction, maintenance or expansion of energy facilities and utilities in estuary zones, shall be subject to the following standards:

(a) When new energy facilities and utilities are proposed within estuarine waters, intertidal areas or tidal wetlands, evidence shall be provided by the applicant and findings made by the County that:

(1) A need (i.e. a substantial public benefit) exists and the use or alteration does not unreasonably interfere with public trust rights.

(2) Alternative non-aquatic locations are unavailable or impractical.

(3) Dredging, fill and other adverse impacts are avoided or minimized.

(b) Electrical or communication transmission lines shall be located underground or along existing rights-of-way unless economically infeasible.

(c) Above-ground utilities shall be located to have the least adverse effect on visual and other aesthetic characteristics of the area. Interference with public use and public access to the estuary shall be minimized.

(d) Whenever practicable, new utility lines and crossings within estuarine waters, intertidal areas or tidal wetlands shall follow the same corridors as existing lines and crossings.

(e) Water discharge into estuarine waters, intertidal areas and tidal wetlands from an energy facility or utility shall meet EPA and DEQ standards, and shall not produce increases in temperature in the receiving waters which would have adverse impacts on aquatic life. Water Quality policies shall apply.

(f) When new energy facilities and utilities are proposed in EN zones, evidence shall be provided by the applicant and findings made by the County that the proposed use is consistent with the resource capabilities of the area and the preservation of areas needed for scientific, research or educational needs.

(g) When storm water and sewer outfalls are proposed in EC2 and EC1 zones, evidence shall be provided by the applicant and findings made by the County that the proposed use is consistent with the resource capabilities of the area and the long-term use of renewable resources, and does not cause a major alteration of the estuary.

(h) When new energy facilities and utilities are proposed in Estuary Development (ED) zones, evidence shall be provided by the applicant and findings made by the County that the proposed facility will not preclude the provision or maintenance

of navigation and other public, commercial and industrial water dependent uses.
(i) Storm water and sewer outfalls shall go out to channels or areas where flushing will be adequate and shall not empty onto tideflats or intertidal wetlands. Effluent from outfalls must meet DEQ and EPA water quality standards. Water Quality policies shall apply.
(j) Dredge, fill, shoreline stabilization or other activities in conjunction with construction of energy facilities or utilities shall be subject to the respective standards for these activities.
(k) Energy facilities and utilities shall be sited so that they do not and will not require structural shoreline stabilization methods.

Findings: As stated previously in this report, the Applicant has stated there is a need (substantial public benefit) and the proposed transmission line does not unreasonably interfere with public trust rights, that there are no feasible alternative upland locations, and adverse impacts are minimized by spanning the transmission line improvements across the estuarine areas and avoiding any ground disturbance. The Applicant also states that no temporary access roads or conductor pulling and tensioning sites will be located within the Estuary Natural (EN) and Estuary Conservation 1 (EC1) Zone (Exhibit B). In review of the proposed routine and estuary maps, alternative non-aquatic locations are unavailable/impractical.

The applicant is proposing install the transmission lines above ground and within the estuarine areas, there are no existing rights-of-way. Staff did not identify corridors with existing lines and crossings in the estuarine areas. Review of the application indicates there are no plans to discharge water into estuarine areas, intertidal areas and tidal wetlands. The Applicant states they will obtain approval for necessary permits prior to construction and will continue to work with relevant regulatory agencies regarding the timing of construction (Exhibit B). Should the Planning Commission consider approval of this project, staff recommends a Condition of Approval be made to require compliance with EPA and DEQ standards, including compliance with any water quality policies.

The applicant is proposing to install new energy facilities and utilities in the Estuary Natural (EN) and Estuary Conservation 1 (EC1) Zones. The Applicant's responses to the standards outlined in TCLUO Section 3.140 are outlined on pages 5-19 through 5-22 of the narrative included in "Exhibit B".

Findings by the County that confirm the proposed use is consistent with the resource capabilities of the area and the preservation of areas needed for scientific, research or educational needs could be as follows:

- The applicant is proposing minimal disturbance within the Estuary Natural and Estuary Conservation 1 Zones by limiting development within these areas by only spanning the transmission line improvements across the estuary zoned areas.
- The applicant has provided a '*Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project*' that includes an avian protection plan.
- No comments were received from state or federal agencies to indicate or conclude the proposed line would have a detrimental effect on the characteristics, habitats, animals present or significant biological functions of the identified estuary management units.

There are no stormwater and sewer outfalls proposed and no new energy facilities and utilities are proposed in the Estuary Development (ED) Zone. No fill is proposed to be placed within the identified estuary zoned areas. No structural shoreline stabilization methods are proposed (Exhibit B).

F. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

Consistency with the requirements of TCLUO 3.510, 'Flood Hazard Overlay (FH) Zone', is addressed in Floodway/Estuary/Floodplain Development Permit Request (851-17-000448-PLNG) above.

G. TCLUO Section 3.545, 'Shoreland Overlay'

In the vicinity of the proposed project, the Goal 17 element of the Tillamook County Comprehensive Plan identifies land west of a boundary formed by State Highway 131 from its junction in Netarts with Whiskey Creek Road to its junction with the Oregon Coast Highway 101 near Tillamook, and all areas within 1,000 feet of estuaries and 500 feet of coastal lakes as within the Shorelands Boundary which may be subject to the provisions of TCLUO 3.545, 'SH Shoreland Overlay'. TCLUO 3.545 defines those areas within the Shorelands Boundary included within the Shoreland Overlay Zone. Relevant to the proposed development, TCLUO 3.545(2) identifies areas within 50 feet of estuaries as areas included in the Shorelands Overlay zone.

Findings: Staff finds that segments of the proposed development are located within the Shorelands Boundary as identified in the Goal 17 element of the Tillamook County Comprehensive Plan. Staff has reviewed the proposed development and determined that those areas within 50 feet of estuaries along the proposed transmission line route are categorized as 'Rural Shorelands' as described in TCLUO 3.545(3) and are subject to the use limitations identified in TCLUO 3.545(4)(a)(1) and the standards identified in TCLUO 3.545(6). Applicant has identified proposed development within these Rural Shoreland areas as consisting of eight power pole locations (poles 5, 8, 43-46, 48 and 49) which are illustrated on the Figure 4 maps included in Appendix A to the Applicant's submittal (Exhibit B). Additional Rural Shoreland areas will be spanned by the transmission lines and include areas around Hoquarten, Dougherty, Hall and Tomlinson Sloughs, the Trask and Tillamook Rivers and Stillwell Ditch (Exhibit B).

Staff has reviewed the significant shoreland inventory contained in the Goal 17 element of the Comprehensive Plan and has verified that the proposed transmission route does not impact significant shorelands. The nearest described significant shoreland is the Rain River Preserve which is located to the north and west of Goodspeed Road.

TCLUO Section 3.545(4) USES PERMITTED: Uses authorized by the underlying zone as outright or conditional uses are permitted, except at locations identified in (3) above.
(a) Rural Shorelands in General:
(1) Rural Shorelands uses are limited to:
(a) Farm uses
(b) Propagation and harvesting of forest products consistent with the Oregon Forest Practices Act,
(c) Aquaculture,
(d) Water-dependent recreational, industrial and commercial uses,
(e) Replacement, repair or improvement of existing state park facilities,
(f) Other uses are allowed only upon a finding by the County that such uses satisfy a need which cannot be accommodated at any alternative upland location, except in the following cases:
...

Findings: Section 8.6(C)(c) 'Energy Facilities and Utilities in Rural Shorelands' of the Goal 17 element of the Tillamook county Comprehensive Plan provides findings that identify a need to provide for '*normal domestic energy facilities and utility service within rural shorelands*' and states that '*this need can not be met on upland locations or in urban or urbanizable areas*'. In reviewing county zoning maps, Staff finds that it would not be practical to map a route between the Bonneville Power Administration's Tillamook Substation and the area surrounding Oceanside entirely on upland areas – Shoreland areas have to be crossed (Exhibit A). Staff finds that the proposed transmission line cannot be accommodated at any alternative upland location.

TCLUO Section 3.545(6) STANDARDS: Uses within the SHORELAND OVERLAY ZONE are subject to the provisions and standards of the underlying zone and of this section. Where the standards of the SHORELANDS OVERLAY ZONE and the underlying zone conflict, the more restrictive provisions shall apply.
(a) Riparian vegetation shall be protected and retained according to the provisions outlined in Section 4.140, REQUIREMENTS FOR PROTECTION OF WATER QUALITY AND STREAMBANK STABILIZATION.
(b) Development in flood hazard areas shall meet the requirements of Section 3.510, FLOOD HAZARD OVERLAY ZONE.
(c) Development in beach and dune and other geologic hazard areas shall meet the requirements of Section 3.085, BEACH AND DUNE OVERLAY ZONE and Section 4.130, DEVELOPMENT REQUIREMENTS FOR GEOLOGIC HAZARD AREAS.
...

Findings: The requirements of TCLUO Section 4.140, 3.510 and 4.130 are addressed below.

(e) The productivity of resource land on Rural Shorelands shall be considered when determining the location of "Other Uses" within a given land parcel in the F-1, F, and SFW-20 zones. "Other Uses" within these zones shall be located so that the productivity of resource land is maintained.

Findings: Applicant has identified proposed development within Rural Shoreland areas as consisting of eight power pole locations (poles 5, 8, 43-46, 48 and 49) which are illustrated on the Figure 4 maps included in Appendix A to the Applicant's submittal (Exhibit B). Additional Rural Shoreland areas will be spanned by the transmission lines and include areas around Hoquarten, Dougherty, Hall and Tomlinson Sloughs, the Trask and Tillamook Rivers and Stillwell Ditch (Exhibit B).

Applicant has provided a Farm and Forest Impacts Assessment as Appendix C to their submission which contains characterizes characteristics of resource lands such as soil capability class, describes current use and discusses potential impacts related to the proposed development (Exhibit B).

Applicant provides a description of the route selection process including alternatives considered and states that the proposed project route was preferred by the Applicant and the Citizen Advisory Group involved in route selection because '*it also minimizes impacts to agricultural land and natural resources compared to other alternatives*'. Applicant states '*The proposed project corridor further reduces impacts on agricultural and resource lands through co-location with existing linear developments within the County*' (Exhibit B). Staff finds that the productivity of resource land was considered in determining the location of the transmission line.

Applicant states that 'wherever possible, power pole locations have been selected along property lines and on the edge of fields to minimize the impact on current farming activities' and states that approximately 77 square feet of resource land within Rural Shorelands will be subject to permanent impacts (Exhibit B). Maintenance of resource land productivity is discussed at length above.

H. TCLUO Section 3.550, 'Freshwater Wetlands Overlay'
(1) PURPOSE AND AREAS INCLUDED: The purpose of this zone is to protect significant areas of freshwater wetlands, marshes and swamps from filling, drainage or other alteration which would destroy or reduce their biological value. Areas included in this zone are:
(a) Significant Goal 5 Wetlands: wetlands identified as "significant" in the Goal 5 Element of the Comprehensive Plan;

(b) Notification Wetlands: wetlands shown on the Statewide Wetland Inventory (discussed in the Goal 5 Element of the Comprehensive Plan). When required, the verification of zone boundaries shall be carried out in conjunction with the property owner and the Oregon Division of State Lands.

Findings: Staff conducted a review of Goal 5 inventories and determined that the proposed development does not cross or impact any significant Goal 5 wetlands. Applicant

(2) USES PERMITTED:
...
(b) Notification Wetlands:
(1) uses permitted outright or conditionally in the underlying zone shall be permitted subject to approval by the Oregon Division of State Lands.
(2) STANDARDS: The following standard shall be met in addition to the standards of the underlying zone.
...
(b) Development activities, permits, and land-use decisions affecting a Notification Wetland require notification of the Division of State Lands, and are allowed only upon compliance with any requirements of that agency. The applicant shall be responsible for obtaining approval from the Division of State Lands for activities on Notification Wetlands.

Findings: Staff conducted a review of Goal 5 inventories and determined that the proposed development does not cross or impact any significant Goal 5 wetlands.

Applicant has provided a wetland delineation report as part of their application submittal and states that twelve wetlands were identified within a 100 foot study corridor along the proposed transmission line route ten of which were identified by Applicant's consultant as potentially subject to federal and state jurisdiction (Exhibit B). Applicant states that they have submitted their wetland delineation report to DSL and USACE for review and approval in accordance with OARs 141-090-0005 through 141-090-0055 and by the USACE, Portland District (Exhibit B). Mike DeBlasi, Oregon Department of State Lands Acquatic Resource Coordinator for Tillamook County confirmed that the Oregon Department of State Lands has received an application from the Applicant for the proposed project and it is currently under review (Exhibit D).

I. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'

1) The following areas of riparian vegetation are defined:
(a) Fifty (50) feet from lakes and reservoirs of one acre or more, estuaries, and the main stems of the following rivers where the river channel is more than 15 feet in width: Nestucca, Little Nestucca, Three Rivers, Tillamook, Trask, Wilson, Kilchis, Miami, Nehalem and North and South Fork Nehalem River.
(b) Twenty-five (25) feet from all other rivers and streams where the river or stream channel is greater than 15 feet in width.
(c) Fifteen (15) feet from all perennial rivers and streams where the river or stream channel is 15 feet in width or less.
For estuaries, all measurements are horizontal and perpendicular from the mean high water line or the line of non-aquatic vegetation, whichever is most landward. Setbacks for rivers, streams, and coastal lakes shall be measured horizontal and perpendicular from the ordinary high water line.

Findings: Applicant has provided a '*Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project'* as part of their submittal which describes the 12 locations where the proposed transmission line route crosses perennial water bodies with riparian buffers regulated by TCLUO 4.140.

(2) All development shall be located outside of areas listed in (1) above, unless:
(a) For a bridge crossing; or
(b) Direct water access is required in conjunction with a water dependent use; or
(c) Because of natural features such as topography, a narrower riparian area protects equivalent habitat values; or
(d) A minimal amount of riparian vegetation is present and dense development in the general vicinity significantly degrades riparian habitat values.
Setbacks may be reduced under the provisions of (c) and (d) above only if the threat of erosion will not increase and a minimum 20 foot setback is maintained. Determinations of habitat values will be made by the Oregon Department of Fish and Wildlife.
...
(4) All trees and at least 50 percent of the understory vegetation shall be retained within areas listed in (1) above, with the following exceptions:

Finding: Applicant states that the proposed development will require the placement of six poles and the removal of some existing trees within the riparian buffer (Exhibit B). Applicant has reviewed the scope of their proposed development and vegetation management activities required for the proposed development within riparian buffer areas with the Oregon Department of Fish and Wildlife (ODFW) and ODFW has provided documentation confirming that the proposed permanent pole locations meet the exception criteria outlined above in TCLUO 4.140(2)(c) or (d) and that proposed mitigation for riparian buffer crossings is sufficient for proposed tree removal (Exhibit B). Staff recommends that should the request be approved, a Condition of Approval be imposed requiring documentation of satisfaction of the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District be provided to the Department.

J. TCLUO Section 4.160, 'Protection of Archaeological Sites'
(1) The Planning Department shall review building permits and other land use actions that may affect known ARCHAEOLOGICAL SITES. If it is determined that the proposed action may affect the integrity of an ARCHAEOLOGICAL SITE, the Planning Director shall consult with the State Historic Preservation Office on appropriate measures to preserve or protect the site and its contents. No permit shall be issued until either the State Historic Preservation Office determines that the proposed activity will not adversely affect the ARCHAEOLOGICAL SITE, or the State Historic Preservation Office has developed a program for the preservation or excavation of the site.

(2) Indian cairns, graves and other significant archaeological resources uncovered during construction or excavation shall be preserved intact until a plan for their excavation or reinterment has been developed by the State.

Findings: Applicant conducted a cultural resource study within the Project corridor and did not locate any significant historic, archaeological, or cultural resources that would be impacted by the proposed Project (Exhibit B). Applicant has committed to complying with the standards of TCLUO 4.160 (Exhibit B). No comments on this application were received from the State Historic Preservation Office.

VI. RECCOMEDNDED CONDITIONS OF APPROVAL:

(3) The applicant/property owner shall obtain all required Federal, State, and Local permits and/or licenses and will comply with applicable rules and regulations.

(4) The property owner shall obtain all necessary electrical, mechanical, and plumbing permits.

(5) At the time of applying for Zoning and Building Permit approval, Applicant will be required to submit the following:

(6) The following recommended Conditions of Approval are specific to Conditional Use Request 851-17-000448-PLNG-01:

i. At the time of applying for Zoning Permit approval, Applicant shall provide demonstration that the easement agreements recorded between the Applicant and underlying property owners for those segments of the proposed development subject to Forest zone zoning designation contain an acknowledgement by the Applicant recognizing the rights of adjacent and nearby land owners to conduct forest operations consistent with the Forest Practices Act and Rules for uses authorized in OAR 660-006-0025(5)(c).

ii. At the time of applying for Zoning and Building permit application, Applicant will provide letters from the impacted fire protection districts documenting the sufficiency of the fire prevention, presuppression, and suppression plans prepared by its construction contractor for the construction phase of the project and the sufficiency of the fire prevention, presuppression, and suppression plans prepared for the operational phase of the project.

iii. Applicant will provide to the Department on an annual basis for three years following energization of the transmission line documentation from ODFW that the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District are satisfied.

iv. Applicant will provide demonstration of compliance with TCLUO 4.130(2) and (3) at the time of applying for Zoning Permit approval.

(7) The following recommended Conditions of Approval are specific to Floodway/Estuary/Floodplain Permit Request 851-17-000448-PLNG:

i. Any deviation from the proposed development described herein within the Floodway that involves an increase in the amount of fill placed in the Floodway shall require an updated No-Rise Analysis.

(8) The following recommended Conditions of Approval are specific to Administrative Review Request 851-17-000448-PLNG-02:

i. During the construction of the proposed project, Applicant shall install fences, gates and/or cattle guards along construction access routes as necessary to ensure livestock safety during construction.

ii. Applicant shall be responsible for restoring, as nearly as possible to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Reseeding required as part of restoration efforts will be done as soon as possible during the optimal period after construction and surface scarification for seeding will be done where necessary for germination. Where applicable, certified "noxious weed-free" seed will be used on areas to be seeded.

iii. Applicant will ground all existing metal structures located within the proposed right-of-way.

iv. During operations, should stray voltage be measured and determined to be caused by the proposed 115kV transmission line project, Applicant will implement corrective measures in accordance with good utility practices.

v. Agricultural operators will be able to continue farming areas within the proposed transmission easement area in the F-1 zone. Continued farm use will be ensured through establishment of easements allowing that use.

vi. Applicant will use a qualified contractor to control noxious weeds within the easement area as needed.

vii. Applicant will provide to the Department on an annual basis for three years following energization of the transmission line documentation from ODFW that the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District are satisfied.

VII. EXHIBITS

All Exhibits referred to herein are, by this reference, made a part hereof:

A. Location map, list of subject properties and ownership information, Assessor map, Zoning map, FEMA FIRM, NWI Wetlands map
B. Applicant's submittal
C. Public Comments
D. Agency Comments
E. ORS 772.210
F. Shorelands Maps
G. Estuary Management Units

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 302

TO THE CROSS ANSWERING TESTIMONY OF KC FAGEN

ON BEHALF OF

TILLAMOOK PEOPLE'S UTILITY DISTRICT

CITY EASEMENT NOTICE

March 2, 2018

Tillamook
People's Utility District

Directors
Harry E. Hewitt
Edwin L. Jenkins
Doug Olson
Ken R. Phillips
Barbara A. Trout

A Customer-Owned Electric Utility
Office: 503 842-2535 • Toll-free: 800 422-2535 • Fax: 503 842-4161 • www.tpud.org

Todd Simmons
GENERAL MANAGER

TILLAMOOK OCEANSIDE TRANSMISSION LINE EASEMENT

Easements for properties owned by CITY OF TILLAMOOK

Property Description: 1S1024D000900

☐ I am in agreement with the easement language and compensation as presented in the accompanied letter and am willing to sign the easement once Tillamook People's Utility District has secured the necessary permits for construction and operations.

☒ I am in agreement in principle with the terms of the easement and compensation presented in the accompanied letter, but will have some comments on the terms and conditions of the easement. Once Tillamook People's Utility District has secured the necessary permits for construction and operations, I will work in good faith with Tillamook People's Utility District to negotiate acceptable terms and conditions of the easement.

Property Owner:

Signature: Suzanne Weber

Date: Jan. 23, 2018

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 303

TO THE CROSS ANSWERING TESTIMONY OF KC FAGEN

ON BEHALF OF

TILLAMOOK PEOPLE'S UTILITY DISTRICT

COMMUNICATION WITH CITY REGARDING FRANCHISE

March 2, 2018

From:	cityplanner@tillamookor.gov
To:	KC Fagen
Cc:	"Paul Wyntergreen"
Subject:	RE: City of Tillamook/PUD Franchise Agreement
Date:	Friday, February 23, 2018 11:06:16 AM
Attachments:	TPUD Tillamook Franchise Agreements.pdf

KC,

In regards to the franchise agreement, I have attached the documentation. The franchise agreement states for Outside of Right-of-Way "*City's Zoning Code Section 153.023 (24) permits the erection, construction, alteration, or maintenance by utilities in any district in accordance with their franchise agreement. The following elements clarify the application of that Code Section for this franchise."*

Now, the agreement was originally crafted and the ordinance was later changed, so the reference section is incorrect. The reference section is now 153.052(24). Within Section 3(B) of the Franchise Agreement, it states the conditions of development for utilities outside of the right-of-way.

There are elements delineated in Section 2(A) for construction within Right-of-Way, as well.

Please note, all these provisions tie together to determine that the construction of new transmission lines and utilities are allowed outright.

Thank you,

Melissa Jenck

-----Original Message-----
From: "KC Fagen" <kcfagen@tpud.org>
Sent: Wednesday, February 21, 2018 3:14pm
To: "'cityplanner@tillamookor.gov'" <cityplanner@tillamookor.gov>
Cc: "'Paul Wyntergreen'" <pwyntergreen@tillamookor.gov>
Subject: RE: City of Tillamook/PUD Franchise Agreement

Melissa;
Thanks. Attached is the fully executed franchise agreement that was provided to the PUC. Please let me know if you have any additional questions.
Thx
KC

From: cityplanner@tillamookor.gov [mailto:cityplanner@tillamookor.gov]
Sent: Wednesday, February 21, 2018 3:05 PM
To: KC Fagen <kcfagen@tpud.org>
Cc: 'Paul Wyntergreen' <pwyntergreen@tillamookor.gov>
Subject: RE: City of Tillamook/PUD Franchise Agreement

Hey KC,

I'm just attempting to obtain the documents that has the full franchise agreement (currently I only have a couple pages of it and it cuts off during the part referencing utility lines).

In regards to the Zoning Ordinance section that relates to the allowed development of utility lines, it is

described as follows:

Section 153.052(24): Utilities
"Utilities. The erection, construction, alteration, or maintenance by public utility or municipal or other governmental agencies of underground; overhead electrical, gas, steam, or water transmission or distribution systems, collection, communication, supply or disposal system including poles, towers, wires, mains, drains, sewers, pipes, conduits, cables, fire alarm boxes, police call boxes, traffic signals, hydrants and other similar equipment and accessories in connection therewith, but not including buildings, shall be permitted in any district in accordance with their franchise agreement. Utility transmission and distribution lines, poles and towers may exceed the height limits otherwise provided for in this Development code."

This code section references that any new utility lines or poles construction or erected will be a permitted outright use in any district. The kicker is *in accordance with their franchise agreement*. This is the section I want confirm regarding the agreement. Once I get the full copy, I'll provide the final response.

Thanks,

Melissa Jenck

Land Use Planner, CFM
503.842.3408 Ext. 3301
cityplanner@cotillamook.or.us

1510-B Third Street
Tillamook, OR 97141

-----Original Message-----
From: "KC Fagen" <kcfagen@tpud.org>
Sent: Wednesday, February 21, 2018 2:03pm
To: "'cityplanner@tillamookor.gov'" <cityplanner@tillamookor.gov>
Cc: "'Paul Wyntergreen'" <pwyntergreen@tillamookor.gov>
Subject: RE: City of Tillamook/PUD Franchise Agreement

Melissa;
An email works.
Thx
KC

From: cityplanner@tillamookor.gov [mailto:cityplanner@tillamookor.gov]
Sent: Wednesday, February 21, 2018 1:49 PM
To: KC Fagen <kcfagen@tpud.org>
Cc: 'Paul Wyntergreen' <pwyntergreen@tillamookor.gov>
Subject: RE: City of Tillamook/PUD Franchise Agreement

KC,

Are you wanting something on City letterhead, or does email suffice?

Melissa

-----Original Message-----
From: "KC Fagen" <kcfagen@tpud.org>
Sent: Wednesday, February 21, 2018 1:39pm
To: "'Melissa Stresing'" <cityplanner@tillamookor.gov>
Cc: "'Paul Wyntergreen'" <pwyntergreen@tillamookor.gov>
Subject: RE: City of Tillamook/PUD Franchise Agreement

Melissa;
Any progress on a response to the PUC's question?
Thx
KC

From: KC Fagen
Sent: Tuesday, January 23, 2018 2:34 PM
To: 'Paul Wyntergreen' <pwyntergreen@tillamookor.gov>
Subject: RE: City of Tillamook/PUD Franchise Agreement

That would be great.
Thx
KC

From: Paul Wyntergreen [mailto:pwyntergreen@tillamookor.gov]
Sent: Tuesday, January 23, 2018 2:33 PM
To: KC Fagen <kcfagen@tpud.org>
Cc: Melissa Jenck <cityplanner@tillamookor.gov>
Subject: Re: City of Tillamook/PUD Franchise Agreement

I will have our planner, Melissa, provide you with something formal. She and I have discussed the provision in the code that defers to the franchise agreement for improvements in the right-of-way. She can also provide the permitted outright interpretation for those portions that cross zoned property outside the right-of-way.

Paul Wyntergreen
City Manager
City of Tillamook
210 Laurel Avenue
Tillamook, OR 97141
(503) 842-2472 Ext. 3460
FAX (503) 842-3445
Email: pwyntergreen@tillamookor.gov

From: KC Fagen <kcfagen@tpud.org>
Date: Tuesday, January 23, 2018 at 2:25 PM
To: Paul Wyntergreen <pwyntergreen@tillamookor.gov>
Subject: City of Tillamook/PUD Franchise Agreement

Paul;
I got a strange question from the PUC regarding the transmission line. They are asking for a written documentation that the transmission line is allowed outright by the Franchise Agreement. I know you and I have discussed this issue have concurred this is the case, but I don't recall this being a in a written form, but thought I would check with you. Let me know. I have searched my emails, but couldn't find anything in writing.

Thx

KC Fagen | *Engineering Manager*
Tillamook People's Utility District
A Consumer-Owned Electric Utility
P.O. Box 433 • 1115 Pacific Avenue • Tillamook, Oregon 97141
phone: 503.815.8628 | *fax:* 503.815.8648

Visit our website at www.tpud.org to learn more about Tillamook PUD

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 304

TO THE CROSS ANSWERING TESTIMONY OF KC FAGEN

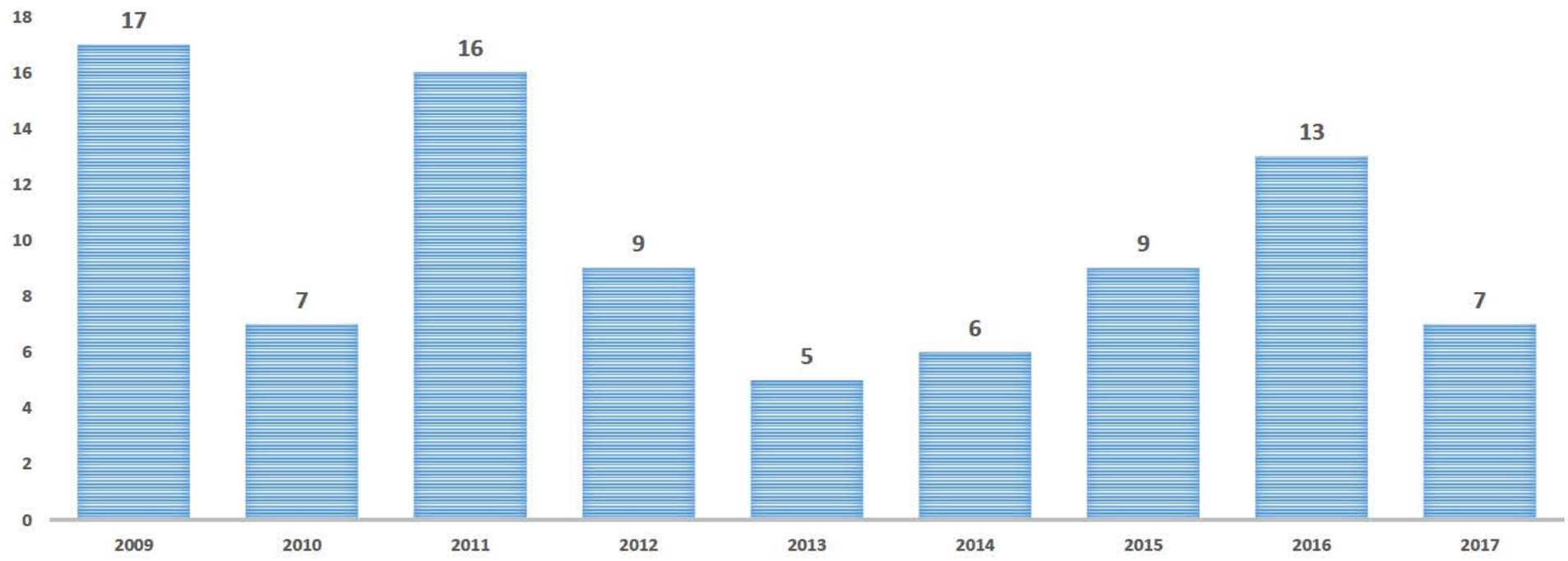
ON BEHALF OF

TILLAMOOK PEOPLE'S UTILITY DISTRICT

NEW METER COUNTS

March 2, 2018

YEAR	Qty - New Services
2009	17
2010	7
2011	16
2012	9
2013	5
2014	6
2015	9
2016	13
2017	7
Net New Meters	89
Years	8
Meter 2017	1900
Simple rate/yr	0.61%


QUANTITY OF NEW SERVICES BY YEAR
FEEDER 51
2009-2017
18
16
14
12
10
8
6
4
2
0
17
7
16
9
5
6
9
13
7
2009
2010
2011
2012
2013
2014
2015
2016
2017

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 305

**TO THE CROSS ANSWERING TESTIMONY
OF KC FAGEN**

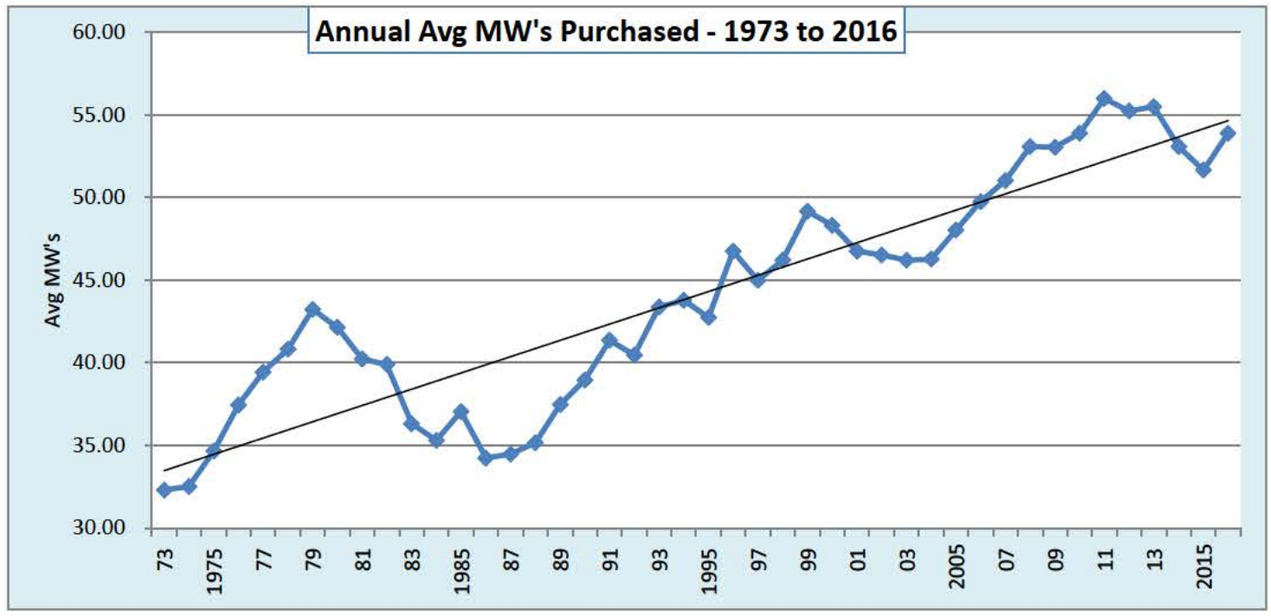
ON BEHALF OF

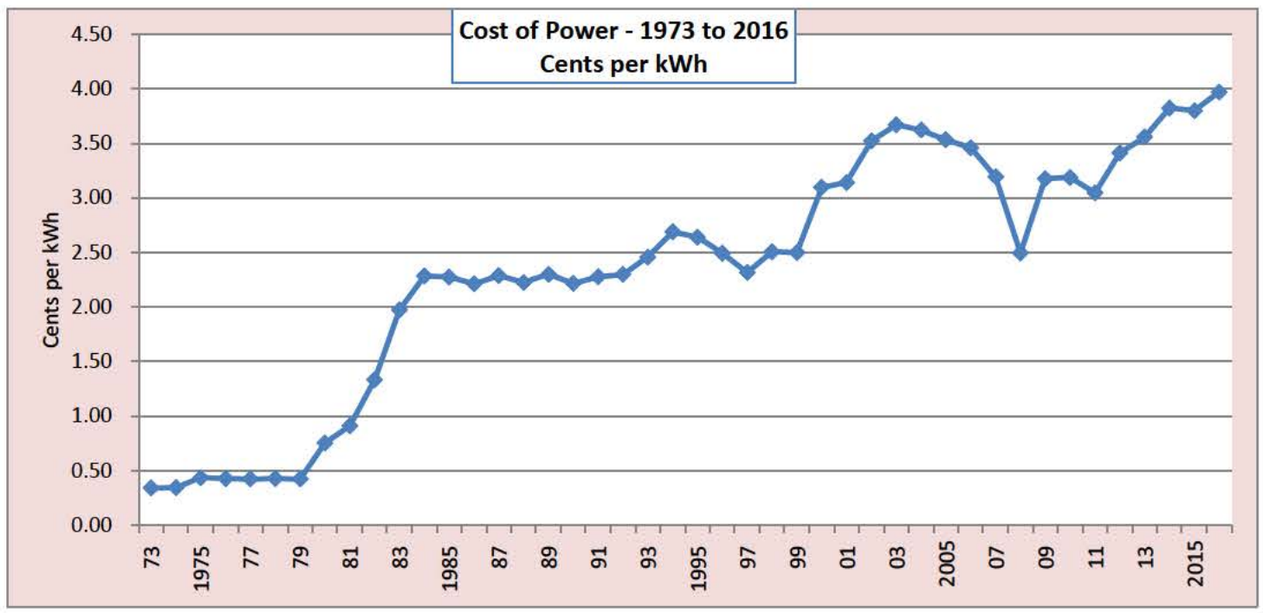
TILLAMOOK PEOPLE'S UTILITY DISTRICT

LOAD DATA AND GRAPHS

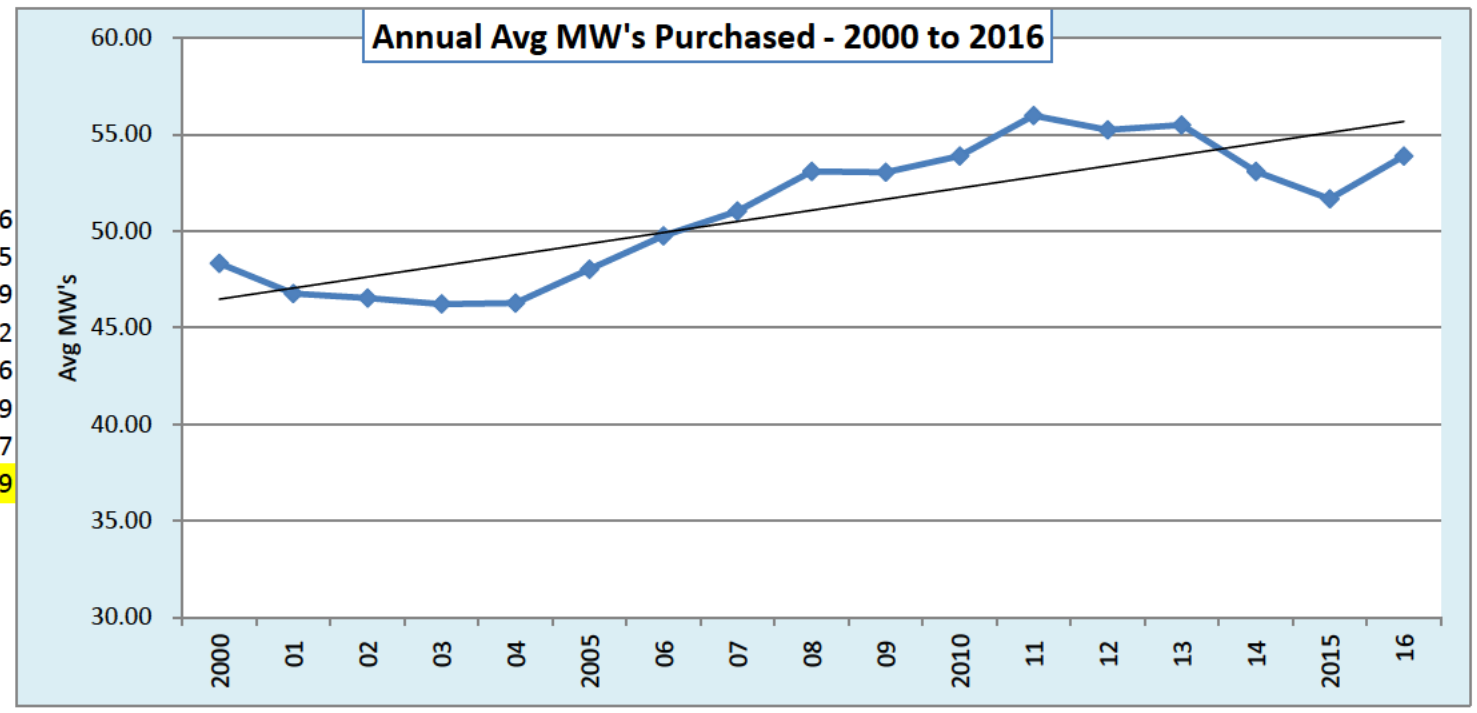
March 2, 2018

		MWH Purch		TCCA Boiler & Whsl Purch	Power Spply Exp	Cents per kWh	Avg MW
	73	283,069	283		963,879	0.34	32.31
0.66%	74	284,948	285		985,771	0.35	32.53
6.57%	1975	303,660	304		1,323,367	0.44	34.66
8.37%	76	329,063	329		1,402,984	0.43	37.46
4.98%	77	345,434	345		1,459,986	0.42	39.43
3.55%	78	357,706	358		1,524,905	0.43	40.83
5.90%	79	378,795	379		1,608,010	0.42	43.24
-2.26%	1980	370,217	370		2,783,170	0.75	42.15
-4.77%	81	352,575	353		3,208,500	0.91	40.25
-0.86%	82	349,556	350		4,665,488	1.33	39.90
-8.95%	83	318,270	318		6,276,567	1.97	36.33
-2.56%	84	310,115	310		7,082,943	2.28	35.30
4.70%	1985	324,695	325		7,383,745	2.27	37.07
-7.60%	86	300,006	300		6,635,821	2.21	34.25
0.69%	87	302,081	302		6,911,036	2.29	34.48
2.25%	88	308,875	309		6,873,500	2.23	35.16
6.31%	89	328,375	328		7,552,748	2.30	37.49
3.95%	1990	341,337	341		7,561,744	2.22	38.97
6.16%	91	362,372	362		8,247,746	2.28	41.37
-1.90%	92	355,504	356		8,167,984	2.30	40.47
6.89%	93	380,006	380		9,337,652	2.46	43.38
0.96%	94	383,648	384		10,314,741	2.69	43.80
-2.38%	1995	374,507	375	8,733	10,113,639	2.64	42.75
9.66%	96	410,691	411	27,752	10,926,344	2.49	46.75
-4.04%	97	394,079	394	35,228	9,945,483	2.32	44.99
2.73%	98	404,825	405	22,777	10,724,651	2.51	46.21
6.42%	99	430,824	431	14,809	11,132,902	2.50	49.18
-1.46%	2000	424,552	425	8,591	13,408,317	3.10	48.33
-3.51%	01	409,635	410	9,640	13,168,462	3.14	46.76
-0.49%	02	407,607	408		14,355,253	3.52	46.53
-0.66%	03	404,929	405		14,863,084	3.67	46.22
0.39%	04	406,518	407		14,720,157	3.62	46.28
3.51%	2005	420,797	421		14,860,191	3.53	48.04
3.61%	06	435,999	436		15,078,891	3.46	49.77
2.55%	07	447,117	447		14,275,549	3.19	51.04
4.30%	08	466,357	466		11,635,767	2.50	53.09
-0.35%	09	464,714	465	13,018	14,758,955	3.18	53.05
1.60%	2010	472,147	472	35,575	15,042,643	3.19	53.90
3.89%	11	490,504	491	38,750	14,938,953	3.05	55.99
-1.07%	12	485,279	485	38,714	16,551,235	3.41	55.25
0.20%	13	486,248	486	39,834	17,293,955	3.56	55.51
-4.34%	14	465,149	465	37,812	17,785,638	3.82	53.10
-2.70%	2015	452,591	453	30,530	17,192,295	3.80	51.67
Est jm 6/29/16	4.62%	16	473,482	473	36,388	18,801,600	3.97	53.90


Annual Avg MW's Purchased - 1973 to 2016
Avg MW's
60.00
55.00
50.00
45.00
40.00
35.00
30.00
73
1975
77
79
81
83
1985
87
89
91
93
1995
97
99
01
03
2005
07
09
11
13
2015


Cost of Power - 1973 to 2016
Cents per kWh
Cents per kWh
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
73
1975
77
79
81
83
1985
87
89
91
93
1995
97
99
01
03
2005
07
09
11
13
2015

34	46
54	55
20	9
0.588235	0.195652
2016	2016
1972	1999
44	17
0.013369	0.011509



BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 306

**TO THE CROSS ANSWERING TESTIMONY
OF KC FAGEN**

ON BEHALF OF

TILLAMOOK PEOPLE'S UTILITY DISTRICT

**RESPONSE TO STAFF DATA
REQUEST 32**

March 2, 2018

BEFORE THE PUBLIC UTILITY

COMMISSION OF OREGON

PCN -2

In the Matter of TILLAMOOK PEOPLE'S UTILITY DISTRICT, CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY	TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF'S DATA REQUESTS 28 THROUGH 39

TO: Staff of the Public Utility Commission of Oregon

Attached hereto are the responses of Tillamook People's Utility District (TPUD), to Staff's Data Requests to TPUD numbered 28 through 39.

DATED this 26th day of January 2018.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

STAFF DR TO TPUD NO. 32

Does TPUD update the capacity rating for transformers over time? If so, please provide dates and reasoning for changes made between 2007- present.

TPUD RESPONSE

Yes, TPUD has changed the "Winter Capacity" of some of the transformers over time, namely Beaver, Garibaldi, Wilson T1, Wilson T2, Trask, and South Fork. The table below, which is also include as Exhibit TPUD-Staff DR32-3 Transformer Ratings, shows capacity based on the data from the Board Reports in January 2014 and January 2018. The change in total nameplate capacity increased by 2MVA and the Winter Capacity was reduced by 19.4MVA. Changes were made to the transformer winter capacities in August 2014, March 2017, and August 2017 Board Reports. Changes were made to name plate capacities in January 2018 Board Reports. See Exhibit TPUD-Staff DR32-1 Board Packets, containing Board Reports for the prior month and the month of the changes have been provided in the Power Services or Engineering section of the Board Reports (originals and changes have been clouded in red).

The change in the nameplate capacity was done to correct the Board reports with the actual nameplate data, see attached Exhibit TPUD-Staff DR32-2 Transformer Nameplate, which shows the manufacturer's name plate data. The nameplate ratings are provided by the manufacturers and were not correctly listed in the Board reports, so they were updated. For example, South Fork and Beaver showed ratings with the addition of cooling fans. However the transformers are not equipped with cooling fans. Similarly, Wilson T1 was showing the rating

for a 65ºC temperature rating, but the manufacturer's documentation only lists a 55ºC temperature rating.

The Winter Capacity ratings are somewhat of an arbitrary capacity and did not, nor do they now, conform to any industry standards, nor are they consistent among the transformers. For example, the percent change for Winter Capacity in 2014 ranged from 8.7% to 41.8% and averaged 25.5%. In 2018, they range from -2.6% to 55.0% and average 16.3%. Specific documentation cannot be found that supports the past or present winter ratings listed in the Board Reports or why they were changed. IEEE C57.91, IEEE Guide for Loading Mineral-Oil-Immersed Transformers, provides guidelines for adjusting transformer capacity due to temperature variations. The 2011 version increased the margin from 5ºC to 10ºC, thus reducing the amount the transformer capacity would be increased for a reduction in ambient air temperature from the manufacturer's 30ºC design temperature (identified as Winter Loading in TPUD Board reports). Exhibit TPUD-Staff DR32-5 is IEEE Std. C57.91-1995 and Section 6 provides the guidelines for increasing transformer capacity for changes in ambient temperature. The 2011 version is on order and can be provided once received.

TPUD recently contacted several utilities in the Northwest, and eight utilities replied. Six utilities indicated that they do not use winter ratings, one utility has dynamic loading using specialized equipment design for this task and is expecting about a 15% increase in winter capacity, and one utility does have a winter rating based on temperatures. However, the one utility that does have winter ratings has a mobile transformer and can respond quickly to replace or supplement a transformer that is out of service. Data and information are provided in Exhibit TPUD-Staff DR32-4 including correspondence with utilities regarding transformer capacity,

transformer name plates (capacity as listed by the manufacturer), and the workbook for the table above.

Transformer	Nameplate Capacity 2014 (Top MVA Rating)	Nameplate Capacity 2018 (Top MVA Rating)	2014 Winter Capacity (MVA)	2018 Winter Capacity (MVA)
Beaver	7	5	8	5.5
Garibaldi	25	25	31.4	27
Mohler	20	22	27.7	27.7
Hebo	20	22	28.1	28.1
Nestucca	20	22	28.1	28.1
Trask River	33	37	46.8	36
Wilson River T1	40	33	45	36
Wilson River T2	46	45	50	48
Nehalem	25	28	28	28
South Fork	7	6	Not listed	9.3
Totals	243	245	293.1	273.7

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 307

TO THE CROSS ANSWERING TESTIMONY OF KC FAGEN

ON BEHALF OF

TILLAMOOK PEOPLE'S UTILITY DISTRICT

COMMUNICATION WITH ODOT

March 2, 2018

From: KEARNS Richard A
To: KC Fagen; WILLIAMS Virginia L
Cc: James Aman; Wade Scott; Derek Mickelson
Subject: RE: ODOT use of guard rails to protect power poles
Date: Tuesday, January 30, 2018 8:29:31 AM

KC

NW Natural was not allowed to install the protection system around their facility.

RK

From: KC Fagen [mailto:kcfagen@tpud.org]
Sent: Tuesday, January 30, 2018 8:26 AM
To: KEARNS Richard A; WILLIAMS Virginia L
Cc: James Aman; Wade Scott; Derek Mickelson
Subject: RE: ODOT use of guard rails to protect power poles

Richard;
Thank you. I gather that ODOT reject the use of bollards and/or guard rails for NW Natural?
Let me know.
Thx
KC

From: KEARNS Richard A [mailto:Richard.A.KEARNS@odot.state.or.us]
Sent: Tuesday, January 30, 2018 8:23 AM
To: KC Fagen <kcfagen@tpud.org>; WILLIAMS Virginia L <Virginia.L.WILLIAMS@odot.state.or.us>
Cc: James Aman <jaman@tpud.org>; Wade Scott <wscott@tpud.org>; Derek Mickelson <dmickelson@tpud.org>
Subject: RE: ODOT use of guard rails to protect power poles

KC

I dealt with a similar issue with NW Natural and their proposal of a protection system (proposed bollards and / or guardrail). The answer I got from ODOT Office of Maintenance in Salem and the ODOT Roadway Design Engineer was;

"A utility facility that would need to be protected from traffic, should likely be considered for placement outside highway r/w. If the utility facility meets ODOT's CLEAR ZONE STANDARDS then a protection system would not be necessary."

The AASHTO-Geometric Design of Highways and Streets states; " …guardrail is used where there is a significant risk to motorists and pedestrians, such as along sections with steep foreslopes and at approaches to overcrossing structures".

Richard Kearns
D1 Permits
503-325-6490

From: KC Fagen [mailto:kcfagen@tpud.org]
Sent: Monday, January 29, 2018 11:26 AM
To: KEARNS Richard A
Cc: James Aman; Wade Scott; Derek Mickelson
Subject: ODOT use of guard rails to protect power poles

Richard;
I left you a voice mail regarding this issue and following up with an email. I'm looking for something that would indicated that installing a guard rail along a state road/highway is not allow for the purpose of preventing vehicles from driving into power poles. I have a meeting on February 8th where I will need to address using guard rails to protect power poles, so anything you can help me with prior that meeting date will be helpful.
Call me if you have any questions or need additional information.
Thx

KC Fagen | *Engineering Manager*
Tillamook People's Utility District
A Consumer-Owned Electric Utility
P.O. Box 433 • 1115 Pacific Avenue • Tillamook, Oregon 97141
phone: 503.815.8628 | *fax:* 503.815.8648

Visit our website at www.tpud.org to learn more about Tillamook PUD

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 308

TO THE CROSS ANSWERING TESTIMONY OF KC FAGEN

ON BEHALF OF

TILLAMOOK PEOPLE'S UTILITY DISTRICT

ALTERNATIVE ROUTES CONSIDERED

March 2, 2018

TOTL Open House – May 25, 2016

TPUD/308
Fagen/1

LEGEND

Substation

North Corridor Routes
- N1
- N2
- N3
- N4
- N5
- N6
- N7

Central Corridor Routes
- C1
- C2
- C3
- C4
- C5
- C6
- C7

South Corridor Routes
- S1
- S2
- S3
- S4
- S5
- S6
- S7

Bayocean Corridor Routes
- B1
- B2
- B3
- B4
- B5
- B6
- B7
- B8

Forest Corridor Routes
- F1
- F2
- F3
- F4
- F5
- F6

Trask Route
- Trask

Preferred Routes
- Option 1
- Option 2
- Option 3

N

0 0.25 0.5

Miles

Overview of Proposed Corridors and Routes
TOTL Proposed Routes for CAG Consideration - 6/23/2015
Proposed Tillamook-Oceanside Transmission Line

Tillamook PUD

BAOTSP01 C:\GIS\PROJ\TILLAMOOKPUD\412210\GIS\MAPFILES\2016\OVERVIEW_OF_PROPOSED_CORRIDORS_AND_ROUTES.MXD CARCHER 5/24/2016 9:11:24 AM

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 309

TO THE CROSS ANSWERING TESTIMONY OF KC FAGEN

ON BEHALF OF

TILLAMOOK PEOPLE'S UTILITY DISTRICT

EMF COMPARISON GRAPHS

March 2, 2018

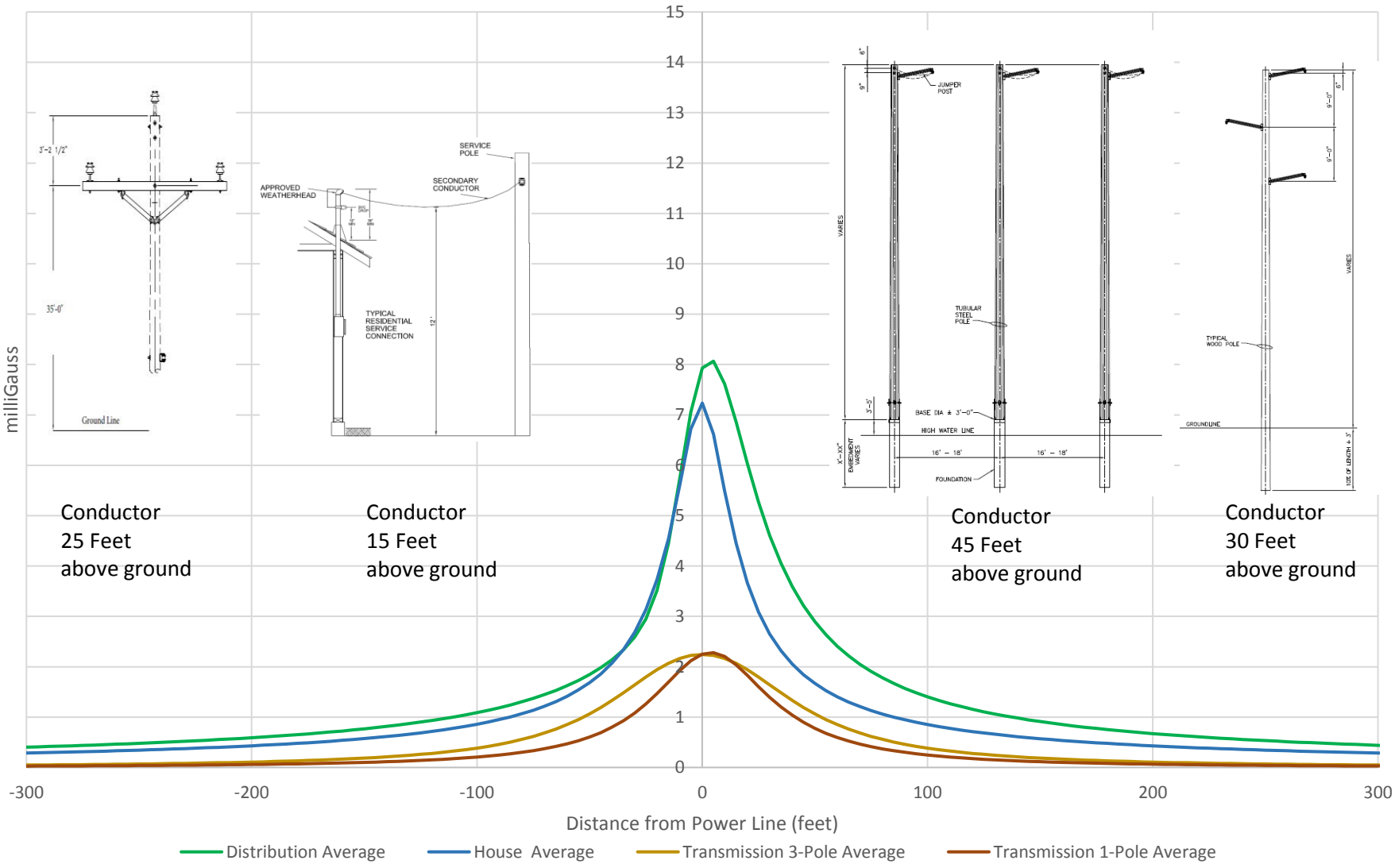
Comparison of Oceanside Transmission, Typical Distribution, and Typical House Service Magnetic Field (EMF) Levels
Average Loading Period

Conductor
25 Feet
above ground

Conductor
15 Feet
above ground

Conductor
45 Feet
above ground

Conductor
30 Feet
above ground



Magnetic Fields calculator developed by Bonneville Power Administration based on the Corona and Field Effects Program (USDOE, undated)

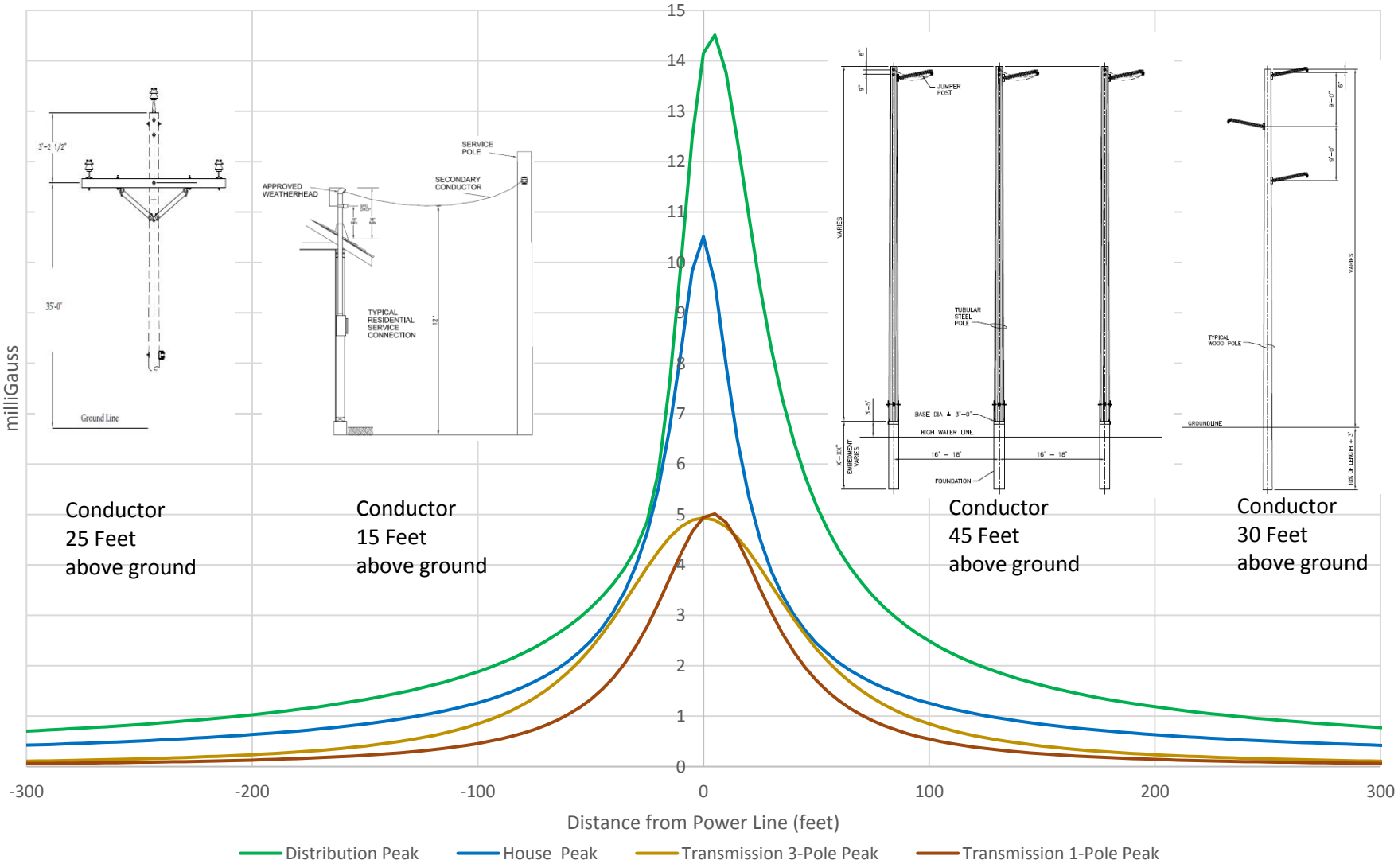
Comparison of Oceanside Transmission, Typical Distribution, and Typical House Service Magnetic Field (EMF) Levels
Peak Loading Period

Conductor
25 Feet
above ground

Conductor
15 Feet
above ground

Conductor
45 Feet
above ground

Conductor
30 Feet
above ground



Magnetic Fields calculator developed by Bonneville Power Administration based on the Corona and Field Effects Program (USDOE, undated)

BEFORE THE

PUBLIC UTILITY COMMISSION OF OREGON

DOCKET PCN-2

EXHIBIT 310

TO THE CROSS ANSWERING TESTIMONY OF KC FAGEN

ON BEHALF OF

TILLAMOOK PEOPLE'S UTILITY DISTRICT

ODFW LETTER AND BIOLOGICAL RESOURCES REPORT

March 2, 2018

Oregon
Kate Brown, Governor

Department of Fish and Wildlife
Northwest Region
4907 3rd St
Tillamook, OR 97141-2944
(503) 842-2741
Fax (503) 842-8385
www.odfw.com

October 20, 2017

Hilary Foote
Tillamook County Planning Department
1510 B Third St
Tillamook, OR 97141

RE: Tillamook PUD Transmission Line Project Review

Dear Hilary:

The Oregon Department of Fish and Wildlife (ODFW) has reviewed the Tillamook PUD's proposed transmission line project (851-17-000448-PLNG) and offers the following comments for your consideration. All references to site designations, tables, and figures are from the TPUD Biological Resources Report for the Tillamook Oceanside 115-kilovolt Transmission Line Project (2nd revision October 2017).

There are a total of 6 locations (Table 5-2) along the proposed transmission line where permanent impacts would occur and would result in power poles permanently located with the riparian setback area. These sites are addressed below (tree removal, trimming and/or topping will be collectively addressed later in this letter):

Site S-01 (Hoquarten Slough) - PUD proposes to remove (or possibly trim) several trees at this location along a back eddy of the slough, and top 4 spruce trees to 20 feet in height at the edge of the main Hoquarten Slough. In addition a power pole will be located within the riparian setback area. The surrounding area is already impacted by agricultural activities and the railroad line. The existing riparian area generally appears to be less than the county standard (50 ft.), and although there is vegetation present, relatively little (if any) of the area would be considered an intact riparian area. Therefore I believe this site would meet the requirements of TCLUO 4.140 (2) (d) to allow placement of the pole at the proposed location.

Site S- 01A (Hoquarten Slough) - PUD proposes to place a power pole within the required setback area. This site is highly impacted by the existing dike along the slough and the adjacent agricultural land. There are no trees. Some vegetation is present but is close to ground with limited habitat value. Therefore I believe this site would meet the requirements of TCLUO 4.140 (2) (d) to allow placement of the pole at the proposed location.

Site S-02 (Dougherty Slough) - PUD proposes to place a power pole within the riparian setback at this location. One tree would be topped to 20 ft. height. This site is similar to S-01 in that it is impacted by agricultural activities and the railroad line. Few trees are present and the proposed pole location would have little to no impact as it appears to be located on the edge of the agricultural field, and just outside the existing line of vegetation. Even if there is some impact to the vegetation at this site, it would be minor and inconsequential for the resource. Therefore I believe this site would meet the requirements of TCLUO 4.140 (2) (d) to allow placement of the pole at the proposed location.

Sites S-05B and S-05C (Hall Slough) - PUD proposes to place power poles within the riparian setback at these two sites. These sites are heavily impacted by Wilson River Loop Rd and associated right of way, as well as land cleared for agricultural purposes. The proposed pole locations, while within the 50 ft. setback, are located in areas already cleared of vegetation and alongside the roadway. There are no biological implications to the riparian area from these pole placements, and given the heavily developed nature of the proposed locations, I believe these sites would meet the requirements of TCLUO 4.140 (2) (d) to allow placement of the poles at the proposed locations.

Site S-06 (Trask River) - PUD proposes to place a power pole within the riparian setback area and to top trees on the east bank of the site. Similar to site S-01A, this site is heavily impacted from agricultural activities and the existing dike. The proposed pole location is inside the dike and appears to be within the area already cleared. No impact to the little existing riparian vegetation would be expected. Therefore I believe this site would meet the requirements of TCLUO 4.140 (2) (d) to allow placement of the pole at the proposed location.

Temporary Impacts – PUD proposes temporary impacts at several sites (Table 5-3) within riparian buffers, primarily access road construction. My understanding is that the temporary construction features will be removed and the sites restored to pre-existing conditions once the work is completed. In addition, each of the proposed temporary impacts are located in areas already impacted by other activities, such as agricultural fields. I see little, if any, biological impacts from the temporary features proposed, and if any impact were to occur, it would be short term in nature. Therefore I believe the proposed temporary impacts would meet the requirements of TCLUO 4.140 (2) (d) to allow the construction at the proposed locations.

Tree Cutting - PUD proposes to remove, limb, and/or top trees in several locations (Table 5-4), some of which are subject to county riparian ordinance requirements. ODFW understands there are safety and/or regulatory requirements that need to be followed to maintain clear space around the transmission line. ODFW appreciates the PUD's efforts to minimize locations where tree removal will be necessary, and the flexibility to limb or top trees in locations this is possible. This effort will minimize the impacts to the riparian areas. ODFW does not object to the planned actions regarding riparian trees as outlined in the Biological Report. In areas where trees must be removed, PUD is proposing mitigation by replanting native conifer trees in the riparian buffers and as close as feasible to the impacted location (while still meeting requirements for maintaining the transmission line).

ODFW recommends that wherever possible trees be limbed or topped and left in place. For trees that must be removed, ODFW recommends requiring mitigation that will offset the loss of the trees. ODFW recommends the applicant develop and have a riparian maintenance and monitoring plan approved by the Tillamook County Department of Community Development and ODFW prior to project implementation. The plan shall describe the frequency and duration of monitoring and maintenance, as well as a description of the party that will be conducting maintenance and monitoring activities. We are available to assist with the development of the plan, but generally recommend the plan include the following. A minimum of 2 native conifer trees should be planted, as close as possible in the vicinity to where trees are removed, for each tree removed (not to include trees topped and left in place). This assumes a survival rate of at least 50% for the planted trees so that in the long term there is at least one tree growing for each tree removed. If during any of the first three years survival falls below the 50% threshold, replacement plantings shall be conducted at a ratio of 1:1 during the next available planting period. If after three years, survival is below 50%, ODFW recommends the applicant be responsible for developing and implementing a revised planting, monitoring, and maintenance plan that will bring the project into compliance over the following three year period. Protective measures may be necessary to ensure survival (i.e. cages to reduce animal browsing). All newly planted trees shall be maintained for a minimum of five years (from the time of planting), at which point they will be considered free to grow, so long as the 1:1 replacement target has been met.

Additionally, at site S-01A there is a stretch of powerline that parallels the riparian area (unlike all other crossings that are roughly perpendicular to the waterway crossed, which minimizes the impacted area). While this area is currently devoid of trees (likely due to the dike and land cleared for agriculture), the presence of the lines could limit future establishment and growth of trees. ODFW acknowledges that it is unlikely that trees will become established at this location under current land use practices and thus does not object to the placement of the line. However, if and when trees do become established, ODFW recommends that the trees be allowed to grow to the maximum height that is compatible with maintenance of the transmission line (likely 20-25 ft. based on the height of trees proposed to be topped at other sites within the project). PUD has indicated they are amenable to this action.

Fish Passage – There is one permanent stream crossing (with culvert installation) proposed at site S-19. ODFW rules require fish passage to be addressed when it comes to obstructions, including culverts, placed in streams. The PUD will be required to work with ODFW to assess this location for current or historic fish use to determine if fish passage will be required. If this location is determined to require fish passage, PUD will need to work through the fish passage process for approval from ODFW prior to construction.

Other topics – ODFW has received comments from anglers concerned about the transmission line crossings over the sloughs, Trask River, and Tillamook River tidewater areas and there effect on fish and/or fishing. I am unaware of any evidence to suggest that the proposed lines would influence fish migration, angler success, or have other impacts on fish in the vicinity of these crossings. I would also point out that there are numerous locations in the county and probably around the state where lines cross streams or estuaries, including some higher voltage lines than the one proposed. Some concern has also been expressed regarding the aesthetics of the lines. This is not a biological issue and thus ODFW has no comment.

This review has been requested to address riparian issues associated with the proposed transmission line. As such I have focused on comments related to that topic, as well as other fish related parts of the proposal. There are also potentially wildlife related impacts that could result from this project. ODFW's wildlife staff may provide further comment on the project as necessary to address any concerns they might have. Herman Biederbeck is the ODFW District Wildlife Biologist, and can be contacted at 503-842-2741 x227 or Herman.H.Biederbeck@state.or.us.

Thank you for the opportunity to review and comment on this application.

Sincerely,

Robert W. Bradley
District Fish Biologist
North Coast Watershed District

REPORT

Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project

Prepared for

Tillamook People's Utility District

July 2017

Contents

Appendixes

Tables

Acronyms and Abbreviations

APP	Avian Protection Plan
CH2M	CH2M HILL Engineers, Inc.
ESA	Endangered Species Act of 1973
MP	milepost
NOAA	National Oceanic and Atmospheric Administration
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
OESA	Oregon Endangered Species Act
ORBIC	Oregon Biodiversity Information Center
OWEB	Oregon Watershed Enhancement Board
PUD	People's Utility District
R	Range
S	Section
SCF	Southern Flow Corridor
T	Township
TPUD	Tillamook People's Utility District
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service

SECTION 1

Introduction

The Tillamook People's Utility District (TPUD) contracted with CH2M HILL Engineers, Inc. (CH2M) to identify and evaluate biological resources for a proposed transmission line project in Tillamook County, Oregon (see Figure 1 in Appendix A). The project's study area is an approximately 50- or 100-foot-wide corridor (depending on the location) centered on the preferred transmission line route, which is approximately 8.6 miles long.

CH2M conducted an evaluation of the project study area for the potential presence of suitable habitat for state or federally listed threatened or endangered fish, wildlife, or rare plant species and for the potential presence of Category 1 habitat as defined by the Oregon Department of Fish and Wildlife (ODFW) Habitat Mitigation Policy (Oregon Administrative Rules 635-415-0000 through 635-416-0025). The evaluation paid particular attention to the potential occurrence of salmon, bald eagles, osprey, northern spotted owl, marbled murrelet, western snowy plover, and other raptors, in addition to colonial nesting birds such as great blue heron. Federal and state candidate species were also considered. The evaluation consisted of reviewing existing data and field surveys to identify habitat types occurring within the study area. Field surveys were conducted in conjunction with wetland delineation work over 4 days, from April 24 through 27, 2017.

This report provides a brief overview of the project location and identifies Tillamook County and the City of Tillamook regulatory requirements for protecting water resources. The methodology used to conduct the wildlife and habitat surveys, as well as the survey results and conclusions, is described below.

1.1 Site Location

The proposed transmission line project is located within both Tillamook County and the City of Tillamook on the northern Oregon coast. The project's study area is located in Township (T) 1S, Range (R) 9W, Sections (S) 19 and 30, and T1S, R10W, S22, 23, 24, 27, 28, 29, and 30. Approximately 8.4 miles of the proposed 8.6-mile transmission line route are within the jurisdiction of Tillamook County, and the remaining 0.2 mile is within the jurisdiction of the City of Tillamook.

Field surveys were conducted previously in conjunction with wetland delineation work from April 4 through April 8, 2011. In the previous surveys, project survey corridors were 300 feet wide. Current survey corridors have been reduced to 100 feet in width. A new alignment has been established for milepost (MP) 0.1 to MP 4.9. The project alignment is predominantly the same as in 2011 on the west end of the study area, which crosses through private industrial forest land from MPs 4.9 to 8.6 until it reaches the proposed substation site. Specifically, the east end of the route starts west of the Tillamook Substation and follows the Port of Tillamook Bay's railroad right-of-way. The route continues west, crossing the floodplain of the Trask River, Tillamook Channel, and Tillamook River. The route then heads west through private industrial forest land until it reaches the proposed substation site.

The project within Tillamook County has been routed adjacent to (that is, collocated with) existing linear developments wherever possible. These linear developments include the Port of Tillamook Bay's railroad right-of-way from the substation north to Wilson River Loop Highway, along Wilson

River Loop Highway and Goodspeed Road, and along various existing access roads through private forest land in Tillamook County. Parallel construction or collocation with existing linear corridors (for example, highway and road rights-of-way, utility corridors, or previously developed areas) was one of the criteria used in evaluating routes. Collocation minimizes potential impacts on additional landowners, can reduce the need to clear new corridors, and lessens the potential environmental impacts when compared to clearing for new routes through previously undeveloped areas.

1.2 Landscape Setting and Land Use

Broadly, the study area is in the Coast Range physiographic province (Franklin and Dyrness, 1973) and the coastal lowlands subregion. This province is known for its mild temperatures and wet climate. The average annual precipitation in the Tillamook area is approximately 90 inches. Most precipitation arrives as rainfall from October to mid-May. The average temperature in Tillamook is 53 degrees Fahrenheit (°F) in winter and 68°F in summer (Western Regional Climate Center, 2017).

The study area is part of the Tillamook Bay watershed, within the North Coast basin. The highest, easternmost portion of the Tillamook Bay watershed is steep and well forested, while a smaller percentage is flatter with very low-gradient, meandering streams that, at times, are under tidal influence. Elevations within the study area range from approximately 3 to 1,422 feet above mean sea level (Google Earth Pro, 2017). Historical land uses in the study area include agricultural production, logging, and fishing. Current land uses are agricultural production, logging, and fishing, along with commercial and residential uses.

Five major waterways contribute freshwater to Tillamook Bay. The study area crosses two of these waterways: the Trask River and the Tillamook River. The Trask River watershed is approximately 175 square miles. The majority of the eastern portion of the watershed is vegetated with coniferous forest and characterized by moderate- to steep-gradient streams and narrow valley floors with moderate to steep hillslopes. The remaining part of the watershed is characterized by low-gradient to very-low-gradient, meandering streams that are tidally influenced, and bordered by mostly flat floodplains dominated by dairy farming and urban development. Hoquarten Slough, also located within the study area, is one of the major contributing tributaries to the Trask River basin.

The Tillamook River is the southernmost watershed in the Tillamook Bay watershed. The total river length is 17 miles with a watershed drainage area of approximately 61 square miles.

The Tillamook River originates in the low coastal hills southwest of the city of Tillamook. Most of the Tillamook River watershed is in private ownership, split between private forest, agricultural use, and a mix of rural and urban residential use.

City of Tillamook residents initially established their agricultural farmland near water, where the land was flat and the soil was fertile. In essence, their farmlands were on the floodplains of water bodies such as Hoquarten Slough, the Trask River, and the Tillamook River. These river valleys provided suitable land for agricultural use, considering that the majority of Tillamook County is steep and heavily forested. Parks, open space, residential, and commercial development exist within the city of Tillamook. Outside the urban growth boundary, land uses include recreational use, dairy farms, and industrial forest operations.

1.3 Site Alterations

Historically, much of the area in and around the city of Tillamook was wetland (Tillamook County, 2008). Wetland draining and levee construction have allowed areas north and west of Hoquarten Slough to be developed for commercial and residential use. The following is a summary of past events that influenced natural resources in the vicinity of the study area:

- Construction of levees and dikes and removal of wood jams to prevent flooding in the Tillamook Bay watershed (1850s)
- Deforestation and creation of pasture and farmland in the Tillamook River basin (1863 to present)
- Clearing Hoquarten Slough of snags and riparian vegetation by U.S. Army Corps of Engineers (1889)
- Dredging and disposal of dredge spoils along the banks of Hoquarten Slough and removal of riparian vegetation by U.S. Army Corps of Engineers (1897 to 1919)
- Construction of dikes along portions of Hoquarten Slough (1900 to 1901)
- Construction of U.S. Highway 101 in Tillamook County and the opening of the Hoquarten Slough bridge (1931)
- Beginning of reforestation of the Tillamook Basin following fires (1949)
- Movement of businesses and residences out of the floodplain north of Hoquarten Slough by the City and Federal Emergency Management Agency because of large-scale damage (1996)
- Construction of roads, buildings, parking lots, and infrastructure in wetlands associated with the urbanization and industrialization of the city of Tillamook (1970 to present)
- Construction of Hoquarton Interpretive Trail Park (2005)
- Construction for the Southern Flow Corridor (2016)

SECTION 2

Federal and State Regulatory Requirements

2.1 Federal Endangered Species Act

The federal Endangered Species Act of 1973 (ESA; 16 United States Code [U.S.C.] 1531-1544, 87 Statute 884, as amended) requires federal agencies or their representatives:

> *[T]o insure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species.*

The ESA protects species whose survival is recognized (listed) as endangered or threatened. National Oceanic and Atmospheric Administration (NOAA) Fisheries Division (formerly National Marine Fisheries Service) and the U.S. Fish and Wildlife Service (USFWS) share responsibility for implementing ESA requirements. NOAA Fisheries has jurisdiction to implement ESA requirements for anadromous (salmonid) species that migrate from the ocean to freshwater for spawning and rearing. USFWS has the same jurisdiction with respect to freshwater species, plants, and animals.

Authority under the ESA includes regulating *take* of a listed species. A *take* means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 U.S.C. 1532[19]). This broad prohibition has been interpreted to prohibit even ordinary land-use activities such as farming or forestry or site development if the result of such activities would be significant habitat modification or degradation where it would actually kill or injure wildlife by interfering with essential biological functions such as feeding, breeding, or sheltering.

2.2 Oregon Endangered Species Act

The Oregon Legislature enacted the Oregon Endangered Species Act (OESA) (Oregon Revised Statutes Sections 496.171 et seq.) in 1987, and amended it in 1995. The purpose of the OESA is to conserve at-risk native plants, fish, and wildlife species and their habitats in Oregon.

Oregon's endangered species list includes all native species listed under the federal ESA plus any additional native species determined by the appropriate state agency to be in danger of extinction throughout any significant portion of its range within the state. The OESA's goal is similar to the goal of the federal ESA—that is, conservation of threatened or endangered species through "the use of methods and procedures necessary to bring a species to the point at which [protective] measures are no longer necessary."

Regulation under the OESA is limited to actions on state-owned land, state-leased land, and land over which the state has a recorded easement. However, the OESA does regulate and prohibit *take* of listed species on *all* lands—federal, state, and private. Under the OESA, *take* is defined as "…to kill or obtain possession or control."

The ODFW is responsible for administering the OESA for fish and wildlife. The Oregon Department of Agriculture (ODA) administers the OESA for plants. The conservation authority of the state of Oregon in regard to state-listed plants presently extends only to nonfederal public lands (state, city,

county, public schools, public utilities, and so forth). Any conservation action on these lands requires a permit from ODA.

SECTION 3

Local Regulatory Requirements

3.1 Tillamook County Riparian Vegetation Protection

Tillamook County Land Use Ordinance requires protection of riparian vegetation per Section 4.140 (Requirements for Protection of Water Quality and Streambank Stabilization; http://www.co.tillamook.or.us/gov/ComDev/documents/luo/05272015LUO/Final%20Article%204.pdf). This section provides protection for areas within specified distances of perennial water bodies. Riparian buffer areas are identified as follows:

(a) *Fifty (50) feet from lakes and reservoirs of one acre or more, estuaries and the main stems of the following rivers where the channel is more than 15 in width* [listed rivers that the project crosses include the Tillamook and Trask Rivers]

(b) *Twenty-five (25) feet from all other rivers and streams where the river or stream channel is greater than 15 feet in width*

(c) *Fifteen (15) feet from all perennial rivers and streams where the river or stream channel is 15 feet in width or less*

For estuaries, all measurements are horizontal and perpendicular from the mean high water line or the line of non-aquatic vegetation, whichever is most landward. Setbacks for rivers, streams, and coastal lakes shall be measured horizontal and perpendicular from the ordinary high water line.

As stated above, the proposed transmission line route crosses the Tillamook and Trask rivers, as well as other tributaries that are within the estuary. Thus, the riparian buffer of 50 feet applies to these water bodies. In addition, the transmission line route in Tillamook County is proposed across three other rivers and streams with channel widths greater than 15 feet and three perennial streams with channel widths at 15 feet or less. Thus, riparian buffers ranging from 15 to 25 feet apply to these rivers and streams. Section 5 in this report discusses specific riparian buffer widths in more detail.

3.2 City of Tillamook Riparian Vegetation Protection

The City of Tillamook Zoning Ordinance (City of Tillamook, 2003) establishes significant wetland and riparian corridor setbacks as part of the City's compliance with Statewide Planning Goal 5, outlined in Section 21.1-Water Resources Protection Overlay District of the ordinance. These setbacks are established adjacent to certain wetlands and streams to add an additional layer of protection to the City's water resources. No streams are crossed within the City of Tillamook limits.

SECTION 4

Sensitive Species Evaluations

4.1 Office Review

A review of available literature was conducted to determine the potential for the occurrence of sensitive wildlife or plant species in the study area. The following sources were consulted:

- Oregon Biodiversity Information Center (ORBIC) database
- *Federally Listed and Proposed Endangered and Threatened Species, Candidate Species, and Species of Concern That May Occur in Tillamook County, Oregon* (USFWS, 2017)
- *Oregon Conservation Strategy: Strategy Species List* (ODFW, 2016)
- *Rare Threatened, and Endangered (RTE) Vascular Plant List* (ODA, 2013)

A species was considered to be rare if it met one or more of the following listing criteria:

- Federally listed as threatened or endangered, or a candidate for listing (Endangered Species Act of 1973 [16 U.S.C. 1531-1544, 87 Stat. 884])
- State listed as threatened or endangered, or a candidate for listing (State of Oregon *Endangered, Threatened, and Candidate Species Classification*) (ODA, 2013; ODFW, 2011)

From this review, lists of target species were compiled**.** Target species included all plant, fish, and wildlife taxa listed by the USFWS and ODFW as endangered or threatened*,* or candidate for listing, and potentially occurring in Tillamook County, Oregon. A species was determined to have potential to occur in the study area if its known or expected geographic range includes the study area or the vicinity of the study area, and if its known or expected habitat is represented within or adjacent to the study area.

4.2 Field Investigation

A field investigation was conducted in conjunction with the wetland delineation surveys over 4 days, from April 24 through 27, 2017. The field review of the study area was conducted to describe potential fish and wildlife habitat conditions and plant communities that may be affected by the project. The investigation focused on identifying and characterizing the habitat types present within the study area. This information was compared with identified habitat requirements for the target species to determine if suitable habitat is present that might support any of the target species. Complete surveys for the individual species were not conducted.

4.3 Habitat

Five habitat types were identified within the study area. These were named by using the Chappel et al. (2001) system of vegetation classification. Project area natural vegetation types include the following:

- Westside Lowlands Conifer-Hardwood Forest
- Agriculture, Pasture, and Mixed Environs
- Open Water – Lakes, Rivers, Streams, and Estuaries

- Herbaceous Wetlands
- Westside Riparian-Wetlands

These habitat types are described below. Appendix C contains photos of typical habitat types that occur in the study area.

4.3.1 Westside Lowlands Conifer-Hardwood Forest

The westside lowlands conifer-hardwood habitat (see Appendix C, Photo Plates 1 through 3) occurs in the Coast Range and along the outlying coast. It is the dominant habitat within the study area from MP 4.3 to MP 8.6. These forests are dominated by Douglas-fir (*Pseudotsuga menziesii)* and Western hemlock (*Tsuga heterophylla*) trees. Most stands are dominated by one or more of the following: Douglas-fir, western hemlock, western red cedar (*Thuja plicata*), Sitka spruce (*Picea sitchensis*), red alder (*Alnus rubra*), or big leaf maple (*Acer macrophyllum).*

Dominant or co-dominant understory shrub species include salal (*Gaultheria shallon*), Oregon grape (*Mahonia nervosia*), vine maple (*Acer circinatum*), salmonberry (*Rubus spectabilis*), thimbleberry (*Rubus parviflorus*), red elderberry (*Sambucus racemosa*), and huckleberry (*Vaccinium spp*.). Herbaceous species include swordfern (*Polystichum munitum*), Oregon oxalis (*Oxalis oregana*), deer fern (*Blechnum spicant*), and bracken fern (*Pteridium aquilinum*).

4.3.2 Agriculture, Pasture, and Mixed Environs

Agriculture, pasture, and mixed environs habitat (Appendix C, Photo Plates 4 through 7) occurs with a matrix of other habitat types at low to mid elevations. Within the study area, this habitat is predominantly located between MP 0.0 and MP 4.4. This habitat is often characterized by regular landscape patterns and straight borders because of ownership boundaries. Agriculture and pasture habitat varies substantially in the composition of cover types. Within the project boundary, this habitat was composed of either improved or unimproved pasture grassland used for grazing livestock and/or haying. Typical grass species include several species of fescue (*Festuca spp*.), bluegrass (*Poa spp.*), bentgrass (*Agrostis spp*.), and orchard grass (*Dactylis glomerata*). Within unimproved pasture areas, exotic species such as Himalayan blackberry (*Rubus discolor*) along field edges, Japanese knotweed (*Polygonum cuspidatum*), and thistle (*Cirsium spp.*) were also identified.

4.3.3 Open Water – Lakes, Rivers, Streams, and Estuaries

Twelve perennial and nine intermittent streams were identified within the study area (Appendix C, Photo Plates 8 through 11). All streams in the mountainous area (MP 4.3 to MP 8.6) were considered to be at least intermittent because of the likelihood that they carry continuous flow for at least 3 months of the year. Determination of flow regime was made based on best professional judgment of CH2M biologists using characteristics described in the Oregon Streamflow Duration Assessment Method (Nadeau, 2011). Characteristics considered include channel width, depth and gradient, in-channel structure and sequences, presence and type of erosional and depositional features, channel sinuosity, and potential presence of fish, amphibians, and macroinvertebrates.

Streams were considered perennial if they exhibited additional characteristics as described above. All of the streams in the lowland area (MP 0.0 to MP 4.3) were determined to be perennial. Six tidally influenced streams are present from approximately MP 2.9 to MP 4.3: Hoquarten Slough, Dougherty Slough, Trask River, Tillamook River, Tillamook Channel, and Tomlinson Slough. Hoquarten Slough flows west and traverses the study area from east to west until it combines with

Dougherty Slough, which flows into the Trask River, and then flows west into Tillamook Bay and the Pacific Ocean. The Trask River is one of the five freshwater tributaries of Tillamook Bay. It flows south to north into Tillamook Bay and the Pacific Ocean. The Tillamook River (Lower Tillamook River [171002030302]), also one of the five freshwater tributaries of the bay, crosses the study area and flows north into Tillamook Bay and the Pacific Ocean. The Tillamook Channel flows west from the Trask River to the Tillamook River (north of the study area), which flows west into Tillamook Bay and the Pacific Ocean. Tomlinson Slough drains to the Tillamook River.

Dominant vegetation along these waters within the study area was reed canarygrass *(Phalaris arundinacea*). Hoquarten, Dougherty, and Hall sloughs had some native trees scattered along the banks that consisted predominantly of red alder and Sitka spruce. The dominant shrub was Sitka willow (*Salix sitchensis*).

Higher-elevation streams were typically smaller, with both perennial and intermittent streams characterized by a mixed tree canopy of red alder, Douglas-fir, and Western red cedar, or red alder and western hemlock. Dominant shrubs included salmonberry, red elderberry, and oval-leaf blueberry (*Vaccinium ovalifolium*).

4.3.4 Herbaceous Wetlands

Herbaceous wetland habitats within the study area consist of flats wetlands dominated by herbaceous vegetation (Appendix C, Photo Plates 12 through 15). These systems are not hydrologically connected to any stream or drainage ditch. Water arrives as precipitation, overland surface flow from adjacent slopes, or a seasonal highwater table. These wetlands support hydrophytic herbaceous vegetation and meet the criteria for hydric soils and wetland hydrology. Common plant species within these wetlands include pasture grasses, water parsley (*Oenanthe sarmentosa)*, slough sedge (*Carex obnupta*), and skunk cabbage (*Lysichiton americanus*).

4.3.5 Westside Riparian-Wetlands

Riparian areas are the vegetated areas along a water body. The westside riparian habitat (Appendix C, Photo Plates 16 and 17) typically occupies patches or linear strips and often forms a mosaic with herbaceous wetlands. Within the lowlands of the study area (MP 0-4.3), the riparian habitat is generally limited and in poor condition. Riparian trees are largely absent as streams pass through agricultural land and the composition of the riparian vegetation is primarily blackberries and nonnative grasses. One small section contains remnants of Sitka spruce-dominated stands and red alder. Above the lowland area (MP 4.4 to MP 8.6) riparian habitat, red alder is the most widespread tree species, and western red cedar and western hemlock are the co-dominant species. Shrubs underneath the tree layer include salmonberry, salal, red-osier dogwood (*Cornus sericea*), and Pacific ninebark (*Physocarpus capitatus*). The dominant herbaceous species include coltsfoot (*Petasites frigidus*), skunk cabbage, swordfern, youth-on-age (*Tolmiea menzziesii*), and field horsetail *(Equisetum arvense*).

4.4 Plants

CH2M identified 12 rare plant species as potentially occurring in Tillamook County. Habitat requirements for these species were reviewed to determine if any of these species might occur in the study area. These species, their status, habitat requirements, and potential to occur in the vicinity of the study area are provided in Table 4-1.

Table 4-1. Threatened, Endangered, or Candidate Species That May Occur in the Vicinity of the Proposed Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat Present Onsite?	Habitat Requirements
Abronia umbellata ssp. breviflora	Pink sandverbena	SOC	LE	No	Coastal disturbed sandy areas in coastal dunes and scrub
Anemone oregana var. *felix*	Bog anemone	SOC	-	Yes	Bog environments in the Coast and Cascade ranges, cool moist grassy areas with a high water table
Cardamine pattersonii	Saddle Mt. bittercress	SOC	C	No	Grass balds, moist cliffs, rock crevices, in gravel along streams in forest
Cordylanthus maritimus ssp. palustris	Pt. Reyes bird's-beak	SOC	LE	No	Coastal salt marshes around estuaries
Dodecatheon austrofrigidum K.L. Chambers	Frigid shootingstar	SOC	-	Yes	At high elevations on basalt cliffs near streams and waterfalls, sometimes on rotting wood; at low elevations on basalt rock crevices in major rivers, below high water line
Erythronium elegans	Coast Range fawn-lily	SOC	LT		Wet meadows, bogs
Filipendula occidentalis	Queen-of-the-forest	SOC	C	Yes	Shady, damp sites; on river banks, in rock crevices and seeps just above high water level; damp salmonberry shrublands
Montia howellii	Howell's montia	N/A	C	No	Meadows, vernal pools
Poa unilateralis	San Francisco bluegrass	SOC		No	Coastal habitats such as bluffs and beaches in sandy saline soils
Sidalcea hirtipes	Bristly-stemmed sidalcea	SOC	C	Yes	Remnant prairie fragments and along fencerows and openings along drainages in the Puget Trough in the Western Hemlock Zone (Franklin and Dyrness, 1973)
Sidalcea nelsoniana	Nelson's sidalcea	LT	LT	Yes	Relatively open areas on damp soil; in meadows, wet prairie remnants, fencerows, deciduous forest edges, occasionally Oregon ash wetlands
Silene douglasii var. *oraria*	Cascade Head catchfly	SOC	LT	Yes	Headlands on the coast, steep coastal bluffs and grassy slopes facing the ocean

Notes:
C = Candidate for listing as threatened or endangered

LE = Listed Endangered
LT = Listed Threatened
SOC= Species of Concern

Table 4-1. Threatened, Endangered, or Candidate Species That May Occur in the Vicinity of the Proposed Project Area

Scientific Name	Common Name	Federal Status	State Status	Habitat Present Onsite?	Habitat Requirements

Sources: ODA, 2017a; ODFW 2017; USFW 2011

A search of the ORBIC database indicated no recorded observations of federal or state threatened, endangered, or candidate plant species within 2 miles of the study area.

Based upon review of habitat requirements and known recorded observations in the area, six plant species listed by federal or state agencies as threatened or endangered were determined to potentially occur in the vicinity of the proposed project:

- Bristly-stemmed sidalcea
- Nelson's sidalcea
- Cascade Head catchfly
- Queen-of-the-forest
- Frigid shootingstar
- Bog anemone

4.4.1 Species Observed

The field survey identified numerous species of trees, shrubs, graminoids, and forbs. The majority of nonnative species were identified in the populated areas east of MP 4.4. Native plant species were dominant within the forested portion of the study area west of MP 4.4.

No special-status plant species were found within the study area. Tables 4-2 and 4-3 present lists of plant species identified in the Tillamook lowland and industrial forest habitats during the course of the field surveys. The Tillamook lowlands are defined as all areas of the project east of Bayocean Road NW; the industrial forest includes all areas of the project west of Bayocean Road NW. Appendix C contains photos of typical habitat types that occur in the study area.

Table 4-2. Lowland Habitat Plant Species Identified during Surveys

Family	Scientific Name	Common Name	Native	Nonnative	Tillamook County Weed List[a]	ODA Weed List Designation[b]
Apiaceae	*Heracleum maximum*	common cowparsnip	X			
Apiaceae	*Oenanthe sarmentosa*	water parsley	X			
Araceae	*Lysichiton americanus*	American skunk cabbage	X			
Asteraceae	*Cirsium arvense*	Canada thistle		X	X	B
Asateraceae	*Hypochaeris radicata*	hairy cat's ear		X		
Asteraceae	*Taraxicum officinale*	dandelion		X		
Betulaceae	*Alnus rubra*	red alder	X			
Callitrichaceae	*Callitriche stagnalis*	pond water-starwort		X		
Caprifoliaceae	*Lonicera involucrata*	twinberry honeysuckle	X			
Caprifoliaceae	*Sambucus racemosa*	red elderberry	X			
Cucurbitaceae	*Marah oreganus*	coastal manroot	X			
Cyperaceae	*Carex obnupta*	slough sedge	X			
Dryopteridaceae	*Athyrium filix-femina*	common lady fern	X			
Equisetaceae	*Equisetum arvense*	field horsetail	X			
Equisetaceae	*Equisetum temlateia*	giant horsetail	X			
Fabaceae	*Trifolium repens*	white clover		X		
Juncaceae	*Juncus balticus*	Baltic rush	X			
Juncaceae	*Juncus effusus*	common rush	X			
Lamiaceae	*Lamium purpureum*	purple deadnettle	X			
Onagraceae	*Epilobium ciliatum*	fringed willowherb	X			
Pinaceae	*Picea sitchensis*	Sitka spruce	X			
Pinaceae	*Tsuga heterophylla*	western hemlock	X			

Table 4-2. Lowland Habitat Plant Species Identified during Surveys

Family	Scientific Name	Common Name	Native	Nonnative	Tillamook County Weed List[a]	ODA Weed List Designation[b]
Plantaginaceae	*Plantago lanceolata*	narrowleaf plantain		X		
Poaceae	*Agrostis sp.*	bentgrass		X		
Poaceae	*Alopecurus praetensis*	meadow foxtail		X		
Poaceae	*Holcus lanatus*	velvetgrass		X		
Poaceae	*Phalaris arundinaceae*	reed canarygrass		X		
Poaceae	*Schedonorus arundinaceous*	tall fescue		X		
Poaceae	*Poa pratensis*	Kentucky bluegrass		X		
Poaceae	*small alopecurus*			X		
Polygonaceae	*Polygonum cuspidatum*	Japanese knotweed		X	X	B
Polygonaceae	*Rumex crispus*	curly dock		X		
Ranunculaceae	*Ranunculus occidentalis*	western buttercup	X			
Ranunculaceae	*Ranunculus repens*	creeping buttercup		X		
Rosaceae	*Rubus armeniacus*	Himalayan blackberry		X		B
Salicaceae	*Salix lasiandra*	Pacific willow	X			
Salicaceae	*Salix sitchensis*	Sitka willow	X			
Saxifragaceae	*Tellima grandiflora*	fragrant fringecup	X			
Scrophulariaceae	*Digitalis purpurea*	purple foxglove	X			
Poaceae	*Holcus lanatus*	velvetgrass		X		

Table 4-2. Lowland Habitat Plant Species Identified during Surveys

Family	Scientific Name	Common Name	Native	Nonnative	Tillamook County Weed List[a]	ODA Weed List Designation[b]

[a] Source: Tillamook County, 2017.
[b] Source: ODA, 2017b.
A Listed Weed: A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent. Recommended action: Infestations are subject to eradication or intensive control when and where found.
B Listed Weed: A weed of economic importance which is regionally abundant, but which may have limited distribution in some counties. Recommended action: Limited to intensive control at the state, county or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.
T Designated Weed: A designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T designated noxious weeds are determined by the Oregon State Weed Board which directs ODA to develop and implement a statewide management plan. T designated noxious weeds are species selected from either the A or B list.

Table 4-3. Industrial Forest Habitat Plant Species Identified during Surveys

Family	Scientific Name	Common Name	Native	Nonnative	Tillamook County Weed List[a]	ODA Weed List Designation[b]
Apiaceae	*Oenanthe sarmentosa*	water parsley	X			
Araceae	*Lysichiton americanus*	American skunk cabbage	X			
Asteraceae	*Anaphalis margaritacea*	western pearly everlasting	X			
Asteraceae	*Hypochaeris radicata*	hairy cat's ear		X		
Asteraceae	*Petasites frigidus var. palmatus*	arctic sweet coltsfoot	X			
Asteraceae	*Senecio jacobaea*	tansy ragwort		X	X	
Betulaceae	*Alnus rubra*	red alder	X			
Blechnaceae	*Blechnum spicant*	deer fern	X			
Brassicaceae	*Cardamine angulata*	seaside bittercress	X			
Brassicaceae	*Cardamine oligosperma*	little western bittercress	X			

Table 4-3. Industrial Forest Habitat Plant Species Identified during Surveys

Family	Scientific Name	Common Name	Native	Nonnative	Tillamook County Weed List[a]	ODA Weed List Designation[b]
Brassicaceae	*Nasturtium officinale*	watercress	X			
Callitrichaceae	*Callitriche stagnalis*	pond water-starwort		X		
Caprifoliaceae	*Lonicera involucrata*	twinberry honeysuckle	X			
Caprifoliaceae	*Sambucus racemosa*	red elderberry	X			
Caryophyllaceae	*Cerastium arvense*	field chickweed		X		
Cupressaceae	*Thuja plicata*	western redcedar	X			
Cyperaceae	*Carex deweyana*	Dewey sedge	X			
Dennstaedtiaceae	*Pteridium aquifolium*	western brakenfern	X			
Dryopteridaceae	*Athyrium filix-femina*	common lady fern	X			
Dryopteridaceae	*Polystichum munitum*	western sword fern	X			
Equisetaceae	*Equisetum arvense*	field horsetail	X			
Equisetaceae	*Equisetum temlateia*	giant horsetail	X			
Ericaceae	*Gaultheria shallon*	salal	X			
Ericaceae	*Vaccinium membranaceum*	thinleaf huckleberry	X			
Ericaceae	*Vaccinium ovalifolium*	oval-leaf blueberry	X			
Ericaceae	*Vaccinium ovatum*	evergreen huckleberry	X			
Fabaceae	*Cytisus scoparius*	Scotch broom		X	X	B
Fumariaceae	*Dicentra formosa*	Pacific bleeding heart	X			

Table 4-3. Industrial Forest Habitat Plant Species Identified during Surveys

Family	Scientific Name	Common Name	Native	Nonnative	Tillamook County Weed List[a]	ODA Weed List Designation[b]
Grossulariaceae	*Ribes bracteosa*	stink currant	X			
Grossulariaceae	*Ribes laxiflorum*	trailing black currant	X			
Hydrophyllaceae	*Hydrophyllum tenuipes*	Pacific waterleaf	X			
Juncaceae	*Juncus effusus*	common rush	X			
Juncaceae	*Scirpus microcarpus*	panicled bulrush	X			
Lamiaceae	*Lamium purpureum*	purple deadnettle		X		
Lamiaceae	*Stachys chamissonis var. cooleyae*	coastal hedgenettle	X			
Liliaceae	*Maianthemum dilitatum*	false lily-of-the-valley	X			
Liliaceae	*Trillium ovatum*	Pacific trillium	X			
Liliaceae	*Prosartes hookeri*	Hooker's fairybells	X			
Oxalidaceae	*Oxalis oregana*	redwood-sorrel	X			
Pinaceae	*Picea sitchensis*	Sitka spruce	X			
Pinaceae	*Pseudotsuga menziesii*	Douglas-fir	X			
Pinaceae	*Tsuga heterophylla*	western hemlock	X			
Poaceae	*small alopecurus*			X		
Portulacaceae	*Claytonia sibirica*	Siberian spring beauty	X			
Ranunculaceae	*Ranunculus repens*	creeping buttercup				
Rosaceae	*Rubus armeniacus*	Himalayan blackberry		X		B
Rosaceae	*Rubus lasciniatus*	cutleaf blackberry		X		

Table 4-3. Industrial Forest Habitat Plant Species Identified during Surveys

Family	Scientific Name	Common Name	Native	Nonnative	Tillamook County Weed List[a]	ODA Weed List Designation[b]
Rosaceae	*Rubus parviflora*	thimbleberry	X			
Rosaceae	*Rubus spectabilis*	salmonberry	X			
Rubiaceae	*Galium aparine*	stickwilly	X			
Rubiaceae	*Galium triflorum*	three-flowered bedstraw	X			
Saxifragaceae	*Saxifraga mertensiana*	wood saxifrage	X			
Saxifragaceae	*Tellima grandiflora*	fragrant fringecup	X			
Saxifragaceae	*Tiarella trifoliata*	three-leaf foamflower	X			
Scrophulariaceae	*Digitalis purpurea*	purple foxglove	X			
Scrophulariaceae	*Veronica americana*	American speedwell	X			
Violaceae	*Viola glabella*	smooth yellow violet	X			

[a] Source: Tillamook County, 2017.
[b] Source: ODA, 2017b.
A Listed Weed: A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent. Recommended action: Infestations are subject to eradication or intensive control when and where found.
B Listed Weed: A weed of economic importance which is regionally abundant, but which may have limited distribution in some counties. Recommended action: Limited to intensive control at the state, county or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.
T Designated Weed: A designated group of weed species that are selected and will be the focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T designated noxious weeds are determined by the Oregon State Weed Board which directs ODA to develop and implement a statewide management plan. T designated noxious weeds are species selected from either the A or B list.

4.5 Fish and Wildlife

4.5.1 Potentially Occurring Species

Five federally listed threatened wildlife species (western snowy plover, marbled murrelet, northern spotted owl, Oregon silverspot butterfly, and coho salmon) and one federally listed endangered

wildlife species (short-tailed albatross) could potentially occur within the study area. Five species are listed as threatened or endangered under OESA (western snowy plover, marbled murrelet, brown pelican, short-tailed albatross, and Oregon silverspot butterfly). A search of the ORBIC database (ORBIC, 2017) indicates recorded observations of three state or federally listed species within a 2-mile radius of the project (brown pelican, Oregon silverspot butterfly, and coho salmon). Based upon review of habitat requirements and known recorded observations in the area, 3 species were determined to potentially occur in the vicinity of the study area (Table 4-4).

Table 4-4. Threatened or Endangered and Species of Concern That May Occur in the Vicinity of the Proposed Project

Scientific Name	Common Name	Federal Status	State Status	ORBIC Record	Habitat Preference	Habitat Present Onsite?
Birds						
[1]*Brachyramphus marmoratus*	marbled murrelet	LT	LT		Nest in large trees in older forests or forest with old-growth characteristics within 50 miles of the coast	No
Charadrius alexandrinus nivosus	western snowy plover	LT	LT		Nest on sand spits near river outlets and on sandy level beaches	No
Pelecanus occidentalis	California brown pelican		LE	X	Live year-round in estuaries	Yes
Phoebastria albatrus	short-tailed albatross	LE	LE		Open ocean waters and islands	No
[1]*Strix occidentalis caurina*	northern spotted owl	LT			Late-successional mixed coniferous forests, usually dominated by Douglas-fir	No
Invertebrates (Insects)						
[1]*Speyeria zerene hippolyta*	Oregon silverspot butterfly	LT	LT	X	Coastal meadows and dunes; requires a meadow species of violet (*Viola adunca*) to complete its development	Yes
Fish						
Oncorhynchus kisutch	coho salmon (Oregon Coast ESU)	LT	SV	X	Originating from coastal rivers south of the Columbia River and north of Cape Blanco	Yes

Notes:
[1] = critical habitat designated for this species
ESU = Evolutionarily Significant Unit
LE = Endangered
LT = Threatened
SV = Sensitive Vulnerable

Sources: ODFW, 2017; ORBIC, 2017; USFWS, 2017

In addition to the listed species, many avian species, protected under the Migratory Bird Treaty Act, could also potentially occur within the study area. The Migratory Bird Treaty Act requires that clearing and other construction operations avoid the taking of adult birds, their young, and eggs in occupied nests. It is unlikely that any of the federally listed threatened or endangered bird species listed above would regularly inhabit the study area due to the lack of suitable habitat. Further, bald eagles, protected under the Bald and Golden Eagle Protection Act, could be affected by construction noise since known nests are within 2 miles from the study area (ORBIC, 2017). Bald eagles or marbled murrelets could fly over the study area, but these species are unlikely to be significantly impacted by construction.

4.5.2 Species Observed

Tables 4-5 presents a list of the bird species observed during the 2017 field surveys.

Table 4-5. Bird Species Observed

Common Name	Scientific Name	Tillamook Lowlands	Industrial Forest
American crow	*Corvus brachyrhynchos*	X	X
American goldfinch	*Carduelis tristis*	X	X
American robin	*Turdus migratorius*	X	
barn swallow	*Hirundo rustica*	X	
black-capped chickadee	*Poecile atricapillus*	X	X
Brewer's blackbird	*Euphagus cyanocephalus*	X	
Canada goose	*Branta canadensis*	X	
common merganser	*Mergus merganser*	X	
common raven	*Corvus corax*	X	
dark-eyed junco	*Junco hyemalis*		X
golden-crowned sparrow	*Zonotrichia atricapilla*	X	
great blue heron	*Ardea*	X	
hummingbird	(multiple)		X
killdeer	*Charadrius vociferus*	X	
long-billed Dowitcher	*Limnodromus scolopaceus*	X	
mallard	*Anas platyrhynchos*	X	
mourning dove	*Zenaida macroura*	X	
red-tail hawk	*Buteo jamaicensis*	X	
spotted towhee	*Piplo maculatus*		X
Stellar's jay	*Cyanocitta stelleri*		X
turkey vulture	*Cathartes aura*		X

Table 4-5. Bird Species Observed

Common Name	Scientific Name	Tillamook Lowlands	Industrial Forest
winter wren	*Troglodytes hiemalis*		X

No wildlife species were observed during the 2017 field surveys. Table 4-6 presents the list of wildlife observed during the 2011 field survey. Evidence of wildlife (for example, scat and burrows) also observed in the study area indicates the presence of rodents and coyote (Canis latrans) within the study area. No state or federally listed threatened or endangered wildlife species were observed within the study area. Potential habitat for three of the listed species (California brown pelican, coho salmon (Oregon Coast ESU) and Oregon Silberspot butterfly) is found within the study area. An Avian Protection plan addresses avoidance for impacting all avian species (see Appendix D). All waters will be spanned by the project so that impacts to fish species will be avoided. Although there are coastal meadows within the project area, all are farmed or grazed and consequently the natural occurring species (such as the required viola for the silverspot) are not typically found. A floral survey for *Viola aducna* prior to construction in meadows would ensure avoidance of impacts to this species.

Table 4-6. Wildlife Species Observed, April 2011 Field Investigation

Scientific Name	Common Name
Mammals	
Cervus canadensis	Roosevelt elk
Odocileus hemeonus	black-tailed deer
Procyon lotor	raccoon
Castor canadensis	Beaver
Amphibians	
Plethadon vehiculum	western red-backed salamander

4.5.3 Oregon Department of Fish and Wildlife Category 1 Habitat

The ODFW defines Category 1 habitat as irreplaceable essential and limited habitat. "Irreplaceable" means that successful in-kind habitat mitigation to replace lost habitat quantity and/or quality is not feasible within an acceptable period of time or location, or involves an unacceptable level of risk or uncertainty. "Acceptable" means in a reasonable timeframe to benefit the affected fish and wildlife species. Examples of Category 1 habitat include old growth forest, bogs, and mature oak woodlands.

No Category 1 habitat was identified within the study area.

SECTION 5

Riparian Buffers

As part of compliance with Tillamook County Land Use Ordinance Section 4.140, existing riparian buffers were identified and evaluated as part of the field work conducted April 24 through 27, 2017. Then, an assessment of potential impacts to vegetation was conducted. This information is presented below.

5.1 Riparian Buffer Evaluation

The riparian buffer evaluation included identifying riparian buffers within the project study area and evaluating riparian buffer conditions. Buffer conditions were assessed using the following criteria as described in *Design and Construction Standards for Sanitary Sewer and Surface Water Management* (Clean Water Services, 2007):

1) **Good Buffer Condition:** Combination of native trees, shrubs, and groundcover covering greater than 80 percent of the vegetative community with greater than 50 percent tree canopy (areal measure).
2) **Marginal Buffer Condition:** Combination of native trees, shrubs, and groundcover covering 50 percent to 80 percent of the community with 26 percent to 50 percent tree canopy (areal measure).
3) **Degraded Buffer Condition**: Combination of native trees, shrubs, and groundcover covering less than 50 percent of the community with less than 25 percent tree canopy (areal measure).

Table 5-1 identifies the water bodies that the study area crosses and the width of the associated riparian buffer. Again, only perennial water bodies include regulated buffers. Figures 2A-2U in Appendix A show the locations of the buffers by stream reach ID. All water body crossings lie outside of the city of Tillamook and fall under the jurisdiction of Tillamook County.

Table 5-1. Water Bodies Crossed within the Project Area and Associated Buffer

Stream Reach ID	Stream Name	Flow Regime	Width at Widest Point (feet)	Regulated Riparian Buffer Width (feet)[a]	Buffer Condition within Study Area[b]
S-01[c]	Hoquarten Slough	Perennial	200	50	Marginal
S-01A[c]	Hoquarten Slough	Perennial	110	50	TBD
S-01B	Hoquarten Slough	Perennial	100	50	TBD
S-02[c]	Dougherty Slough	Perennial	140	50	Degraded
S-03[c]	Unnamed drainage	Perennial	5	15	Degraded
S-04[c]	Unnamed drainage	Perennial	75	25	Degraded
S-05A[c]	Hall Slough	Intermittent	50	0	No Buffer
S-05B[c]	Hall Slough	Perennial	25	25	Degraded

Table 5-1. Water Bodies Crossed within the Project Area and Associated Buffer

Stream Reach ID	Stream Name	Flow Regime	Width at Widest Point (feet)	Regulated Riparian Buffer Width (feet)[a]	Buffer Condition within Study Area[b]
S-05C[c]	Hall Slough	Perennial	25	25	Marginal
S-05D[c]	Hall Slough	Perennial	50	50	TBD
S-06[c]	Trask River	Perennial	200	50	Degraded/TBD[d]
S-07	Unnamed drainage	Perennial	175	50	TBD
S-08A[c]	Tillamook River	Perennial	200	50	TBD
S-08B[c]	Tillamook River	Perennial	250	50	TBD
S-09A	Tomlinson Slough	Perennial	40	50	TBD
S-09B	Tomlinson Slough	Perennial	40	50	TBD
S-10	Unnamed drainage	Intermittent	3	0	No Access
S-11	Unnamed drainage	Intermittent	4	0	No Buffer
S-12	Unnamed drainage	Perennial	4	15	Good
S-13	Unnamed drainage	Intermittent	2	0	No Buffer
S-14	Tomlinson Creek	Perennial	15	15	Good
S-15	Unnamed drainage	Intermittent	4	0	No Buffer
S-16	Unnamed drainage	Intermittent	3	0	No Buffer
S-17	Unnamed drainage	Intermittent	3	0	No Buffer
S-18	Unnamed drainage	Intermittent	4	0	No Buffer
S-19	Unnamed drainage	Intermittent	3	0	No Buffer
S-20A	Tributary of North Branch Fall Creek	Intermittent	3	0	No Buffer
S-20B	Tributary of North Branch Fall Creek	Intermittent	6	0	No Buffer
S-20C	Tributary of North Branch Fall Creek	Perennial	20	25	Good

[a] City buffer is measured from the top of bank and the County buffer is measured from the ordinary high water line.
[b] From Clean Water Services, 2007.
[c] Highest measured tide elevation, 11.94 feet NAVD88.
[d] Surveyed west bank only of Trask River, did not assess east bank.
TBD= To Be Determined, no right-of-entry for survey. Width at widest point and regulated riparian buffer width estimated from aerial photos for TBD streams.

Twelve perennial water bodies along the proposed transmission line route include regulated riparian buffers. Riparian buffer conditions were degraded to moderate along the valley floor between MP 0.1 and MP 4.3. Buffer areas had limited species and structural diversity with little to no canopy

cover (less than 50 percent areal cover). Additional cover of nonnative species such as reed canary grass and Himalayan blackberry was more than 50 percent.

From MP 4.3 to MP 8.6 in the forested section of the study area, buffer conditions were good with greater than 80 percent cover of native trees, shrubs, and ground cover, and an aerial cover exceeding 50 percent.

5.2 Riparian Buffer Impacts

TPUD has routed the transmission line to avoid or minimize water body crossings, and where crossings occur, it has designed the transmission line to avoid or minimize impacts to riparian buffers. The clearing of riparian vegetation within the buffers will only occur where necessary for overall transmission line safety and fire prevention.

Where the project crosses riparian buffers, TPUD micro-sited the specific buffer crossings when possible to avoid the need to cut trees within the buffer. Potential project impacts to the regulated riparian buffers as well as proposed mitigation are described below.

5.2.1 Permanent Impacts

TPUD made an effort to avoid and minimize the placement of pole structures and permanent access roads in the regulated riparian buffers. Figures 2A-2U in Appendix A show that 7 pole structures and no permanent access roads are proposed in the regulated buffers. Table 5-2 lists the riparian buffers by stream ID where permanent project features (i.e., pole structures and permanent access roads) are proposed and permanent ground impacts will occur. The table also lists the square footage of permanent impact within each of the riparian buffer areas.

Table 5-2. Permanent Project Features Proposed in Riparian Buffers

Stream Reach ID	Stream Name	Regulated Riparian Buffer Width (feet)[a]	Buffer Condition within Study Area[b]	Permanent Project Feature within Buffer	Approximate Area of Permanent Impact within Buffer (square feet)
S-01[c]	Hoquarten Slough	50	Marginal	Pole	9.6
S-01A[c]	Hoquarten Slough	50	TBD	Pole	9.6
S-02[c]	Dougherty Slough	50	Degraded	Pole	9.6
S-05A[c]	Hall Slough	25	Degraded	Pole	9.6
S-05B[c]	Hall Slough	25	Degraded	Pole	9.6
S-05C[c]	Hall Slough	25	Marginal	Pole	9.6
S-06[c]	Trask River	50	Degraded	Pole	9.6

[a] City buffer is measured from the top of bank and the County buffer is measured from the ordinary high water line.
[b] From Clean Water Services, 2007.
[c] Highest measured tide elevation, 11.94 feet NAVD88.
TBD= To Be Determined, no right-of-entry for survey

5.2.2 Temporary Impacts

Similar to the siting of permanent project features, TPUD avoided siting temporary or construction-related project features in the riparian buffers whenever possible. Temporary or construction-related features include temporary access roads and pulling and tensioning areas. Table 5-3 lists the riparian buffers by stream ID where temporary project features are proposed and temporary impacts will occur. The table also lists the square footage of temporary impact within each of the riparian buffer areas.

Table 5-3. Temporary Project Features Proposed in Riparian Buffers

Stream Reach ID	Stream Name	Regulated Riparian Buffer Width (feet)[a]	Buffer Condition within Study Area[b]	Temporary Project Feature within Buffer	Approximate Area of Temporary Impact within Buffer (square feet)
S-01[c]	Hoquarten Slough	50	Marginal	Road	3,857
S-01A[c]	Hoquarten Slough	50	TBD	Road/Pulling Area	8,874
S-02[c]	Dougherty Slough	50	Degraded	Road	738
S-03[c]	Unnamed drainage	15	Marginal	Road	1,587
S-04[c]	Unnamed drainage	25	Degraded	Road	1,055
S-05A[c]	Hall Slough	25	Degraded	Road	1,510
S-06[c]	Trask River	50	Degraded	Road	772

[a] City buffer is measured from the top of bank and the County buffer is measured from the ordinary high water line.
[b] From Clean Water Services, 2007.
[c] Highest measured tide elevation, 11.94 feet NAVD88.
TBD= To Be Determined, no right-of-entry for survey

5.2.3 Tree Cutting

In areas were the powerline crosses riparian buffer, trees may need to be removed to meet safety clearance codes. TPUD has made a preliminary determination of trees that will need to be removed within the transmission line corridor, and trees that will need to be limbed or removed. Figures 2A-2U in Appendix A shows the existing trees within the riparian buffers and TPUD's preliminary determination of tree removal and trimming.

During field surveys of riparian buffers, an estimate of trees was made by counting and mapping any tree with a diameter at breast height larger than 6 inches. Some buffers were not entirely accessible due to steep slopes and dense brush. In these area (S14 and S20c) an ocular estimate was made to estimate the quantity of trees. For the purpose of developing tree mitigation within riparian buffers, a definitive tree count will be conducted prior to construction of the project.

Table 5-4 lists the approximate number of existing tree within the riparian buffer that may be impacted by the project and the mitigation to be provided. These buffers and the proposed trees to be removed are shown in Figure 2 (Appendix A).

Table 5-4. Potential Number of Trees that may be Impacted and Tree Replacement Proposed in Riparian Buffers

Stream Reach ID	Stream Name	Regulated Riparian Buffer Width (feet)[a]	Buffer Condition within Study Area[b]	Approximate Number of Existing Trees to be Impacted within Buffer	Mitigation to be Provided for Tree Impacts Number of Trees to replant
S-01[c]	Hoquarten Slough	50	Marginal	9	18
S-01A[c]	Hoquarten Slough	50	TBD	TBD	TBD
S-01B	Hoquarten Slough	50	TBD	TBD	TBD
S-02[c]	Dougherty Slough	50	Degraded	0	0
S-03[c]	Unnamed drainage	15	Marginal	3	6
S-04[c]	Unnamed drainage	25	Marginal	0	0
S-05A[c]	Hall Slough	25	Degraded	0	0
S-05B[c]	Hall Slough	25	Marginal	0	0
S-05C[c]	Hall Slough	25	Marginal	0	0
S-05D[c]	Hall Slough	50	Marginal	0	0
S-06[c]	Trask River	50	Degraded	0	0
S-07	Unnamed drainage	50	TBD	TBD	TBD
S-08A[c]	Tillamook River	50	TBD	TBD	TBD
S-08B[c]	Tillamook River	50	TBD	TBD	TBD
S-09A	Tomlinson Slough	50	TBD	TBD	TBD
S-09B	Tomlinson Slough	50	TBD	TBD	TBD
S-10	Unnamed drainage	0	No Buffer	No Buffer	0
S-11	Unnamed drainage	0	No Buffer	No Buffer	0
S-12	Unnamed drainage	15	Good	TBD	TBD
S-13	Unnamed drainage	0	No Buffer	No Buffer	TBD
S-14	Tomlinson Creek	15	Good	36	72
S-15	Unnamed drainage	0	No Buffer	No Buffer	0
S-16	Unnamed drainage	0	No Buffer	No Buffer	0

Table 5-4. Potential Number of Trees that may be Impacted and Tree Replacement Proposed in Riparian Buffers

Stream Reach ID	Stream Name	Regulated Riparian Buffer Width (feet)[a]	Buffer Condition within Study Area[b]	Approximate Number of Existing Trees to be Impacted within Buffer	Mitigation to be Provided for Tree Impacts Number of Trees to replant
S-17	Unnamed drainage	0	No Buffer	No Buffer	0
S-18	Unnamed drainage	0	No Buffer	No Buffer	0
S-19	Unnamed drainage	0	No Buffer	No Buffer	0
S-20A	Tributary of North Branch Fall Creek	0	No Buffer	No Buffer	0
S-20B	Tributary of North Branch Fall Creek	0	No Buffer	No Buffer	0
S-20C	Tributary of North Branch Fall Creek	25	Good	TBD	TBD

[a] City buffer is measured from the top of bank and the County buffer is measured from the ordinary high water line.
[b] From Clean Water Services, 2007.
[c] Highest measured tide elevation, 11.94 feet NAVD88.
TBD= To Be Determined, no right-of-entry for survey

5.3 Riparian Buffer Mitigation

When impacts to regulated riparian areas within Tillamook County are proposed, ODFW provides the County guidance and requirements for riparian mitigation. ODFW would like to see 2:1 ratio of replacement for tree removal. TPUD is working with Robert Bradley at ODFW and has come to an agreement that TPUD will plant two coniferous trees for every tree removed from the riparian buffers. Tree replacement will consist of native species and planting located as close to the water body and impacted area as possible. In forested areas, ODFW recommends topping trees versus complete removal. This will keep some habitat function in place such as soil stability, shading, and potential snags. TPUD is currently working with ODFW to finalize a riparian mitigation plan.

SECTION 6

Southern Flow Corridor

A portion of the study area (approximately MP 3.3 to 3.5) crosses over the Southern Flow Corridor (SFC) property, a restoration and conservation project for flood mitigation and restoration of tidal marsh habitat. The SFC property is owned by Tillamook County, but also includes a conservation easement held by the Oregon Watershed Enhancement Board (OWEB). The purpose of the conservation easement is to protect the conservation values of the SFC property over time, including the restoration of tidal wetlands. The SFC property is also the subject of a federal notice signed by Tillamook County and OWEB. The federal notice requires use of the SFC property for tidal wetland restoration.

6.1 Background

The crossing of the SFC property was proposed after many years of study on potential transmission line corridors and a public involvement process involving stakeholders from the surrounding community. A citizen advisory group was formed with individuals representing various interests in Tillamook County such as land owners, dairy farmers, the business community, and public agencies. The citizen advisory group participated in an 8-month process that culminated in a recommendation for the proposed route or for something farther north and away from the core area of downtown Tillamook. TPUD continued to explore different transmission line routes with segments across the SFC and met with OWEB staff for input. OWEB indicated that it could not approve any route that requires surface infrastructure, such as support poles, within the SFC property. However, in a letter from OWEB to the TPUD dated August 18, 2016, OWEB indicated that it can consider the proposed crossing of the SFC:

> *because the route entails a relatively short span across the SFC property and would not require any infrastructure or appurtenances on the property. OWEB's consideration of this route would be in consultation with the U.S. Fish and Wildlife Service, the agency that required the federal notice... Any OWEB approval of this route would require the PUD to take all reasonable steps to minimize impacts to the conservation values of the SFC property, including but not necessarily limited to making the line visible to birds in the vicinity of the SFC property and monitoring and managing the line over time to minimize bird collisions.*

6.2 Proposed Crossing

The proposed crossing of the SFC property is approximately 300 feet long from approximately MP 3.3 to MP 3.5. The crossing entails only the transmission line conductor (i.e., wire) approximately 50 to 60 feet above the ground surface. No construction activity will occur on the SFC property. The power line spacing will exceed avian guidelines, reducing any likelihood of electrical contact with any avian species and approved aerial markers (bird diverters) will be used to increase the visibility of the lines.

6.3 Avian Impacts

Reconnaissance-level field studies were conducted on June 30, 2014, to assess existing conditions and habitats (Biological Resource Technical Memorandum, Appendix G of the Final EIS, CCPRS, 2015). The studies concluded that the area provided habitat for a number of terrestrial and aquatic animal species. Migratory and resident bird species use a variety of the habitats. These species include Western wood peewee (*Contopus sordidulus*), tree swallow (*Tachycineta bicolor*), red-tailed hawk (*Buteo jamaicensis*), great blue heron (*Ardea herodias*), American robin (*Turdus migratorius*), Swainson's thrush (*Catharus ustulatus*), cedar waxwing (*Bombycilla cedrorum*), turkey vulture (*Cathartes aura*), and purple martin (*Progne subis*). Although not exhaustive, the list indicates a rich diversity of birds. The study area and Tillamook Bay in general are important stop-over and wintering areas for migratory shorebirds, waterfowl, and wide-ranging sea birds as well as summer habitat for neotropical passerines and other migratory species (Audubon Society of Portland, 2014; Oregon Tourism Commission, 2014). Open water habitats, wetlands, pastures, and estuarine areas within the study area provide suitable foraging opportunities for bald eagle and the 2014 study identified one active nest near the SFC.

The recent Southern Flow Corridor baseline study (Brown et al., 2016) indicates that habitat changes will occur, including a shift to more saline-tolerant plant species after restoration tidal flows inundate the SFC site. Additionally, the baseline study states: "...because the SFC project is nested between the confluence of three rivers… resulting salinity, temperature and flow patterns make this area, relative to the full watershed, optimal habitat for juvenile salmonids as well as other estuarine dependent species." As the habitat restoration continues within the SFC, it is likely that more avian and other species will utilize the area.

TPUD's Avian Protection Plan (APP; Appendix D to this report), which was developed in accordance with well recognized publications for avian protection guidelines such as the Edison Electric Institute and the USFWS, suggests that when addressing risks posed to the migratory birds due to the proposed project, avian mortality can be best reduced by identifying the areas that pose the greatest risk to migratory birds. The project crosses two areas that will be designated as avian assessment zones. These zones will be used to address site-specific mortality issues associated with new construction. The two zones are:

- Tillamook River and major tributaries
- Trask River and major tributaries

In accordance with TPUD practices and the Avian Protection Plan, when new power lines are constructed in areas of known avian interaction, the two main risks to consider are electrocutions and collisions with a line. TPUD's Avian Protection Plan recognizes that bird interactions with power lines cause bird injuries and mortalities that may result in outages, violate bird protection laws, and cause grass and forest fires. Therefore, TPUD is committed to minimizing bird interaction with power lines to the greatest extent practicable.

Specifically, the project will exceed the 60-inch minimum spacing between energized conductors and from grounded surfaces (the poles), and will incorporate the use of aerial markers or balls, commonly known as bird diverters. The increased spacing will prevent birds from making contact with energized parts reducing any likelihood of electrocution. The addition of passive visual aids such as bird flappers, diverters, or aerial balls will make the conductors more visible and will reduce the likelihood of a bird colliding with the conductor. These techniques will be used from just west of

US Highway 101 to Oceanbay Road, which encompasses the sensitive avian habitat areas such as the Southern Flow Corridor.

6.4 TPUD Avian Protection Plan Standards

TPUD has updated its Avian Protection Plan and it is under review by the USFWS and ODFW. There are two main issues with power lines and birds - electrocution and collisions. TPUD has addressed both of these issues in its Avian Protection Plan by increasing spacing between energized components or insulating energized components, and by providing higher visibility devices on the lines such as bird diverters. All new construction must meet National Electrical Safety Code clearance and spacing requirements. The spacing requirements as required in the National Electrical Safety Code exceed the minimum spacing guidelines for avian protection. Avian-friendly construction, which provides a separation of 60 inches between energized conductors, and from grounded hardware, has been shown to reduce the number of electrocutions on overhead lines as noted on page 1 in the *Avian Protection Plan Guidelines, A Joint Document Prepared by The Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and U.S. Fish and Wildlife Service (USFWS), April 2005,* which states "[a] utility that implements the principles contained in these APP guidelines will greatly reduce avian risk as well its own risk of enforcement under the Migratory Bird Treaty Act (MBTA)".

The avian-friendly construction standards used by TPUD are approved by the United States Department of Agriculture Rural Utility Services and follows the recommendation guidelines from the APP publication. The transmission line will incorporate adequate spacing between phases and grounded structures. In areas of potential bird collisions, passive visual aids such as bird flappers, bird diverters, or aerial balls will be used to prevent bird collisions with the power lines. These techniques will be used from just west of US Highway 101 to Oceanbay Road, which encompasses the sensitive avian habitat areas such as the Southern Flow Corridor.

These same techniques were successfully deployed in a recent similar transmission line project jointly constructed by TPUD and the Bonneville Power Administration (BPA) in a 2014 project along State Route 6 in Tillamook County. Studies have indicated that passive visual aid devices are as successful as active type devices and can reduce bird collisions by 50 to 80 percent (Crowder, 2000).

TPUD understands that the USFWS may have specific guidance on avian-friendly construction standards to implement at the proposed crossing of the SFC property. TPUD is committed to working with OWEB and the USFWS to ensure the crossing of the SFC occurs in a fashion consistent with the goals and objectives for the SFC project.

SECTION 7

Conclusions

CH2M biologists conducted evaluations for potential presence of rare plant and wildlife species within the project study area. The purpose of the surveys was to identify habitats with the potential to support any of the target special-status species and to determine whether proposed project activities will affect those populations.

7.1 Conclusions

The surveys identified five habitat types and numerous plant and animal species. No state- or federally listed endangered or threatened species were observed in the study area during field investigations. The biologists drew the following conclusions:

- Three dominant habitat types are within the study area: Agriculture, Pasture, and Mixed Environs; Westside Lowlands Conifer-Hardwood Forest; and Open Water — Lakes, Rivers, and Streams. Two other types present are Herbaceous Wetlands and Westside Riparian-Wetlands.
  - Agriculture, Pasture, and Mixed Environs was located predominantly between MP 0.1 and MP 3.8 and primarily within the urban growth boundary of the City of Tillamook. The majority of nonnative species was found within this habitat. A large part of this area consists of farmed wetlands and does not provide native vegetation.
  - Westside Lowlands Conifer-Hardwood Forest habitat was identified between MP 4.4 and MP 8.6. These habitats within the study area have been disturbed and fragmented by commercial forest practices, which have resulted in forest habitat in various stages of succession from clear-cut to mid-succession. It does not provide suitable habitat for listed species located in the vicinity of the study area.
  - Suitable habitat for listed species occurs in the Open Water—Lakes, Rivers, and Streams habitat in the lower elevations of the study area. All impacts to this habitat from construction and operation of the project will be avoided by transmission lines spanning the rivers and streams.
  - Potential for suitable habitat for listed species in Herbaceous Wetlands and Westside Riparian-Wetlands is low. These habitats within the study area have been disturbed and fragmented by commercial forest practices and by residential development and agriculture in the surrounding area.
- No ODFW Category 1 habitat was identified in the project study area.
- Tillamook County has a riparian setback standard, which will be addressed during the land use approval process. The County's standard requires review and concurrence from ODFW.
- The proposed 300-foot aerial crossing of the SFC property will require review and approval by OWEB in coordination with the USFWS.

The proposed project is not expected to result in any significant impacts to special status species. No state or federally listed endangered or threatened species were observed in the study area during field investigations. However, potentially suitable habitat for three listed species was identified. An Avian Protection plan addresses avoidance for impacting all avian species (see Appendix D). All

waters will be spanned by the project so that impacts to fish species will be avoided. Although there are coastal meadows within the project area, all are largely farmed or grazed and consequently the natural occurring species (such as the required viola for the silverspot) are not typically found. A floral survey for *Viola aducna* prior to construction in meadows would ensure avoidance of impacts to this species.

State or federal resource agencies may require additional surveys to determine if any rare plants or listed wildlife species occur in the study area.

SECTION 8

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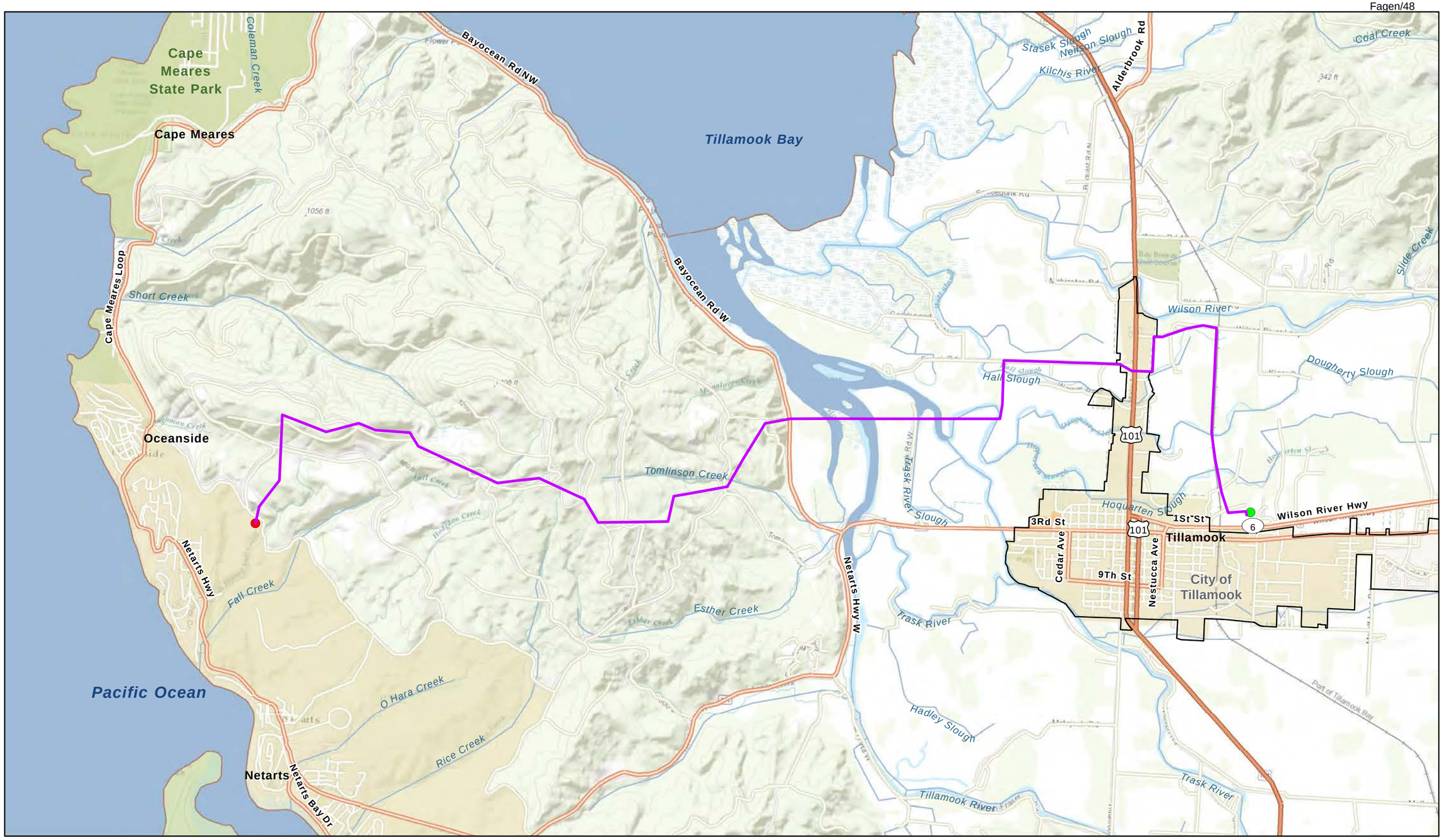
APPENDIX A

Figures



LEGEND

- Proposed Tillamook-Oceanside 115-kilovolt Transmission Line
- Project Start (Existing Bonneville Power Administration Tillamook Substation)
- Project End (Proposed Oceanside Substation)
- Tillamook City Limit

N

0 3,000
Feet

Figure 1
Location Map
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m

There are several existing trees in the riparian buffer along this back eddy that will need to be trimmed at a minimum, but likely removed due to their proximity to the transmission line.

D-01B

0.3

D-01A

5

4

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- Deliniated Drainage Ditch
- 50 Foot Riparian Buffer

Trees

- Unknown

N

0 100

Feet

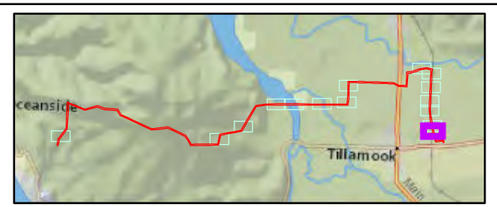
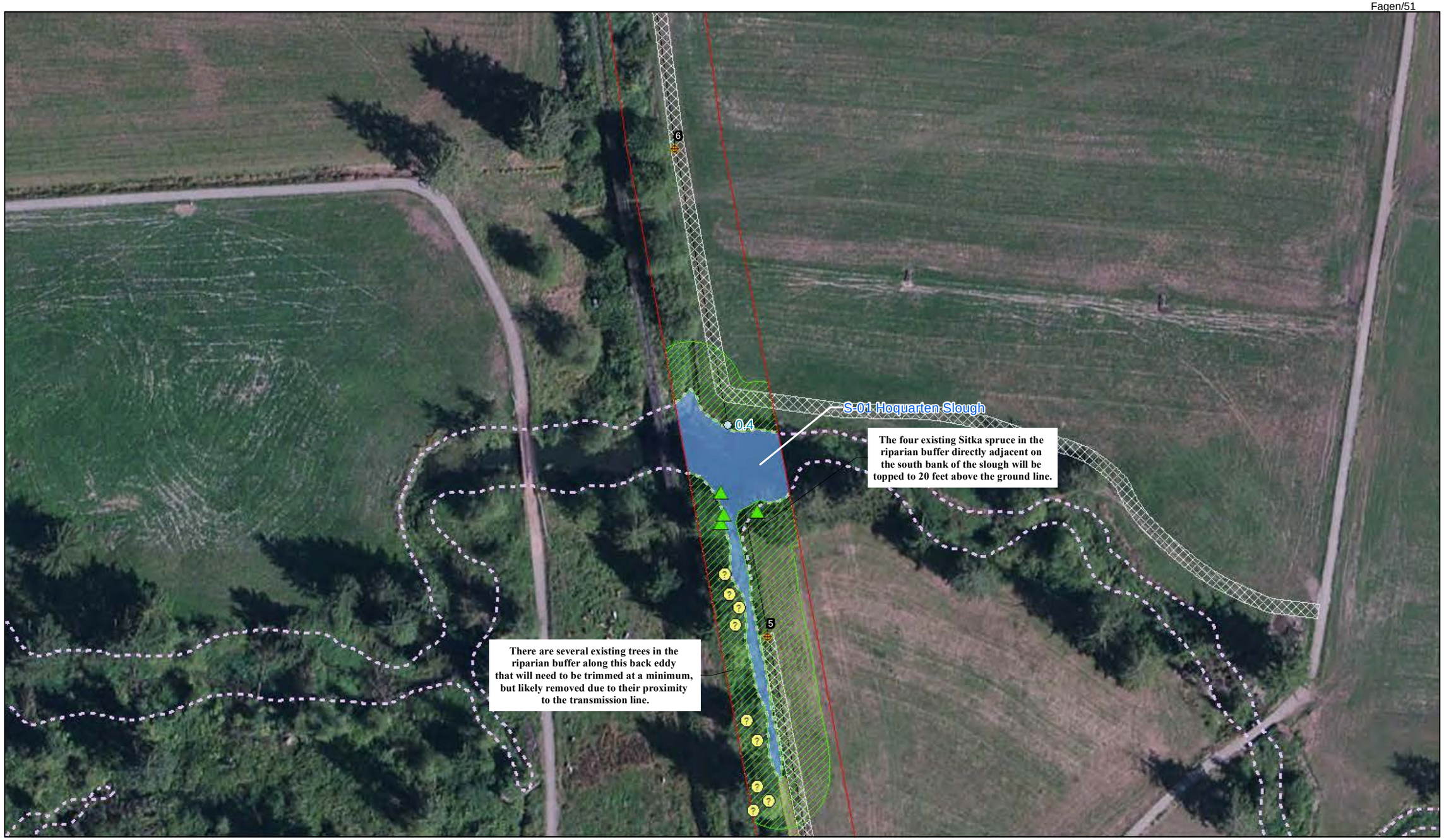


Figure 2A
Map 01 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD



LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- Deliniated Drainage Ditch
- 50 Foot Riparian Buffer

Trees

- Unknown
- Sitka spruce

N

0 100
Feet

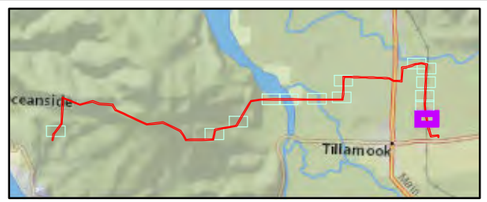


Figure 2B
Map 02 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- 50 Foot Riparian Buffer

Trees

- Red alder

N

0 100

Feet

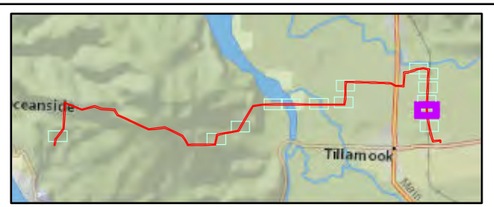


Figure 2C
Map 03 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- 15 Foot Riparian Buffer

N

0 100

Feet

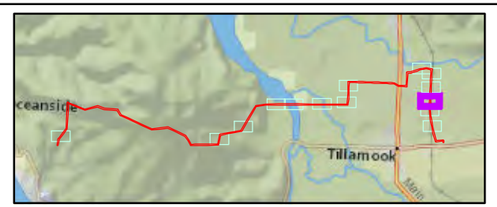


Figure 2D
Map 04 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m

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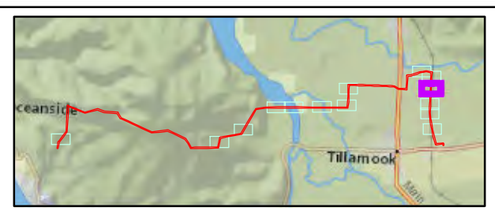
LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Drainage Ditch
- Deliniated Water
- 25 Foot Riparian Buffer

N

0 100

Feet



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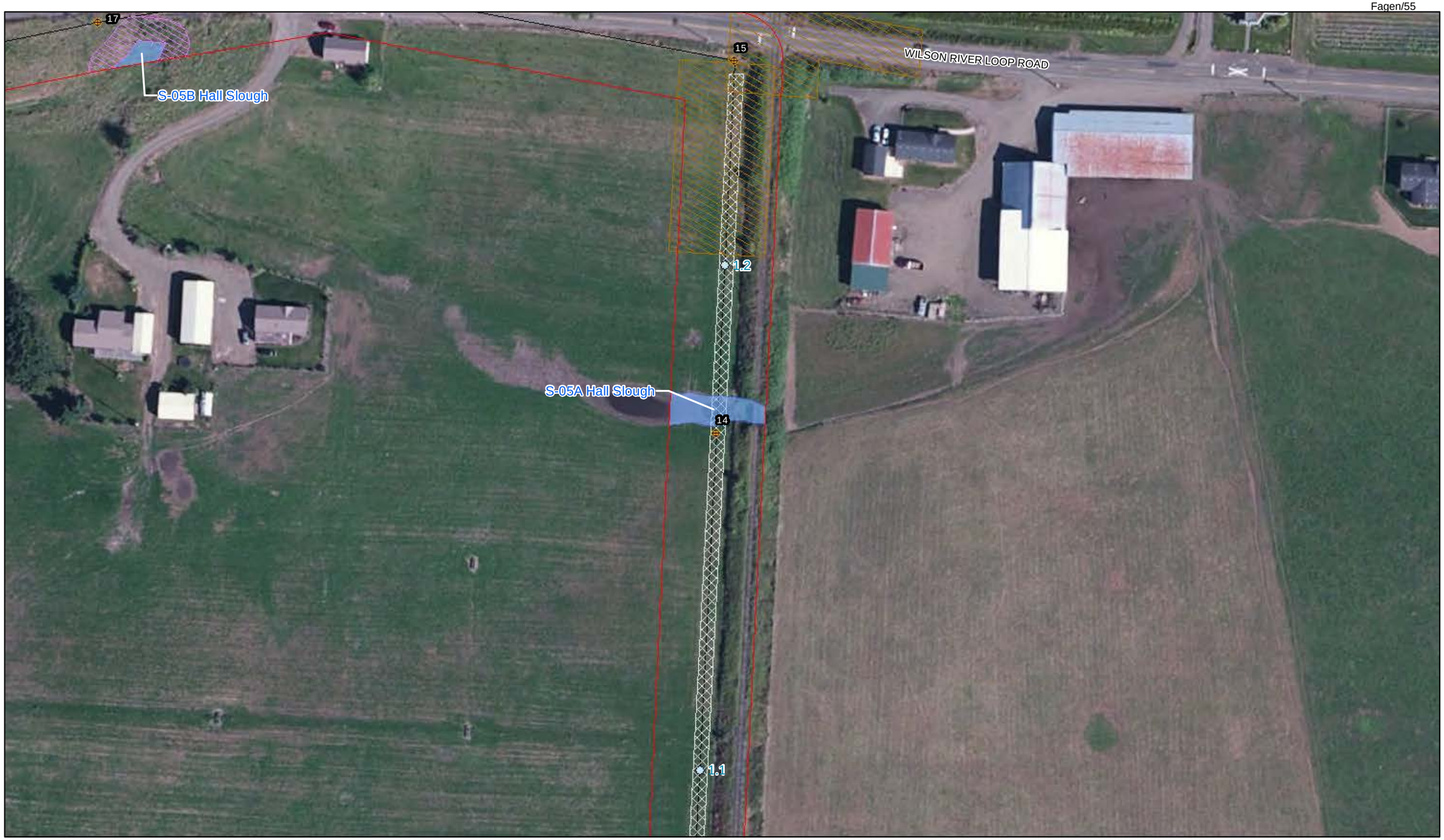
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m.



LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- 25 Foot Riparian Buffer

N

0 100

Feet

Figure 2F
Map 06 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m

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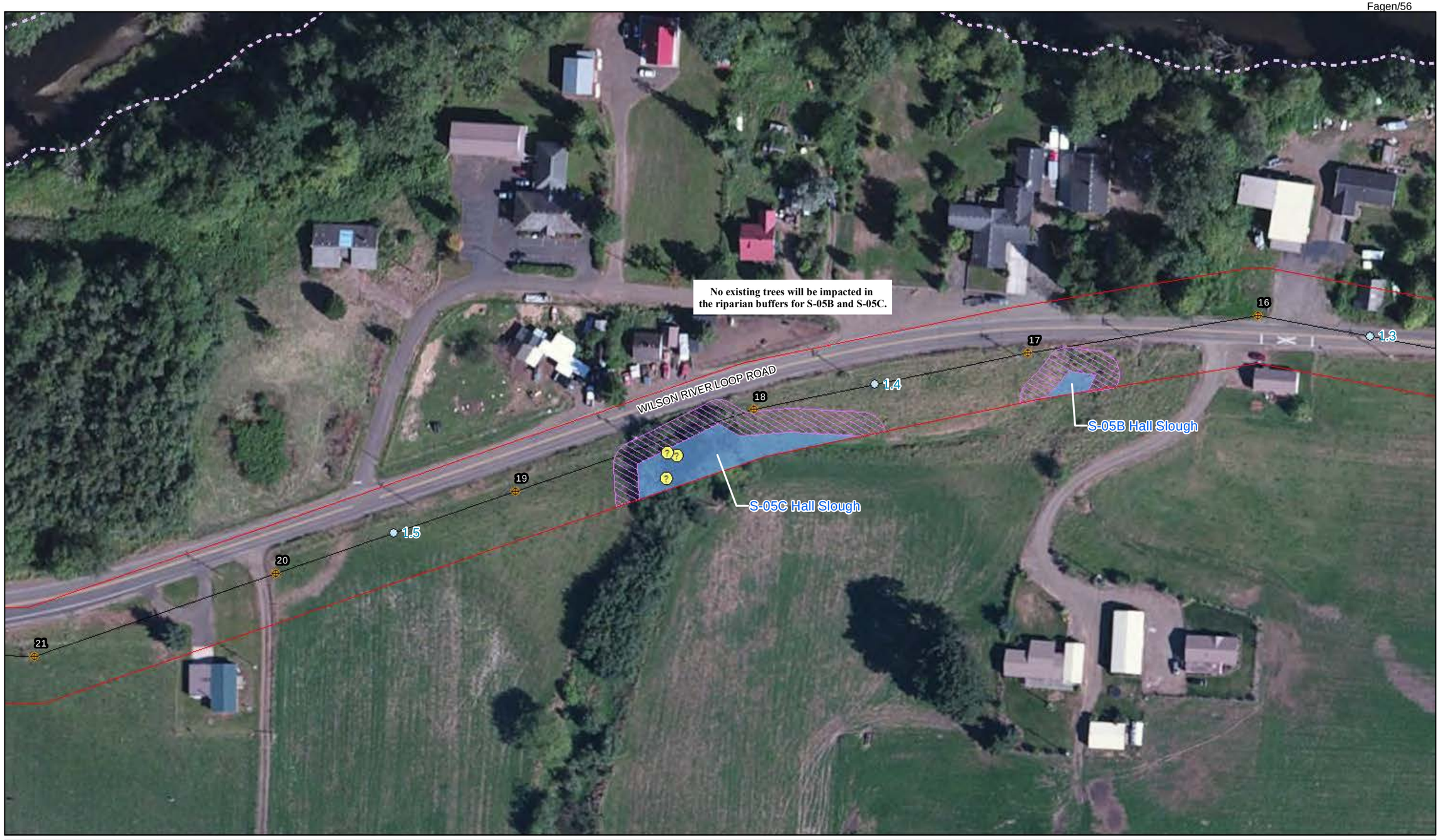


LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- 25 Foot Riparian Buffer

Trees

- Unknown

N

0 100

Feet

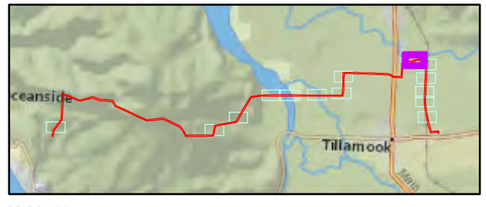


Figure 2G
Map 07 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Drainage Ditch

N

0 100
Feet

Figure 2H
Map 08 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Drainage Ditch

N

0 100
Feet

Figure 2I
Map 09 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Drainage Ditch
- Deliniated Water
- 50 Foot Riparian Buffer

N

0 100

Feet

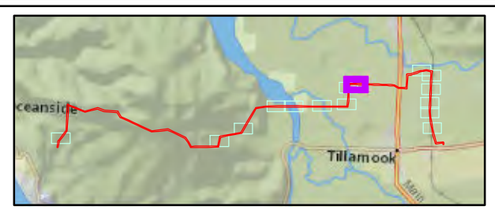
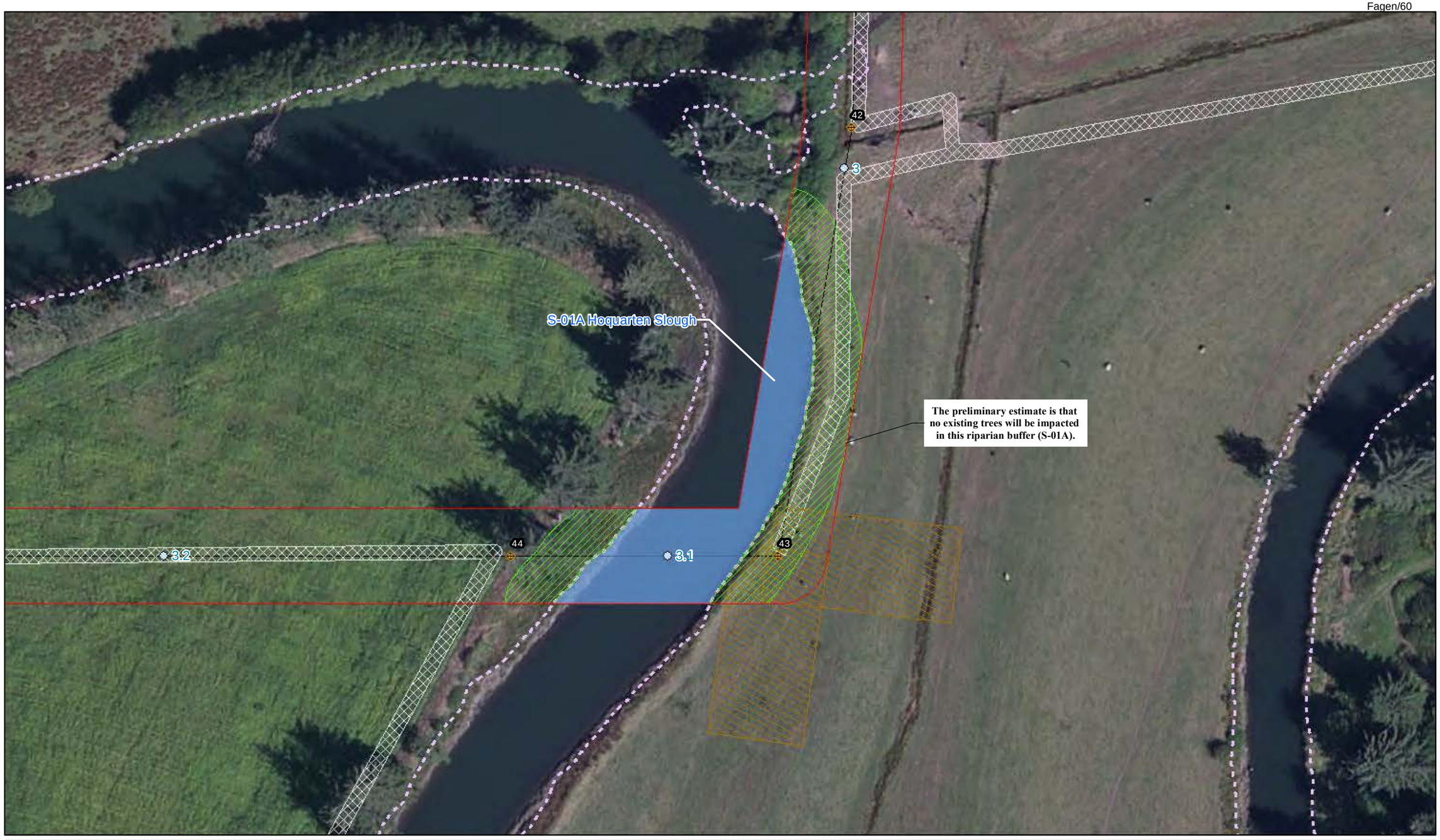


Figure 2J
Map 10 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD



LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- 50 Foot Riparian Buffer

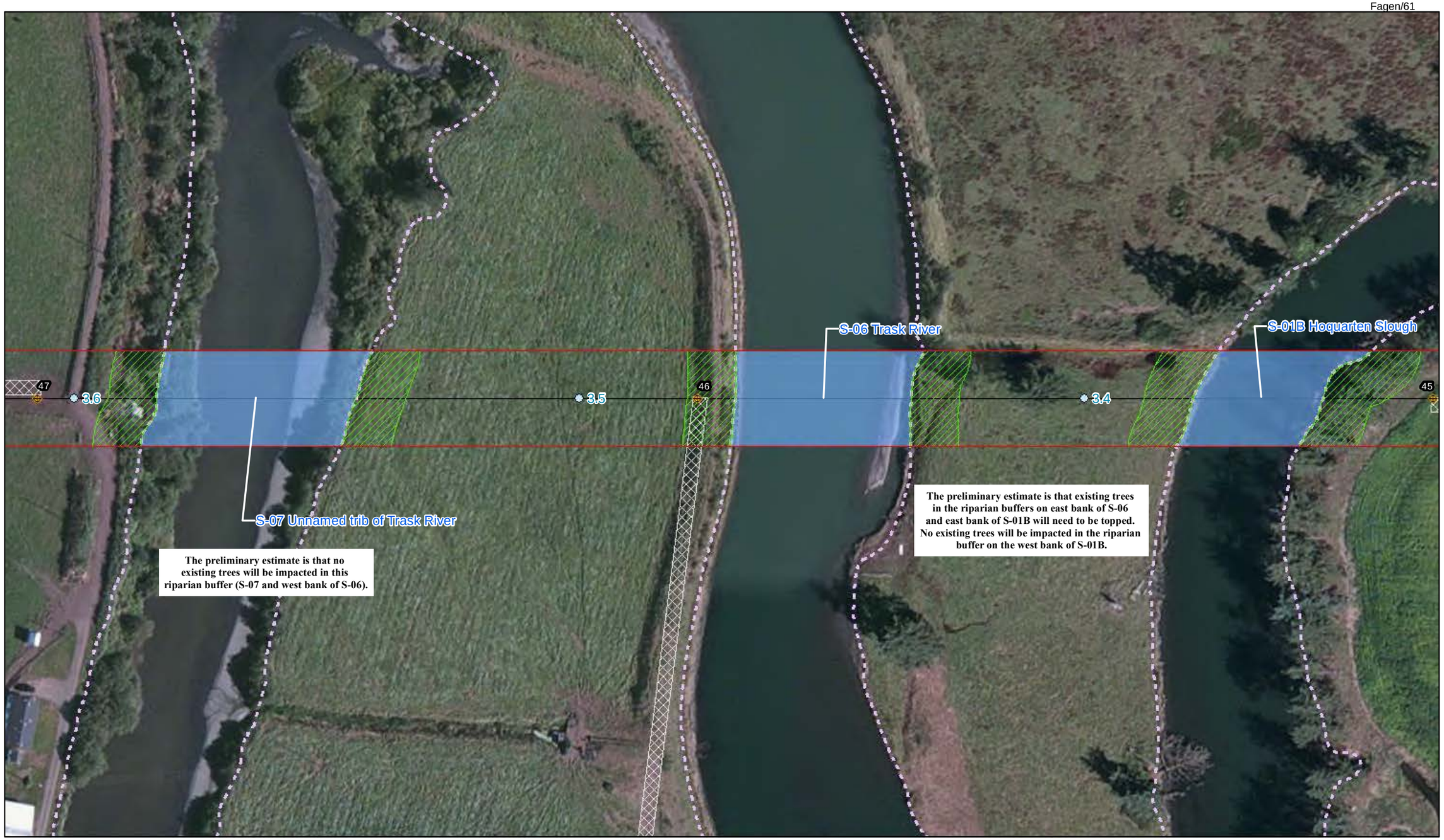
N

0 100

Feet

Figure 2K
Map 11 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m



LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- 50 Foot Riparian Buffer

N

0 100
Feet

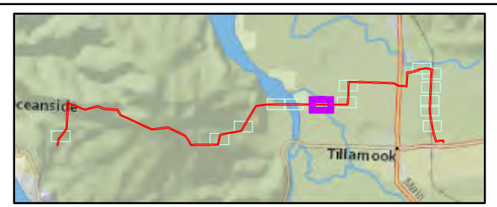


Figure 2L
Map 12 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- 50 Foot Riparian Buffer

N

0 100

Feet

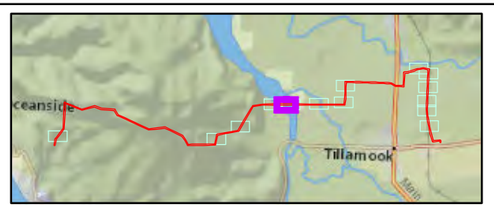


Figure 2M
Map 13 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

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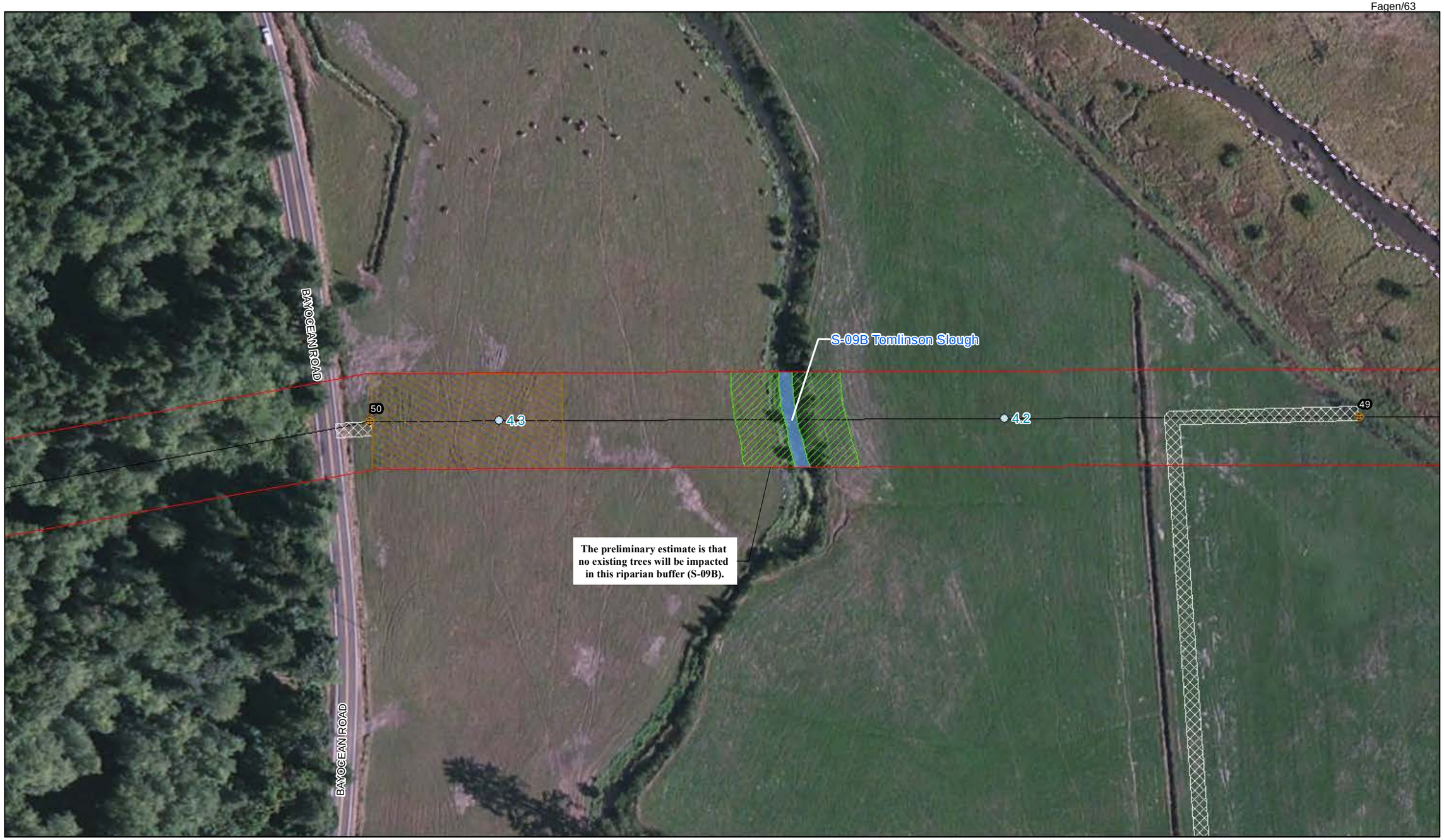


LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- 50 Foot Riparian Buffer

N

0 100

Feet

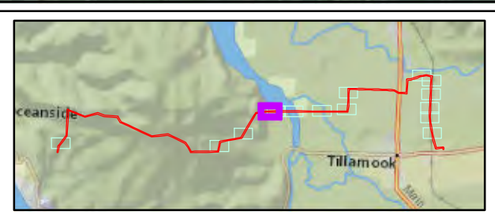


Figure 2N
Map 14 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Delineated Stream

N

0 100

Feet

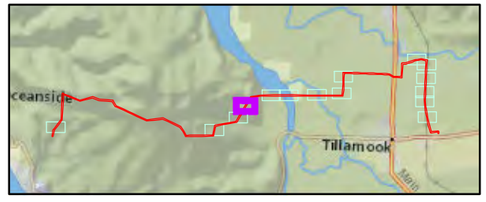
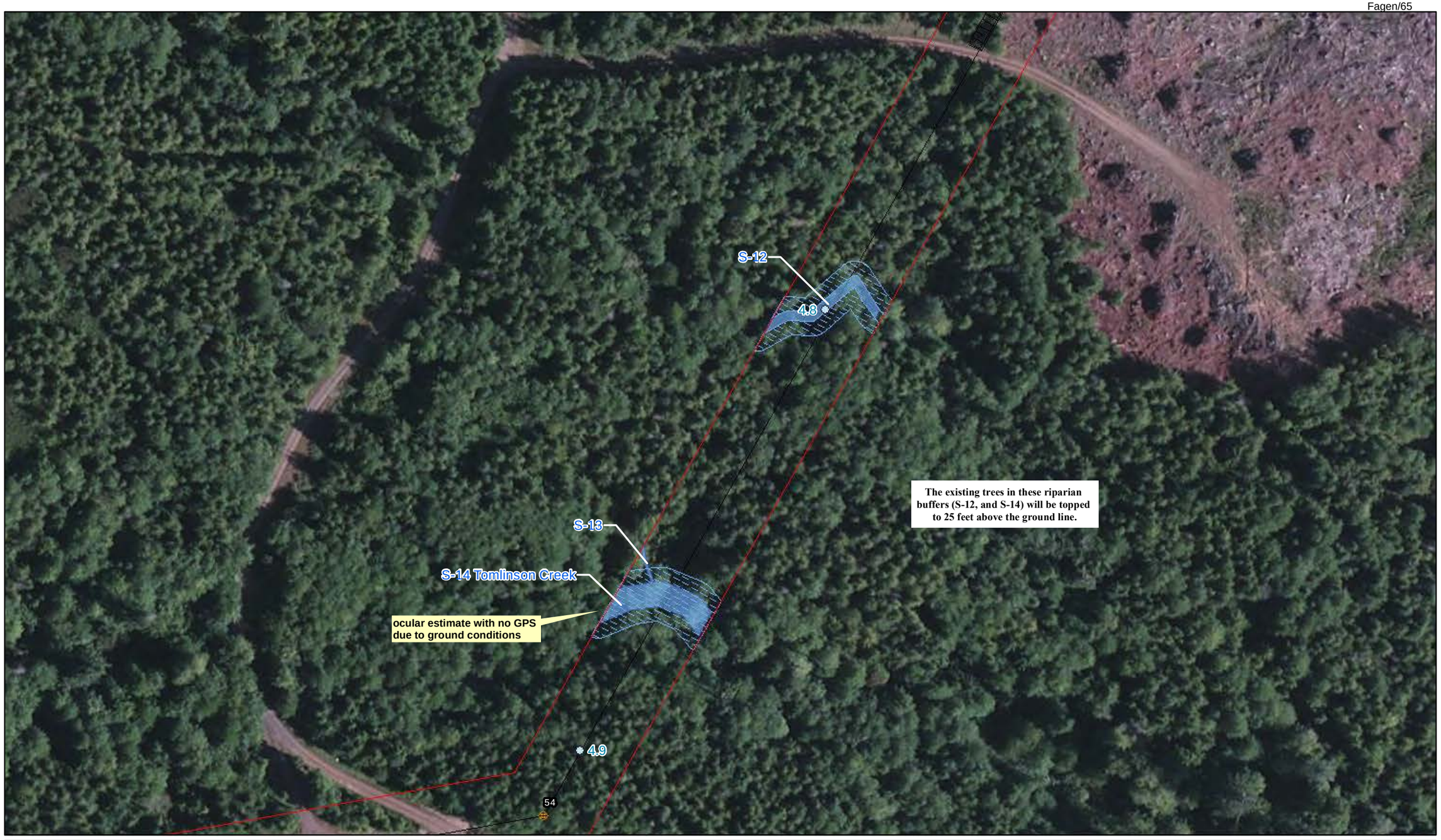


Figure 2O
Map 15 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD



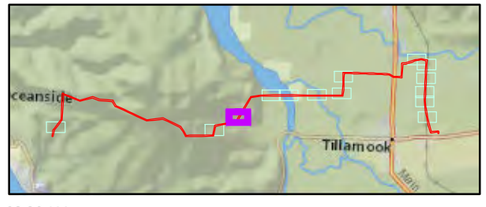
LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Deliniated Water
- 15 Foot Riparian Buffer

N

0 100

Feet



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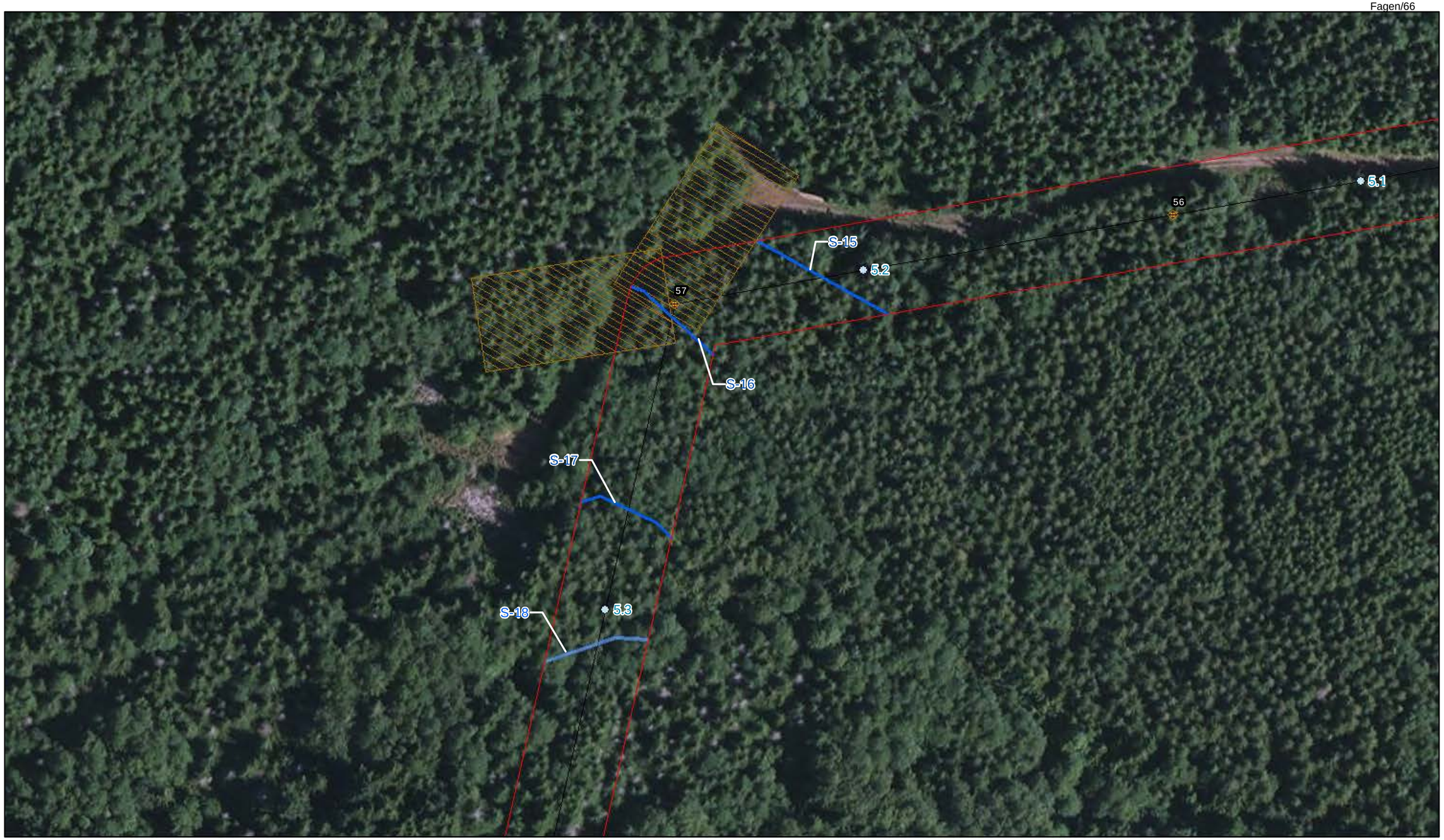
Map 16 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD



LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Delineated Stream
- Deliniated Water

N

0 100

Feet

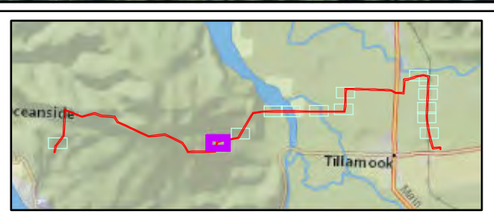


Figure 2Q
Map 17 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Delineated Stream

N

0 100

Feet

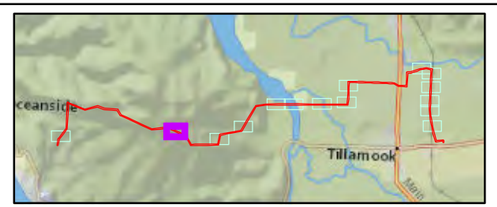
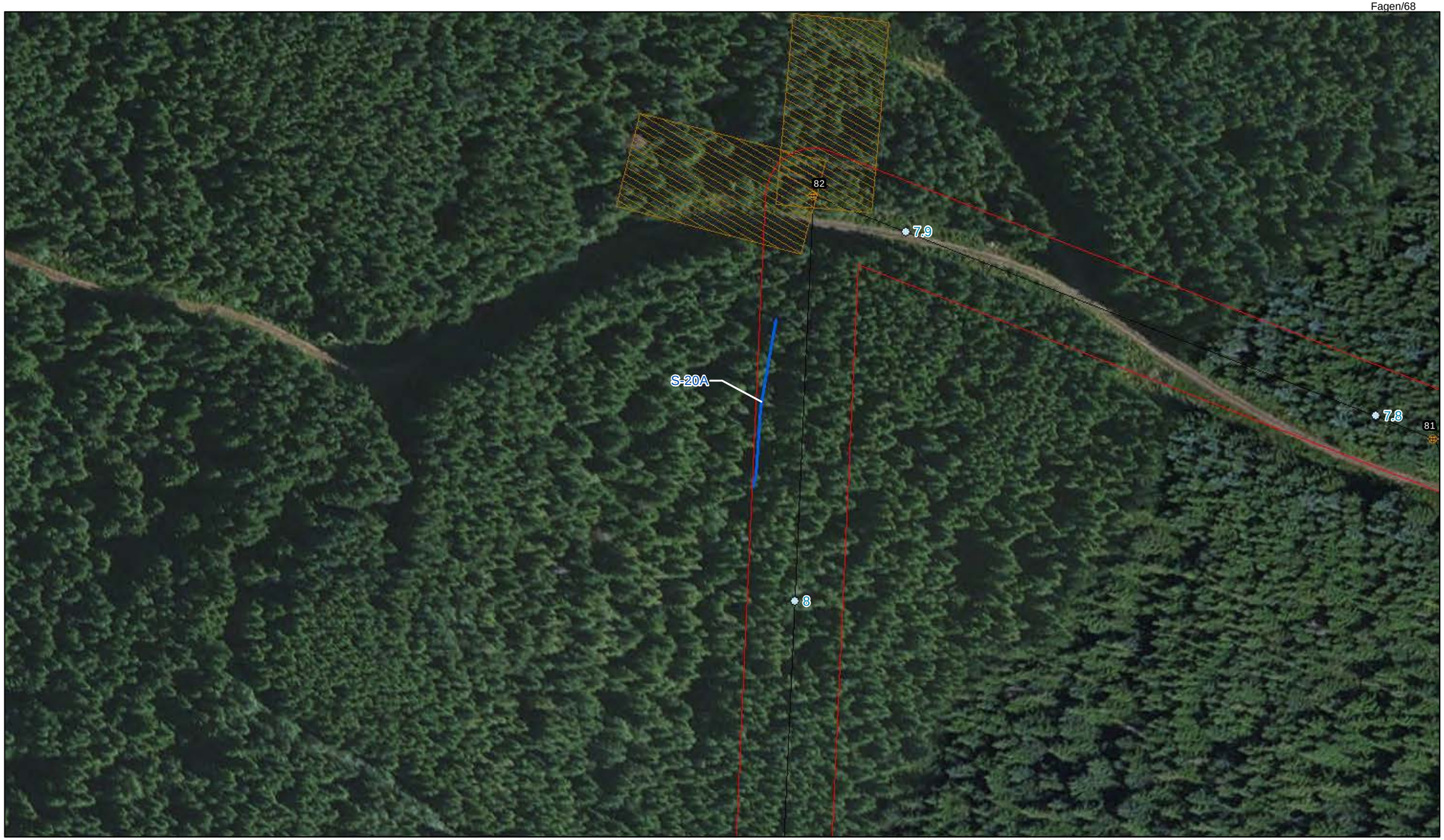


Figure 2R
Map 18 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD



LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Delineated Stream

N

0 100

Feet

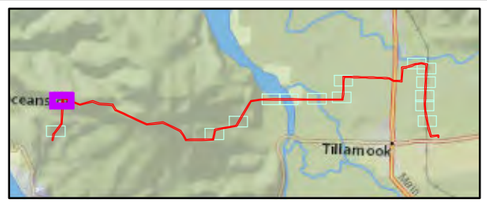


Figure 2S
Map 19 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Delineated Stream

N

0 100

Feet

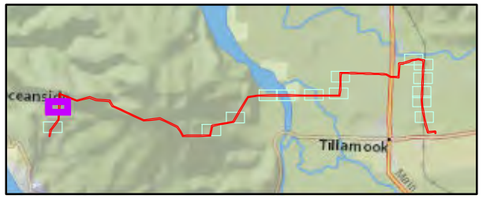


Figure 2T
Map 20 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

ch2m

LEGEND

- Preferred Transmission Route
- 100-foot Study Corridor
- Milepost
- Power Pole
- Permanent Access Road
- Temporary Access Road
- Pulling/Tensioning Area
- Mean High Water
- Delineated Stream
- 25 Foot Riparian Buffer

N

0 100

Feet

Figure 2U
Map 21 of 21
Riparian Buffers
Tillamook-Oceanside
115-kilovolt Transmission Line Project
Tillamook PUD

APPENDIX B

U.S. Fish and Wildlife Service Species List

U.S. Fish & Wildlife Service
ECOS

ECOS / Species Reports / Species By County Report

Species By County Report

The following report contains Species that are known to or are believed to occur in this county. Species with range unrefined past the state level are now excluded from this report. If you are looking for the Section 7 range (for Section 7 Consultations), please visit the IPaC application.

County: Tillamook, Oregon

CSV

Need to contact a FWS field office about a species? Follow this link to find your local FWS Office.

Group	Name	Population	Status	Lead Office	Recovery Plan	Recovery Plan Action Status	Recovery Plan Stage
Birds	Short-tailed albatross (*Phoebastria (=Diomedea) albatrus*)	Wherever found	Endangered	Anchorage Fish and Wildlife Field Office	Short-Tailed Albatross (Phoebastria albatrus) Final Recovery Plan	Implementation Progress	Final
Birds	Western snowy plover (*Charadrius alexandrinus nivosus*)	Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast)	Threatened	Arcata Fish and Wildlife Office	Final Recovery Plan for the Western Snowy Plover	Implementation Progress	Final
Birds	Northern spotted owl (*Strix occidentalis caurina*)	Wherever found	Threatened	Oregon Fish and Wildlife Office	Revised Recovery Plan for the Northern Spotted Owl	Implementation Progress	Final Revision 1
Birds	Marbled murrelet (*Brachyramphus marmoratus*)	U.S.A. (CA, OR, WA)	Threatened	Washington Fish and Wildlife Office	Recovery Plan for the Threatened Marbled Murrelet (Brachyramphus marmoratus) in Washington, Oregon, and California	Implementation Progress	Final
Flowering Plants	Nelson's checker-mallow (*Sidalcea nelsoniana*)	Wherever found	Threatened	Oregon Fish and Wildlife Office	Final Recovery Plan for the Prairie Species of Western Oregon and Southwestern Washington	Implementation Progress	Final
Insects	Oregon silverspot butterfly (*Speyeria zerene hippolyta*)	Wherever found	Threatened	Oregon Fish and Wildlife Office	Revised Recovery Plan for the Oregon Silverspot Butterfly (Speyeria zerene hippolyta)	Implementation Progress	Final Revision 1
Mammals	red tree vole (*Arborimus longicaudus*)	North Oregon Coast DPS	Candidate	Oregon Fish and Wildlife Office			
Reptiles	Leatherback sea turtle (*Dermochelys coriacea*)	Wherever found	Endangered	North Florida Ecological Services Field Office	Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle	Implementation Progress	Final Revision 1

Group	Name	Population	Status	Lead Office	Recovery Plan	Recovery Plan Action Status	Recovery Plan Stage
Reptiles	Leatherback sea turtle (*Dermochelys coriacea*)	Wherever found	Endangered	North Florida Ecological Services Field Office	Recovery Plan for Leatherback Turtles in the U.S. Caribbean, Atlantic, and Gulf of Mexico	Implementation Progress	Final Revision 1
Reptiles	Loggerhead sea turtle (*Caretta caretta*)	North Pacific Ocean DPS	Endangered	North Florida Ecological Services Field Office	Recovery Plan for U.S. Pacific Populations of the Loggerhead Turtle	Implementation Progress	Final Revision 1
Reptiles	Olive ridley sea turtle (*Lepidochelys olivacea*)	Wherever found, except when listed as endangered under 50 CFR 224.101	Threatened	North Florida Ecological Services Field Office	Recovery Plan for U.S. Pacific Populations of the Olive Ridley Turtle	Implementation Progress	Final Revision 1

APPENDIX C

Site Photographs

Westside Lowlands Conifer-Hardwood Habitat Within the Study Area

Photo Plate 1

Photo Plate 2

Photo Plate 3

Agriculture, Pasture, and Mixed Environs Within the Study Area

Photo Plate 4

Photo Plate 5

Photo Plate 6

Photo Plate 7

Open Water—Lakes, Rivers, and Streams Habitat Within the Study Area

Photo Plate 8

Photo Plate 9

Photo Plate 10

Photo Plate 11

Herbaceous Wetlands Habitat Within the Study Area

Photo Plate 12

Photo Plate 13

Photo Plate 14

Photo Plate 15

Westside Riparian-Wetlands Habitat Within the Study Area

Photo Plate 16

Photo Plate 17

APPENDIX D

Avian Protection Plan

AVIAN PROTECTION PLAN

DRAFT

Tillamook People's Utility District

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June 2017

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Introduction

Tillamook County is located in the northwest corner of Oregon and has a population of 25,251 as of 2010. Tillamook County covers 1,225 square miles. The major physical features of the County consist of the rocky and irregular coast line that forms the county's western boundary, stretches of coastal low lands, and heavily timbered interior parts. Figure 1-1 shows Tillamook Peoples Utility District's (District) service area.

Tillamook County voters approved Oregon's first People's Utility District on July 23, 1933; however, the first customer was not connected until October of 1946. During the late 1940s and early 1950s, parts of Tillamook County had two utilities, Mountain States and the District. Mountain States merged with Pacific Power and Light in 1954 and on May 22, 1961, the District purchased PP&L at which time the people of Wheeler and Nehalem opted to join the District. The District has its headquarters in Tillamook, Oregon. It serves the needs of most of Tillamook County and minor parts of Clatsop and Yamhill counties.

Purpose

The District is dedicated to working with the various agencies to develop a plan to reduce bird mortalities on its overhead lines. Although the District has had a limited number of bird contacts, any contact with an overhead line reduces the reliability of that service area. The District's primary goal is to provide safe and reliable power to all of its customers. Reducing the number of bird contacts will help to improve the reliability in this area.

In the 1970s, an investigation of reported shooting and poisonings of eagles in Wyoming and other western states led to evidence that eagles were also being electrocuted on power lines. Since then, the utility industry, wildlife resource agencies, conservation groups, and manufacturers of avian protection products have worked together to understand the causes of avian electrocutions and to develop ways of preventing them. The publication, Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 summarizes the history and achievements of this work (SPAP).

Over the last two decades, biologists have also monitored bird movements near power lines in order to assess the effects of disturbance and collision mortality on bird populations. The conclusions of these studies, as well as suggested practices are documented in *Mitigating Bird Collisions with Power Line: The State of the Art in 1994*.

The District Avian Protection Plan (APP) was developed to expand and formalize the District existing avian protection program in accordance with the SPAP guidelines, a joint guidance document prepared by the Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and the U.S. Fish and Wildlife Service (USFWS). The SPAP guidelines along with related APLIC documents (described below) are considered the most up-to-date and comprehensive guidance tools to reduce the potential for avian electrocution and collision mortality.

Figure 1-1


Tillamook PUD Service Territory and Transmission Lines
NEHALEM SUB
MOHLER SUB
GARIBALDI SUB
SOUTH FORK SUB
WILSON RIVER SUB
TILLAMOOK SUB
TRASK RIVER SUB
BEAVER SUB
HEBO SUB
NESTUCCA SUB
Legend
TPUD Transmission
PP&L Transmission
BPA Transmission
Substation
Tillamook PUD Service Territory
Tillamook County Border
Oregon

The SPAP guidelines (APLIC and USFWS 2005) define an APP as "a utility-specific document that delineates a program designed to reduce the operational and avian risks that result from avian interactions with electric utility facilities". This document incorporates the principals of an APP as outlined in the SPAP guidelines and establishes a process for monitoring and evaluation, reporting and data collection, siting and design considerations, and implementation of remedial actions.

District Avian Protection Statement

Bird interactions with power lines may cause bird injuries and mortalities (which may result in outages), violation of bird protection laws, and grass and forest fires. The District management and employees are committed to reducing the detrimental effects of bird interactions with power lines.

This document is intended to ensure compliance with legal requirements while improving distribution system reliability. To fulfill this commitment, the District developed this APP to provide guidance in reducing avian mortalities due to collisions with and electrocutions from the District's facilities. The District has and will:

1. Comply with Federal, State, and local laws.
2. Implement and comply with its comprehensive APP.
3. Document bird mortalities, problem poles and lines, and problem nests.
4. Provide information, resources and training to improve its employees' knowledge and awareness of the APP.
5. Utilize avian-friendly framing approved by the United States Department of Agriculture Rural Utility Services (RUS) in areas known to have significant avian activities and any locations that involve collisions or mortalities.
6. Use covered jumper conductor at dead-end poles, transformer and capacitor bank installations, equipment jumpers, etc.
7. Use bushing, line and insulator covers on transformers, capacitors, cable terminations, and cutouts.
8. Look for methods to reduce migratory bird electrocutions and improved nest and egg handling techniques.
9. Proactively conduct corrective actions on high-risk poles that result in improved migratory bird protection.
10. Monitor the effectiveness of the corrective actions taken and improve techniques or equipment based on that experience.
11. Report to the USFWS Office of Law Enforcement (OLE) electrocutions of eagles or threatened or endangered species (TES) immediately, but within 48 hours or the next business day after learning of the occurrence.
12. Meet with USFWS representatives as deemed necessary, to discuss avian protection and the results of the program that has been implemented.

13. Keep records of avian incidents.

Training

Successful implementation of this APP requires a thorough understanding of the issues and corresponding protocols. To accomplish this, the District has developed a training program focusing on staff with direct and indirect implementation responsibilities including managers, supervisors, field crews, engineers, and dispatch staff. The District has regular monthly training meetings, for all personnel. These meetings will be used to review the issues, procedures and protocols included in this APP. These include:

- Identification of bird-related issues – electrocution and collision mechanisms
- Discussion of state and federal regulations that protect birds, legal implications, and the need for compliance
- Construction and design standards and retrofitting standards designed to reduce avian mortality and collisions
- Protocols of plan implementation including assessing problems, proactive approaches, and recording/reporting data
- Protocols for dead or injured birds
- Responsibilities of staff to implement the APP

Permit Compliance

The District receives a Special Purpose Federal Fish and Wildlife Permit issued by the USFWS, which is renewed annually. A copy of this permit is included in Appendices A of this APP. It is the District's intention to maintain an active permit as a part of this APP.

This permit provides the following conditions and authorizations to the District:

- **Possession and transport**
  1. Collect, transport and temporarily possess carcasses of migratory birds.
  2. For Bald and Golden Eagles (Eagles) and listed Threatened or Endangered Species (TES), you must call a U.S. Fish and Wildlife Services Office of Law Enforcement (OLE) (503-682-6131) for instructions and approval BEFORE collecting or moving.
  3. For all other migratory birds, gather data as required.

- **Active Nest Relocation. Except for Eagles and TES**

  In emergency situations, you can relocate active (containing eggs or nestlings) migratory bird nests from transformers and conductors when the threat of fire hazard and power outages is present at the current nest location. The office issuing this permit shall be notified within 72 hours of active nest relocation, giving the location and details on relocation (i.e., nest moved to platform built adjacent to power pole.)

- **Active Nest Relocation for Eagles and TES**

  To conduct activities involving nests of Eagles or TES, additional permits must be obtained.

- **Injured/orphaned birds**

  Must immediately contact a federally permitted migratory bird rehabilitator or licensed veterinarian for instructions.

- **Reporting**

  Eagles and TES incidents must be immediately reported, but no later than 48 hours or the next business day.

  Other migratory bird incidents must be reported within 7 days from the date of discovery and collection.

  Significant mortality events must be reported to PermitsR1MB@fws.gov immediately, but not later than 48 hours or the next business day.

  Annual reports are to be submitted by January 31.

- The Standard Conditions Migratory Bird Special Purpose Utility Permits 50 CFR 21.27 is a part of the permit.
- Records shall be maintained at Tillamook People's Utility District, 1115 Pacific Avenue, Tillamook, OR.

Construction Design Standards

There are two types of construction to consider, new construction and retrofitting existing structures.

New Construction

When new lines are being constructed in areas of know avian interaction, the two items to consider are electrocutions and collisions with a line. All new construction must meet National Electric Safety Code (NESC) requirements. Avian-friendly construction, which provides a separation of 60 inches between energized conductors and grounded hardware, has been shown to reduce the number of electrocutions on overhead lines. Where this separation is not possible, a conductor cover will be installed. Industry evidence has shown that perch style diverters are not as successful as covering. The avian-friendly construction standards will include the use of covered jumper wires at such locations such as transformer banks, corner and double dead-end structures, risers, capacitor banks, and voltage regulators.

Another consideration for new construction is bird collisions with the power lines. Line placement, orientation, and configuration can potentially affect collisions, and should be considered during pre-construction planning. The following factors are important considerations in line placement:

Proximity - In local flights, the proximity of power lines to locations were birds are landing and taking off this critical. Brown et al. (1984, 1987) found that no

Sandhill Crane or waterfowl collisions occurred where distances from power lines to birds use areas exceeded one mile.

Vegetation - Vegetation near power lines can sometimes minimize the probability of collision. For example, lines that are at or below the height of nearby trees rarely present a problem because small tree-dwelling birds have greater maneuverability and large birds will gain altitude to clear the highly-visible tree line, consequently avoiding the powerline.

Topography - Topographical features affect local and migratory movement of birds. Features such as mountain passes, river valleys, and shorelines that are traditional flight corridors should be considered when planning powerline routes to avoid primary flight paths (Colson and Yeoman 1978, Faanes 1987). Topographical features can also influence the visibility of powerline in local situations; this can be used to the advantage during the route planning phase of power line construction.

The topography of Tillamook County, which consists of wooded valleys and canyons as well as the coastal regions, does not allow many alternatives to the line routes. However, these wooded areas do aid in reducing the number of collisions due to their proximity to the trees. Much of the line routing will be dictated by the topography and or local conditions. For example, a line extending up one of the canyons will be located near the road to avoid having to clear cut a right-of-way and also to maintain acceptable distance from the river which a road is most likely paralleling.

Consideration must also be given to flooding issues when locating lines on the valley floor around Tillamook. These lines also have a higher probability of having line collisions. In general, these lines will be located in the road right-of-way, and could possibly have a potential of bird collisions due to the fact that these lines may be located next to feeding areas. In these areas the addition of aerial balls or bird diverters to the line could be used to prevent line collisions. However, a neighboring utility, which used the bird diverters, had issues with them corroding due to the corrosive nature of the coastal climate. Aerial balls present loading issues that need to be taken into account as part of the design of the line. The District will monitor areas through the use of outage reports to determine if line collisions have occurred in areas where a new line is being constructed. Appropriate line construction will be utilized in these areas.

Construction Retrofitting

Retrofitting of the existing facilities will be required when electrocutions are noted at specific structures, or line collisions have happened in a certain area. The type of retrofitting will be dependent upon the type of incident that has occurred. If a phase-to-phase or phase-to-ground contact has occurred, then an increase in phase separation will be needed or a cover installed to prevent contact between phases or phase to ground. An electrocution occurring where jumper wires are used would require the existing jumper wires to be replaced with covered wires.

For the District, the most common cause of electrocutions have been crows and seagulls on service transformers. The number of electrocutions has decreased since

the District has started using higher rated (35 kV) insulated bushings on equipment and the insulators used for framing construction, along with the use of covered jumper wire. The District has tested the use of several different types of bushing covers for added protection on transformers, but to date has not been able to find one that will stay on the transformers during the coastal storms. The covers have also had tracking (electric arcing across the surface) as a result of the salt environment, which cause them to burn up. The District will continue to evaluate products to find a protective bushing covers that will withstand both the harsh saltwater environment as well as the high winds.

The bare copper wire jumpers will be replaced with covered wire in areas that are identified as a problem for bird electrocutions. Other installations such as fuse cutouts or jumper wires at dead ends will also be changed to covered wire as these areas are identified.

In the case of line collisions, the line will be retrofitted with aerial balls or bird diverters as noted in the new construction section.

A review of the area will be conducted and the District will determine if similar conditions exist on neighboring structures or spans. These similar structures will also be retrofitted to a more avian-friendly design.

Nest Management

All active nests (eggs or young chicks) are protected by the Migratory Bird Treaty Act. Raptors, and occasionally other species, benefit from the presence of power lines by utilizing distribution poles and transmission structures for nesting. Although electrocution of birds that nest on power lines is infrequent, bird nests can cause operational problems. Removal of nest generally does not solve the problem because most species are site tenacious and rebuild shortly after nest material is removed. There are also regulatory and public relations problems with nest removal. Furthermore, the District has realized public relations benefits by providing safe nesting locations for the species.

The District has received a permit issued by the USFWS allowing crews to manage an active nest for all species except for Bald and Golden Eagles (Eagles) and threatened or endangered species (TES). In the case of "imminent danger", (which should be considered extremely rare), the District crews may take immediate appropriate action (including trimming of nesting materials, moving conductors, or nest removal). However, the dispatcher (Operations Supervisor) must be contacted to receive permission prior to any action. The District has had one Osprey nest on a distribution pole that was relocated by the District crews to a nearby nesting platform constructed by the District outside the breeding season, in accordance with our permit and in concert with the Oregon Department of Fish and Wildlife (ODFW).

The procedures included here apply only to problem nests. Nests not interfering with power operations should be left in place. If a problem with the specific nest is anticipated in the future, permit requirements may be avoided by taking appropriate action during the non-breeding season before the nest is active. Breeding season and

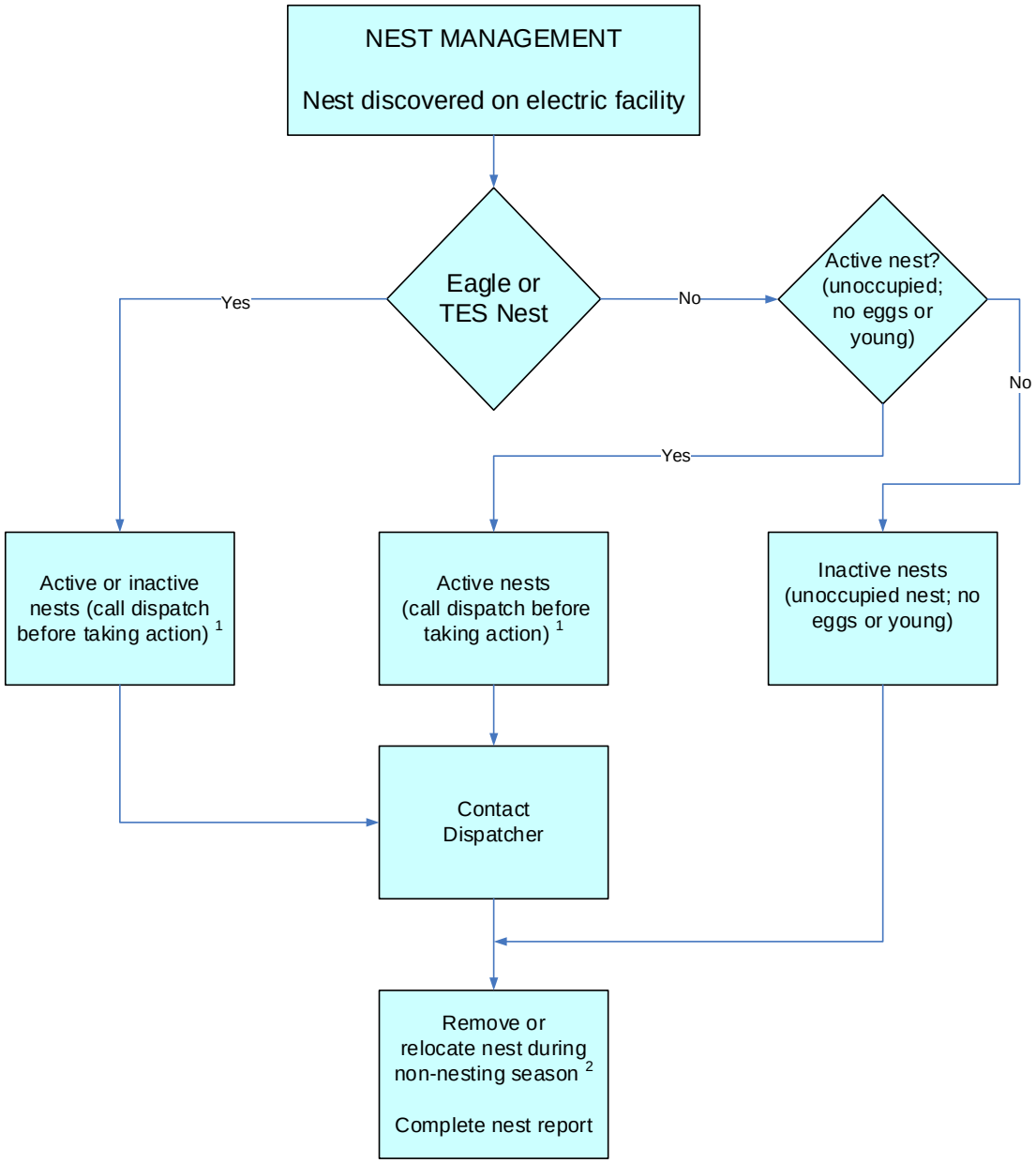
when nests may be active for most raptors fall between February 1 and August 31. However, an active nest is only when eggs or young are present.

If there are any questions whether a problem nest is active or inactive, contact the Operations Supervisor. All identified problem nests and any actions taken should be reported using the outage report form.

The following items should be completed when a problem nest is encountered:

- Call the Dispatch, who will contact the Operations Supervisor.
- If imminent danger exists, trim nest material or cover/move conductors.
- In the case of a non-Eagle/TES bird, relocate nest during non-nesting activities.
- In the case of Eagle/TES birds requiring relocation of an active nest (containing eggs or checks):
    - Document the event.
    - Notify USFWS within 72 hours of incident.
    - Submit information on USFWS annual report.
- In the case of Eagle/TES species requiring nest relocation, contact the state and federal personnel listed in the contact list for the area of incident. Document and coordinate transfer of nest.
- The following flowcharts show the actions to be taken by District Field crews when a problem nest is encountered.

Avian Nesting Management Flow Chart



[1] If imminent danger exists, conduct necessary action immediately.
[2] Dispatch will contact U.S. Fish and Wildlife Service or Oregon Department of Fish and Wildlife, North Coast District Office to request necessary permit(s) for active nest or eagle nest removal/relocation.

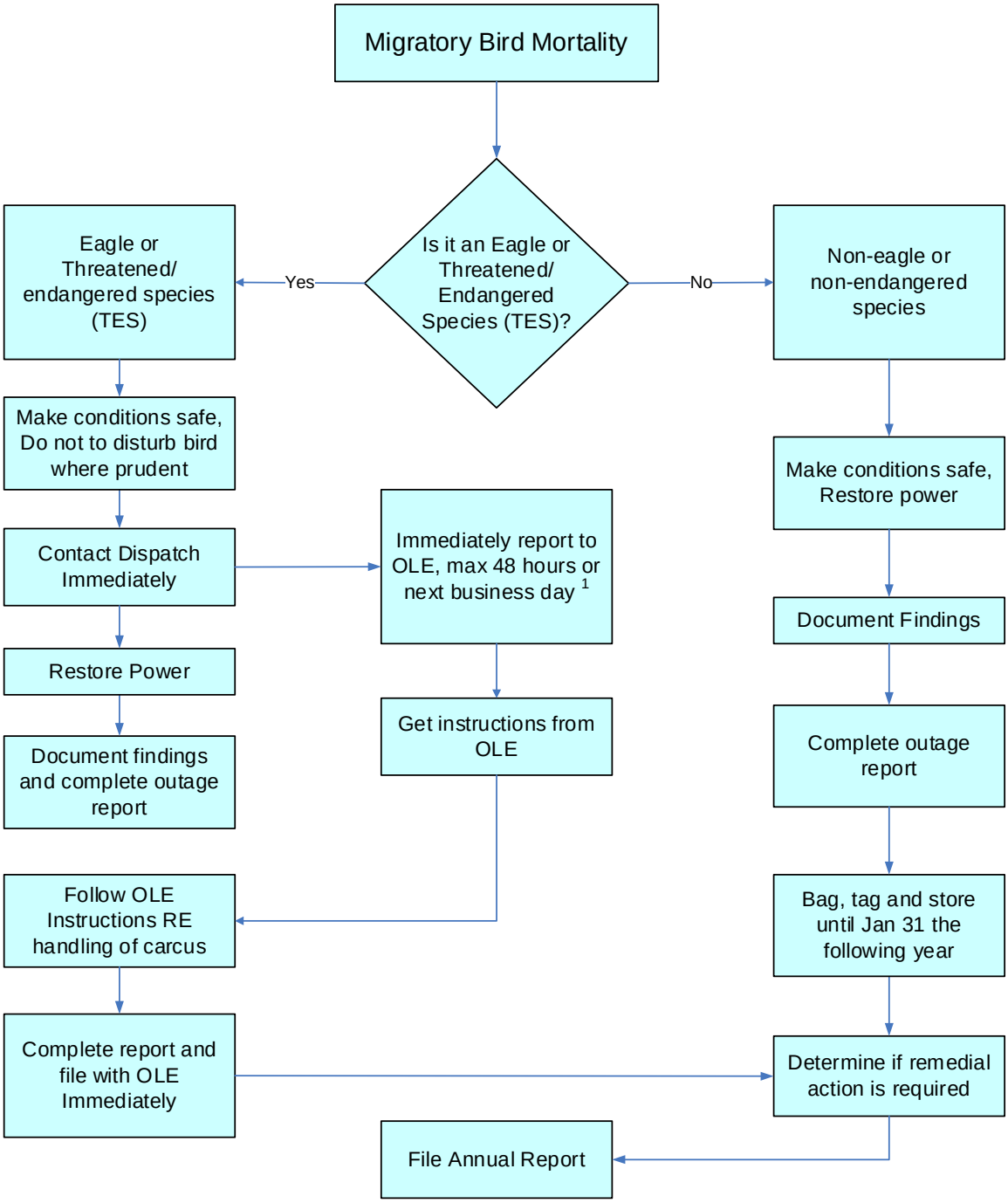
Fatality and Injured Bird Protocols

When a bird fatality or injured bird is encountered, the following actions should be taken:

1. If a non-Eagle/TES bird is taken by electrocutions or collisions, document the event using an outage report, which will be logged in the USFWS annual report. Bag and store the bird in a freezer, until the USFWS annual report is submitted. Submit information on USFWS annual report.
2. In case of an Eagle/TES bird taken by electrocution or collision, call the US Fish and Wildlife Office of Law Enforcement (OLE) immediately and document the event. Do not move the bird until getting instructions from the OLE. Submit information on USFWS annual report.
3. If a non-Eagle/TES bird is injured, document and transfer the bird to a rehabilitation center for the area. Document the event and submit information on USFWS annual report.
4. In the case of an injured Eagle or TES bird, call a wildlife rehabilitation center immediately. Document the event and submit information on USFWS annual report.

The following flowcharts shows the actions that should be taken if a dead or injured bird is encountered. Contact numbers are listed in the Key Resources section.

Avian Mortality Flow Chart



[1] Dispatch will contact U.S. Fish and Wildlife Office of Law Enforcement (OLE). Injured birds should be reported to Dispatch, who will contact Oregon Department of Fish and Wildlife North Coast District Office or Wildlife Center of the North Coast.

The following steps should be taken for disposal of a non-eagle bird:

1. Make area safe
2. Document event.
3. Pick up the birds using disposable gloves.
4. Tag and store bird in freezer
5. After January 31 of the following year, release to authorized agency or for birds not released, bury or incinerate.

The following steps must be taken for disposal of the eagle:

1. Contact the U.S. Fish and Wildlife Service Office of Law Enforcement (OLE).
2. If these entities cannot be reached then
    a. Pickup bird using disposable gloves.
    b. Tag and transport eagle to freezer until USFWS staff can be reached
3. OLE Special agent will advise if they will recover or if need to ship to the Service. This needs to be in writing from OLE
4. Eagle carcasses must be turned over to USFWS so they can be forwarded to the National Eagle Repository in Colorado.

When a live eagle or other migratory bird is found injured:

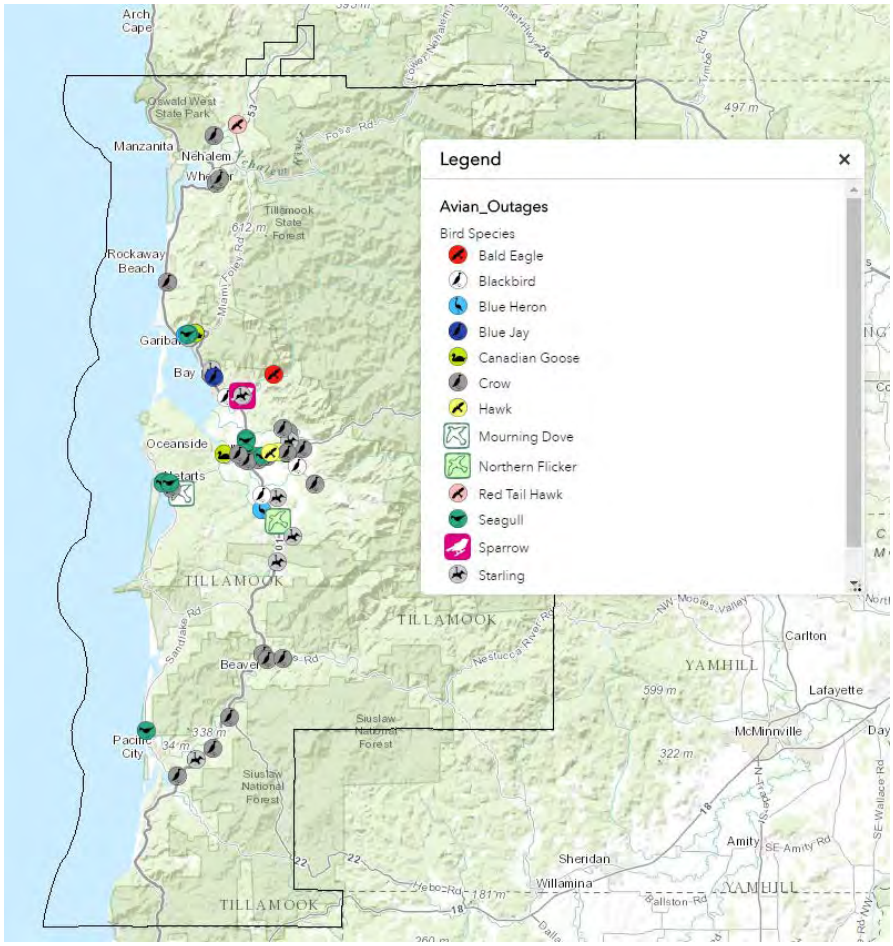
1. Immediately contact a federally permitted migratory bird rehabilitator or a licensed veterinarian for instructions.
2. Do not handle any wild animal if doing so will risk your safety or the safety of others.
3. Never handle a large bird of prey that appears alert and responsive.
4. When waiting for authorized assistance, keep a safe distance from the animal and do what you can to protect it from harassment by pets or other people.
5. Approach raptors from low to the ground and at a slow quiet peace.
6. Contain raptor if possible.
7. Do **not** feed or water raptor.
8. If instructed by authority, pick up large raptors (excluding eagles) with welding-type gloves.
9. If instructed by authority, pick up smaller raptors with work gloves.
10. Arrange for transportation of birds to the rehabilitation center for the area.

Avian Reporting System

The District's Avian Reporting System is the process by which all avian incidents, nest sites, and monitoring data are recorded and cataloged into the data base. It includes the following components:

- Detection
- Investigation
- Mitigation
- Reporting

The District maintains information on avian incidents in our GIS database for the past two decades, see the figure below. The data is organized in searchable database that includes date and time, year, species, facilities, and outage data. This provides the District another tool in helping to determine patterns for identifying potential avian assessment zones that may require upgrading construction configurations to avian-friendly construction framing.



Detection

The detection of avian fatalities occurs through the investigation of avian-caused power outages and incidental observations. The detection of nest sites occurs through incidental observations and through regular monthly and annual monitoring efforts.

Investigation

Once detected, field staff will report the circumstances associated with dead or injured birds to the District dispatcher. The dispatcher will record the data on the Outage Report form. A site assessment will be conducted in response to all power outages to determine the cause and circumstances involved. If the cause is bird-related, the assessment will include a determination of bird species, the specific cause of the fatality if possible; and other relevant data. To enhance the probability of incidental detections, all field staff will be directed to be alert for dead or injured birds in the vicinity of all the District facilities.

Once detected, field staff will report the circumstances associated with nest built in or on structures to the District dispatcher. The dispatcher will notify the Operations Supervisor. The Operations Supervisor will conduct a site assessment to make a determination regarding the potential risk posed by the presence of the nest to system function and hazard to the nesting birds. The Operations Supervisor will utilize the nest management procedures to determine the appropriate course of action and notify the appropriate agencies of the proposed or taken action. Information on all bird nests will also be recorded as described under Reporting

Reporting

Once a fatality or injury has been detected and investigated, the incident will be reported utilizing the District's Outage Report form regardless whether an outage occurred or not. Information will be entered into the Outage Management System data base and then forwarded to Operations Supervisor for making decisions regarding remedial actions.

Since very few nests have been reported on the District structures, all nest reporting will be accomplished by the Operations Supervisor. The Operations Supervisor shall prepare a Nest Management Report documenting the location, species, agencies notified, actions taken with their associated dates, and photographs before and after corrective actions are taken. Nest relocation activities will also be reported on the Annual Report as required by the USFWS.

Risk Assessment Methodology

With over 655 miles of overhead distribution and transmission lines in our service territory, it is neither economically prudent nor biologically necessary to consider all areas for remedial actions. Thus, this risk assessment process under the APP is limited to new project routes and reconstruction efforts along existing routes.

Risk Assessment Process

The risk assessment process draws upon the available information on important avian use areas, habitats, and avian flight corridors to establish potential avian assessment zones. These zones can be then be used to address site-specific potential mortality issues associated with new construction and retrofitting of existing facilities having recorded avian mortality based on proximity to key habitats or bird use areas within the zone.

The following areas are designated as avian assessment zones:

Areas immediately adjacent to the:

Nestucca River and major tributaries
Tillamook River and major tributaries
Trask River and major tributaries
Wilson River and major tributaries
Kilchis River and major tributaries
Miami River and major tributaries
Nehalem River and major tributaries
Nestucca Bays
Netarts Bays
Tillamook Bays
Nehalem Bays
Pacific Ocean coastline
Pasture lands that are seasonally flood

Mortality Reduction Measures

This section describes the mortality reduction actions that have been implemented based on an assessment of reported incidents and the results of the Predictive Analysis and Risk Assessment procedures.

Mortality incidents reported as a result of power outages or through incidental observations are immediately reviewed. If the review indicates the cause is related to an unprotected power pole or conductor visibility issues, mortality reduction actions (i.e., retrofitting poles or installation of flight diverters) will be implemented accordingly.

Adjacent pole retrofits will be considered on a case-by-case basis. The District evaluates each incident and reviews adjacent structures for similar conditions.

The Risk Assessment has and will be used to inform, strategize, and direct mortality reduction actions. This is a proactive strategy designed to minimize risk by targeting remedial actions into areas identified as having the greatest risk.

Actions may include:

- Alternative siting of new facilities to avoid sensitive or high use areas
- Avian-friendly pole configurations (increase spacing between wires or covering of wires)

- Retrofitting distribution poles to reduce electrocution hazard
- Installing flight diverters to reduce collision hazard

Alternative Siting of New Facilities

Data derived from the risk assessment process within avian assessment zones has and will be used when selecting routes for future power lines. When alternative routes are available, staff will consider routes that minimize the potential for electrocution or collision mortality. When alternative routes are not available, avian-friendly construction standards will be implemented in areas where avian habitat or important movement corridors creates contact potential.

Avian-Safe Pole Configurations

The structural design of new power pole configurations will also be analyzed during or prior to the environmental review process to assess the effects of operation on electrocution and collision hazard. As previously discussed, configurations that do not provide sufficient separation between energized equipment can result in electrocution.

The SPAP guidelines (APLIC and USFWS 2005) provide several examples of alternative configurations that will be considered to reduce electrocution potential. In addition, the District uses the avian-friendly configurations that are approved for use by the Department of Agriculture Rural Utility Service, which were developed to follow the APLIC and USFWS guidelines.

Retrofitting Power Poles

At sites with recorded electrocution fatalities of raptors or other large birds detected either through power outages or incidentally by field staff or others, the District will retrofit utility poles with protection devices as described below under Construction Design and Standards. Retrofitting includes installation of protective coverings including cutout covers, conductor insulators, conductor covers, jumper covers, and bushing covers. In addition, wood pole caps and flight diverter may be installed. Installation of these protection devices is consistent with standard practices according to the APLIC's Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006.

Installing Flight Diverters to Reduce Collision Hazard

Where the results of the risk assessment indicate a potential collision hazard, the District may install flight diverters. Installation of these protection devices is consistent with the standard practices and guidance in the Edison Institute's Mitigating Bird Collisions with Power Lines: The State of the Art in 1994.

Avian Enhancement Options

The District has and will continue to promote natural resource protection and actions that benefit local and regional bird populations and other wildlife. The District commits to a continuing partnership with local agencies and state and federal resource agencies to explore and participate in activities that enhance and restore habitat. Possible enhancement measures include:

- Installing artificial nest platforms and perches. Artificial perches can be installed near existing utility poles. In other areas where nesting sites and perches are limited (and where utility poles are avian-friendly), installation of artificial structures can enhance use.
- Restoring riparian and wetland vegetation. The District will continue to coordinate with local jurisdictions in efforts to maintain, create, and enhance habitat for wildlife and associated public access and partner with ODF&W and USFWS regarding bird protection issues and habitat enhancement opportunities.
- Relocate existing lines in high impact areas. The District will continue to work with Estuary Committees and other agencies to cooperatively relocate existing overhead lines to areas of reduced impact or underground the existing facilities to improve and enhance regional bird populations.

Quality Control

The District periodically updates construction techniques and standards in a continuing effort to provide a safe and reliable electric grid. New products are tested in order to determine the best solutions for reducing avian mortalities, improving reliability and keeping costs low. District staff attend training seminars and conferences to keep pace with technologies and innovative solutions for providing avian-friendly facilities.

Reviews are conducted annually, during the reporting period, to determine the effectiveness of applied solutions. Particular attention is given for similar incidents within close proximity of each other. Also, locations that have similar framing configurations are assessed and appropriate solution are applied as deemed necessary.

Public Awareness

The District informs the public about the avian electrocution issue, our Avian Protection Program, as well as our successes in avian protection through the use of our web page and printed materials such as The Ruralite, a monthly magazine sent to all the District consumers, newspaper information advertisements or bill inserts.

Key Resources

U.S. Fish and Wildlife Service

Paul Montuori
U.S. Fish and Wildlife Service
Office of Law Enforcement
9025 SW Hillman Court, Suite 3134
Wilsonville, OR 97070
Telephone: 503-682-6131 (Extension 226)
Cell: 503-705-2989
Fax: 503-682-6171
Email: Paul_Montuori@fws.gov

Sheila O'Connor
U.S. Fish and Wildlife Service
Office of Law Enforcement
9025 SW Hillman Court, Suite 3134
Wilsonville, OR 97070
Telephone: 503-682-6131 (Extension 225)
Cell: 503-250-4718
Fax: 503-682-6171
Email: sheila_Oconnor@fws.gov

Oregon Department of Fish and Wildlife

North Coast Watershed District Office
5005 Third Street
Tillamook, OR 97141
Telephone: 503-842-2741

Wildlife Center of the North Coast

Wildlife Center of the North Coast
PO Box 1232
Astoria, OR 97103
Telephone: 503-338-0331
Pager: 503-338-3954
Email: director@coastwildlife.org

Chintimini Wildlife Rehabiliation Center

Jeff Picton
Chintimini Wildlife Rehabilitation Center
311 NW Lewisburg Ave
Corvallis, OR 97330
Telephone: 541-745-5324
Email: rehab@chintiminiwildlife.org; chintimini_wildlife@comcast.net

Appendices

Appendix A – USFWS Avian Permit

Most states also require a permit to salvage birds. I recommend contacting ODFW at 503-947-6315. If they require you to obtain a permit please send a copy to our office

Thank you!
Mandy

(see condition B of permit

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
Migratory Bird Permit Office
911 NE 11th Ave. - Portland, OR 97232
Tel: 503-872-2715 Fax: 503-231-2019
Email: permitsR1MB@fws.gov

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

TILLAMOOK PEOPLES UTILITY DISTRICT
PO BOX 433
TILLAMOOK, OR 97141
U.S.A.

2. AUTHORITY-STATUTES
16 USC 703-712

REGULATIONS
50 CFR Part 13
50 CFR 21.27

3. NUMBER
MB158340-0

4. RENEWABLE
☒ YES
☐ NO

5. MAY COPY
☒ YES
☐ NO

6. EFFECTIVE
04/01/2016

7. EXPIRES
03/31/2019

8. NAME AND TITLE OF PRINCIPAL OFFICER *(If #1 is a business)*
RAYMON SEILER
GENERAL MANAGER

9. TYPE OF PERMIT
MIGRATORY BIRD SPECIAL PURPOSE UTILITY PERMIT - ELECTRIC

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED
Activities Conducted: Company property and rights-of-way
Records Kept: 1115 Pacific Ave, Tillamook, OR 97141
TILLAMOOK COUNTY

11. CONDITIONS AND AUTHORIZATIONS:

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. **Possession and transport.**

(1) You and subpermittees are authorized to collect, transport and temporarily possess carcasses and partial remains of migratory birds found at the location/property specified in Block 10 for migratory bird mortality monitoring purposes or for human health and safety purposes.

(2) **For Bald and Golden Eagles (Eagles) and federally listed Threatened or Endangered Species under the U.S. Endangered Species Act (see 50 CFR 17.11)** you must call a U.S. Fish and Wildlife Service (Service), Office of Law Enforcement (OLE) special agent for instructions and approval BEFORE collecting or moving the carcass(es) or parts, unless you are working under a specific alternative protocol established by you and OLE. It may be necessary to preserve the carcass(es) or parts onsite until an agent or other Service or State representative arrives to collect them. Your OLE contact phone number is **503-682-6131**.

(3) For all other migratory birds, gather data required by Condition F below PRIOR to collecting or moving the carcass or its parts.

E. **Active Nest Relocation. Except for Eagles and federally listed Threatened or Endangered Species**, in emergency situations you are authorized to relocate active migratory bird nests, including eggs or nestlings, found on the utility structures when (1) the safety of the migratory birds, nests or eggs is at risk, or (2) the migratory birds, nests, or eggs pose a threat of serious bodily injury or a risk to human life, including a threat of fire hazard, mechanical failure or power outage. You may not use this authority for situations in which migratory birds are merely causing a nuisance or inconvenience. Nests must be relocated to a site and structure (natural or artificial) appropriate to the species' requirements. (If extenuating circumstances warrant, destruction of an active nest may be authorized by contacting your permit issuing office prior to destruction.) To conduct activities involving nests of **Eagles or federally listed Threatened or Endangered Species**, you must obtain additional appropriate permit(s).

☒ ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS
Annual Report Due 1/31
Annual Report Form: http://www.fws.gov/forms/3-202-17.xlsm
Submit To: PermitsR1MB@fws.gov and MigBirdReports@fws.gov

ISSUED BY	TITLE	DATE
Mandy Lawrence	PERMIT SPECIALIST, MIGRATORY BIRD PERMIT OFFICE - REGION 1	07/15/2016

F. **Data Collection.**

(1) All relevant data associated with each carcass/part(s)/injured bird discovered or collected, must be recorded, including the information below.

(a) discovery date
(b) collection date
(c) species, or if unknown, either the type of bird (e.g., gull, raptor), or "unknown"
(d) sex and age (hatchling, juvenile, adult), if known
(e) how carcass was located (during standardized carcass search or opportunistic or incidental find?)
(f) condition (alive or dead?)
(g) description of bird or carcass (If alive, indicate if sick or injured. If dead, indicate if intact; freshly killed (eyes moist); semi-fresh (stiff, eyes desiccated); partially decomposed feathers and/or bones; other)
(h) the GPS coordinates in decimal degrees using clearly identified datum (the standard position or level that measurements are taken from such as WGS 84) for the location where found OR nearest pole/structure ID number and city or county
(i) suspected cause of mortality/injury (collision with wire, collision with other structure, electrocution, shot, other)
(j) disposition (freezer onsite, left in place, buried, incinerated, rehabilitator, OLE, nest relocated, other)
(k) any special notes or additional information (e.g., mortality events involving unusually high numbers of birds or species groups; weather conditions at likely time of death, if known).

(2) All carcasses and partial remains you collect and transport must be bagged and labeled with a unique specimen identification number and the collector's name PRIOR to transport unless you are working under a specific alternative protocol established by you and OLE. The data sheet with the information listed in Condition E.2. must be attached to or included in the bag.

G. **Injured/orphaned birds.** In the event migratory birds, including **Eagles and federally listed Threatened or Endangered Species**, are injured or orphaned, you must immediately contact a federally permitted migratory bird rehabilitator or a licensed veterinarian for instructions. Rehabilitation and/or veterinary costs for birds that may have been injured or orphaned by utility operations or infrastructure are the utility's responsibility. See Condition I for reporting instructions.

H. Except as authorized by Condition E, **take and collection of live, non-injured migratory birds, eggs, or nests is not authorized by this permit.** In addition, this permit does not authorize the take, capture, harassment or disturbance of **Eagles and federally listed Endangered or Threatened Species**.

I. **Reporting.**

(1) **How to report.**

(a) Immediate (written follow-up) reports. Until a new on-line reporting system is completed, you have three options for submitting reports:

(i) If you have an account with the Service's Bird Injury and Mortality Reporting System (BIMRS) for reporting injury and mortality incidents, you may report incidents in BIMRS at: https://birdreport.fws.gov/.
(ii) You may report the incident using the Avian Injury/Mortality Reporting System (AIMRS) database (form 3-202-17). Download the database at http://www.fws.gov/forms/3-202-17.xlsm.
(iii) You may submit an Excel spreadsheet from your own database in lieu of using AIMRS to your migratory bird permit issuing office at Permits R1MB@fws.gov provided all of the "required" information in AIMRS (in exact AIMRS format) is included.

(b) Annual report. Submit your annual report using the AIMRS database or you may submit an Excel spreadsheet from your own database in lieu of using the AIMRS database, provided all of the "required" information in AIMRS (in exact AIMRS format) is included. If your company holds a BIMRS account, you may generate your annual report in Excel from BIMRS.

(2) **Immediate reports.**

(a) Eagles and T&E species. You must report any **Eagles and federally listed Threatened or Endangered Species** found dead or injured to your OLE special agent (see Condition D for contact information) or the general OLE phone number **503-682-6131 immediately** if possible, but no later than 48 hours from discovery of the bird, or at the beginning of the next business day. Your report must include as much of the information from Condition F(1) as possible.

A written injury/mortality report, including information not available at the time of your initial report, must be submitted to your migratory bird permit issuing office to include the data in Condition F(1) and/or as directed by your OLE special agent no later than **7 days** from the date of discovery and collection of the carcass.

A list of Threatened and Endangered species by State may be found in the Service's Threatened and Endangered Species System (TESS) database at: http://www.fws.gov/endangered.

(b) Significant mortality events. Report mortality events involving unusually high numbers of birds or unusual species groups to your migratory bird permit issuing office at **PermitsR1MB@fws.gov** immediately if possible but not later than 48 hours from discovery of the birds, or at the beginning of the next business day.

(3) **Annual report.** You must submit a cumulative annual report of all dead and injured birds, including **Eagles and federally listed Threatened or Endangered Species**, discovered or collected and any active nests relocated, to your migratory bird permit issuing office by **January 31** following each calendar year in which the permit is in effect. Your report must include at a minimum the information required in Condition F(1). For active nests, please indicate the species and date relocated.

J. **Disposition of Carcasses and Parts.**

(1) In accordance with Condition D(1) above, the Service will advise you on disposition of **Eagles and federally listed Threatened or Endangered Species** specimens. The special agent will advise if they will recover an eagle carcass or if you need to ship the carcass to the Service. With PRIOR written authorization from an OLE special agent, you may contact the U.S. Fish and Wildlife Service, National Eagle and Wildlife Property Repository (NER) at (303) 287-2110 for shipping instructions. The written authorization from the special agent must accompany the Eagle if it is shipped to the NER. Disposition must be reported in your annual report to your migratory bird permit issuing office.

(2) Carcasses of migratory birds, other than Eagles and federally listed Threatened or Endangered Species, may be necropsied to determine cause of death PROVIDED necropsy is authorized in writing by OLE.

(3) Unless otherwise specified in this permit, **Migratory Bird carcasses** and parts (**other than Eagles and federally listed Threatened or Endangered Species**) collected during the calendar year (ending Dec 31) that have been documented in your records must be stored in the freezer at the facilities at the location specified in Block 10 **until January 15** of the following year in which they were collected. Unless otherwise specified by your migratory bird permit issuing office or OLE, after **January 15** and after your annual report has been submitted to the migratory bird permit issuing office (due January 31), carcasses and parts may be:

(a) turned over to the State wildlife agency for official purposes, or,

(b) donated to a public scientific or educational institution, or to an individual or entity authorized by Federal permit to acquire and possess migratory bird specimens.

After all permit requirements have been met, carcasses and parts (**except Eagles and federally listed Threatened or Endangered species**) that you do not transfer to another authorized party must be disposed of by burial or incineration.

K. **Renewal.** Any renewal request for this permit must include information on any modifications made to your operations or infrastructure to avoid or minimize migratory bird mortalities, and if you have made modifications, any preliminary results of those modifications.

L. **Subpermittees.** Any person who is employed by or under contract to the permittee for the activities specified in this permit, or any person who is otherwise designated as a subpermittee in writing by the permittee may exercise the authority of this permit.

M. **Standard Conditions.** You and any subpermittees must comply with the attached Standard Conditions for Migratory Bird Special Purpose Utility Permits. **These standard conditions are a continuation of your permit conditions and must remain with your permit.**

For suspected illegal activity immediately contact the USFWS Law Enforcement at: 503-682-6131.

This permit does not, nor shall it be construed to, authorize lethal take or injury of migratory birds or limit or preclude the U.S. Fish and Wildlife Service from exercising its authority under any law, statute, or regulation, or from taking enforcement action against any individual, company, or agency. This permit is not intended to relieve any individual, company, or agency of its obligations to comply with any applicable Federal, State, Tribal, or local law, statute, or regulation. We strongly encourage you to develop/update and implement a proactive Avian Protection Plan (APP) per current U.S. Fish and Wildlife Service/Avian Power Line Interaction Committee (APLIC) guidelines found at: www.aplic.org.

Standard Conditions
Migratory Bird Special Purpose Utility Permits
50 CFR 21.27

All of the provisions and conditions of the governing regulations at 50 CFR part 13 and 50 CFR 21.27 are conditions of your permit. Failure to comply with the conditions of your permit could be cause for suspension of the permit. The standard conditions below are a continuation of your permit conditions and must remain with your permit. If you have any questions regarding these conditions, refer to the regulations or, if necessary, contact your migratory bird permit issuing office. For copies of the regulations and forms, or to obtain contact information for your issuing office, visit: *http://www.fws.gov/migratorybirds/mbpermits.html.*

1. **Personal use.** This permit does not authorize personal use of any migratory birds, parts, nests or eggs salvaged, transported, or temporarily possessed under the authority of this permit.

2. **Banded Birds** (carcasses collected and injured birds) must be reported to the U.S. Geological Survey Bird Banding Laboratory at 1-800-327-2263 or *http://www.reportband.gov*. Information provided must include, as accurately as possible, species of bird, band number, date recovered, recovery location, and name and contact information of the person who recovered the carcass or bird.

3. **Subpermittees.** A subpermittee is an individual to whom you have provided written authorization to conduct some or all of the permitted activities in your absence. Subpermittees must be at least 18 years of age. As the permittee, you are legally responsible for ensuring that anyone conducting activities under your permit is adequately trained and adheres to the terms of your permit. You are responsible for maintaining current records of who you have designated as a subpermittee, including copies of designation letters you have provided.

4. **Carrying your permit.** You and any subpermittees must carry a legible copy of this permit and display it upon request of any duly authorized federal, state or tribal officer whenever exercising its authority. Subpermittees must also carry your written subpermittee designation letter.

5. **Records.** You must maintain complete and accurate records of the activities conducted and the data collected under this permit. You must keep all required records and collected wildlife parts relating to permitted activities at the location you identified in writing to the migratory bird permit issuing office. (50 CFR 13.46 and 21.27)

6. **Site inspections**. Acceptance of this permit authorizes the Director's agent to enter the utility property at any reasonable hour as necessary to inspect the wildlife, records, facilities, property, and associated infrastructure for wildlife impacted by the utility, and for compliance with the terms of this permit and governing regulations. (50 CFR 13.47)

7. **Applicable laws.** You may not conduct the activities authorized by this permit if doing so would violate the laws of the applicable State, county, municipal or tribal government or any other applicable law.

8. **Other permissions.** This permit does not authorize salvage of specimens on Federal, State, tribal, or other public or private property without additional prior written permits or permission from the agency/landowner/custodian.

Appendix B – Annual Reports

CORE INFORMATION *Required Fields

*Report Year (yyyy)	2015
*Permittee Name	Tillamook People's Utility District
*FWS Permit Number	MB158340-0
*Project Type	Distribution Line
*If Project Type selected is "Other", please enter more details	NA
*Principal Officer Name, Phone, and E-mail Address	Raymon Sieler, 503-815-6016, rsieler@tpud.org
*Primary Contact Name	Robert White
*Primary Contact Title	Power Services Manager
*Primary Contact Business Phone Number (xxx-xxx-xxxx)	503-815-8604

Form 3-202-17, Rev. 2/2014
OMB Control No. 1018-0022, Expires 5/31/2017

If you do not have any mortality/injury information to report for the current reporting cycle, please indicate this by checking the box in the cell to the right. ☐

I certify that the information in this report is true and correct to the best of my knowledge. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S. C. 1001.

Official Representative Signature : X Robert White
Please type name in box above

Date of Signature: 2/15/2016
Please type date (mm/dd/yyyy) of signature in box above

*Required Fields
*Requested Fields

Please make sure you have filled out CORE INFORMATION (TAB 2) before entering mortality/injury information.

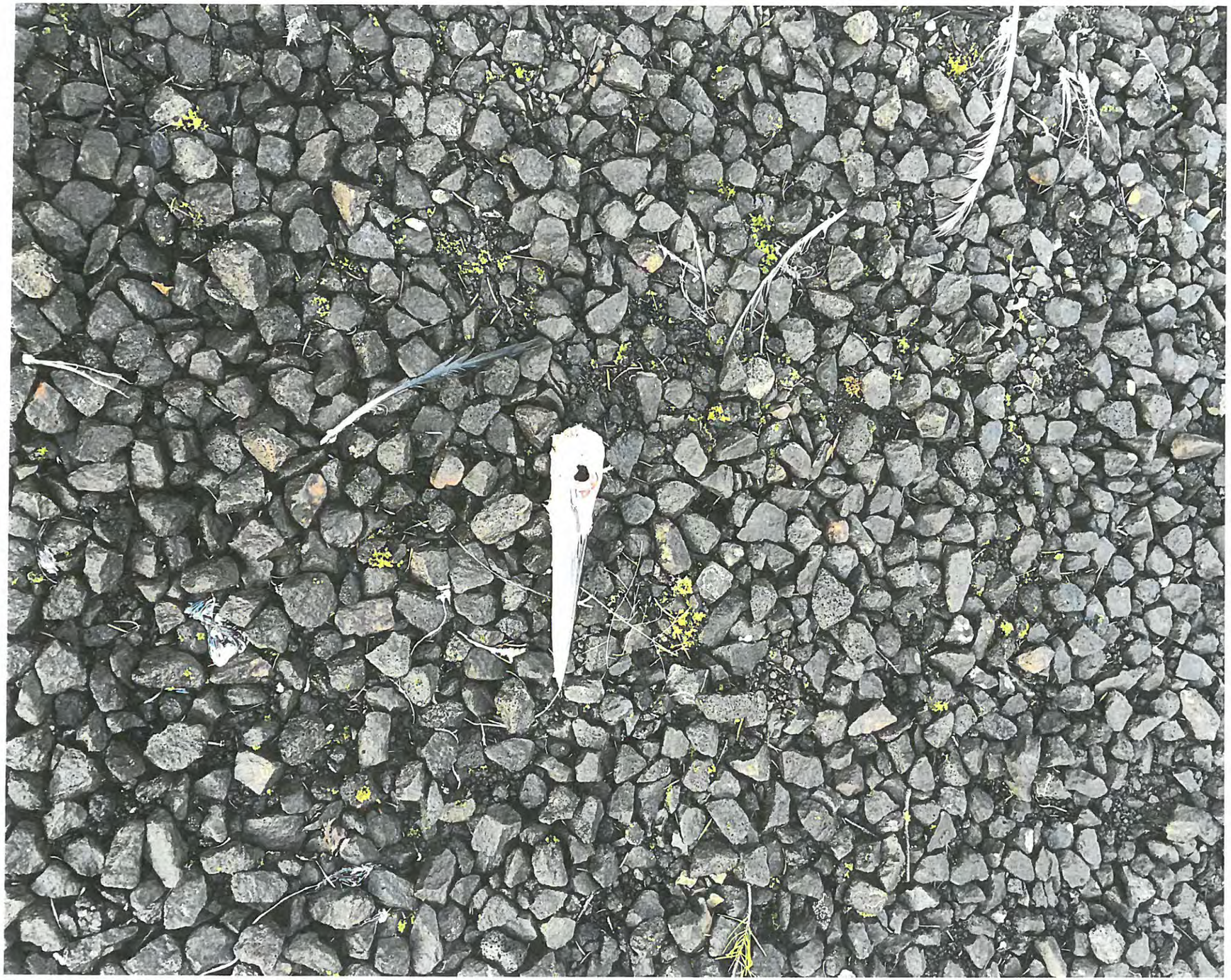
OMB Control No. 1018-0022, Expires 5/31/2017
Form 3-202-17, Rev. 2/2014

PLEASE READ TAB 1 OF THIS WORKBOOK if you have not yet done so before entering any injury and mortality records. Tab 1 contains important information about the meaning of Required and Priority fields, the level of information you should be providing if you are a permittee, and how to proceed upon discovery of an eagle or T&E species.

Specimen Information													Suspected Cause of Injury/Mortality Details				
*Report Year *Please make sure this column reflects the current reporting year. If not, please go to tab 2- CORE INFORMATION and change the report year to the correct year .*	UNIQUE RECORD ID# *(will autopopulate upon species selection)* **NOTE: FOR EAGLE and T&E REPORTS THIS UNIQUE ID IS IMPORTANT. Please read instruction in tab 1 (Step #3 of "If you discover an eagle or T&E species") for specific instructions on what to do with this unique ID#.**	*Species (Common Name)	*How Identified *For assistance with identification of birds, please refer to the suggested bird identification guides in the REFERENCE MATERIALS tab.*	*Number of Individuals	*Condition of Animal (Alive or Dead)	*Description of Animal *If Alive, indicate if injured or sick; If Dead, indicate if carcass is intact, freshly killed [eyes moist], semi-fresh [stiff], partially decomposed, feathers and/or bones, other*	*Discovery Date (mm/dd/yyyy)	*Collection Date (mm/dd/yyyy) (If specimen was not collected, enter "N/A")	*How found? *Was this eagle an incidental find or was it found during a planned carcass survey?*	*Age *For assistance with ageing of eagles, please refer to the US Fish and Wildlife Service Feather Atlas and Bloom and Clark (2001) paper in the REFERENCE MATERIALS tab.*	How Aged	*Sex	*Suspected cause of injury/mortality (field determination)	*Did you see the injury or mortality event?	*Additional details on suspected cause of injury/mortality *If suspected cause is "Other" or includes "Other", or you have additional details about the option selected, please use this field to add more information*	*Feature near where dead/injured animal was found	*Feature 2 *(use if more than one feature found)*
2015	FWSIMR2015MB15B340-01	Brewer's Blackbird	Field Guide	1	Dead	Carcass, fresh	6/17/2015	6/17/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-02	Mourning Dove	Field Guide	1	Dead	Carcass, fresh	6/22/2015	6/22/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-03	Northern Flicker	Field Guide	1	Dead	Carcass, fresh	6/25/2015	6/25/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-04	American Crow	Field Guide	1	Dead	Carcass, fresh	6/28/2015	6/28/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-05	American Crow	Field Guide	1	Dead	Carcass, fresh	7/6/2015	7/6/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-06	Brewer's Blackbird	Field Guide	1	Dead	Carcass, fresh	7/6/2015	7/6/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-07	American Crow	Field Guide	1	Dead	Carcass, fresh	7/7/2015	7/7/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-08	American Crow	Field Guide	1	Dead	Carcass, fresh	7/8/2015	7/8/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-09	American Crow	Field Guide	1	Dead	Carcass, fresh	10/24/2015	10/24/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-010	American Crow	Field Guide	1	Dead	Carcass, fresh	10/26/2015	10/26/2015	Caused Outage	unknown	other	Unknown	Electrocution	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-011	Barn Owl	Field Guide	1	Alive	Alive, injured	3/5/2015	3/5/2015	phone call from ODFW	Unknown	other	Unknown	Electrical contact	No	NA	Distribution Line	NA
2015	FWSIMR2015MB15B340-012	Great Blue Heron	Field Guide	1	Dead	Carcass, feathers and bones	1/20/2015	1/20/2015	Incidental Finding	Unknown	other	Unknown	Electrocution	No	NA	other - Substation	NA

		Location Information		Click here to identify the required Lat./Long. in Decimal Degrees (WGS 84 Datum) for the incident. If you can not provide the Lat./Long., please populate **at a minimum** the **County** and **State** fields. If known, please also provide information on the **nearest cross street.**				Weather conditions	Animal Disposition	Additional Information				
*Feature 3	*Describe any additional information or details about nearby hazards or attractants here, including any structure configuration or nameplate details and the distance the animal was found from the feature.	*County *(Note: Please list only primary name e.g. Grant Parish would be "Grant", and Alomeda County would be "Alomeda")*	*State	*Latitude (decimal degrees, e.g. 38.88266)	*Longitude (decimal degrees, e.g. -77.11504)	*Nearest cross street	Surrounding Habitat	Estimated weather conditions at time of mortality/injury	*Animal Disposition	PHOTOS: *If you have photos of the incident/specimen, please select and "X" in the box below and store the photos with a copy of your spreadsheet. NOTE: Please reference the Unique Record ID# assigned to the associated record (column "L") in the photo file name.*	Unique Specimen (non-USFWS) ID# *(e.g. state, local, laboratory ID #). If not applicable, enter "NA".*	USGS Band Number (if present)	Transmitter or other markers	Any Additional Information or Notes
NA	NA	Tillamook	OR	12.46717485	-123.7902862	Olsen Rd N	Agriculture	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.421724	-123.92538	Whiskey Creek Rd	Urban	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.39787837	-123.8047034	South Prairie Rd	Agriculture	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.45224249	-123.8480287	9th Street	Urban	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.52470215	-123.8880279	6th Street	Urban	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.4474181	-123.7806612	Trask River Rd	Agriculture	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.45389224	-123.8172274	Dogwood Street	Urban	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.228999	-123.8653038	Hwy 101 S	Agriculture	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.46040142	-123.7733497	Bluebird Ln	Agriculture	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.4704491	-1237916111	Olsen Rd N	Agriculture	Clear	Buried Onsite	**NA**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.469535	-123.777181	Donaldson Rd	Agriculture	Clear	Veternarian	**X**	NA	NA	NA	NA
NA	NA	Tillamook	OR	45.590357	-123.466765	South Fork Rd	Forest	Unknown	Buried Onsite	**X**	NA	NA	NA	NA

TPUD/310
Fagen/118



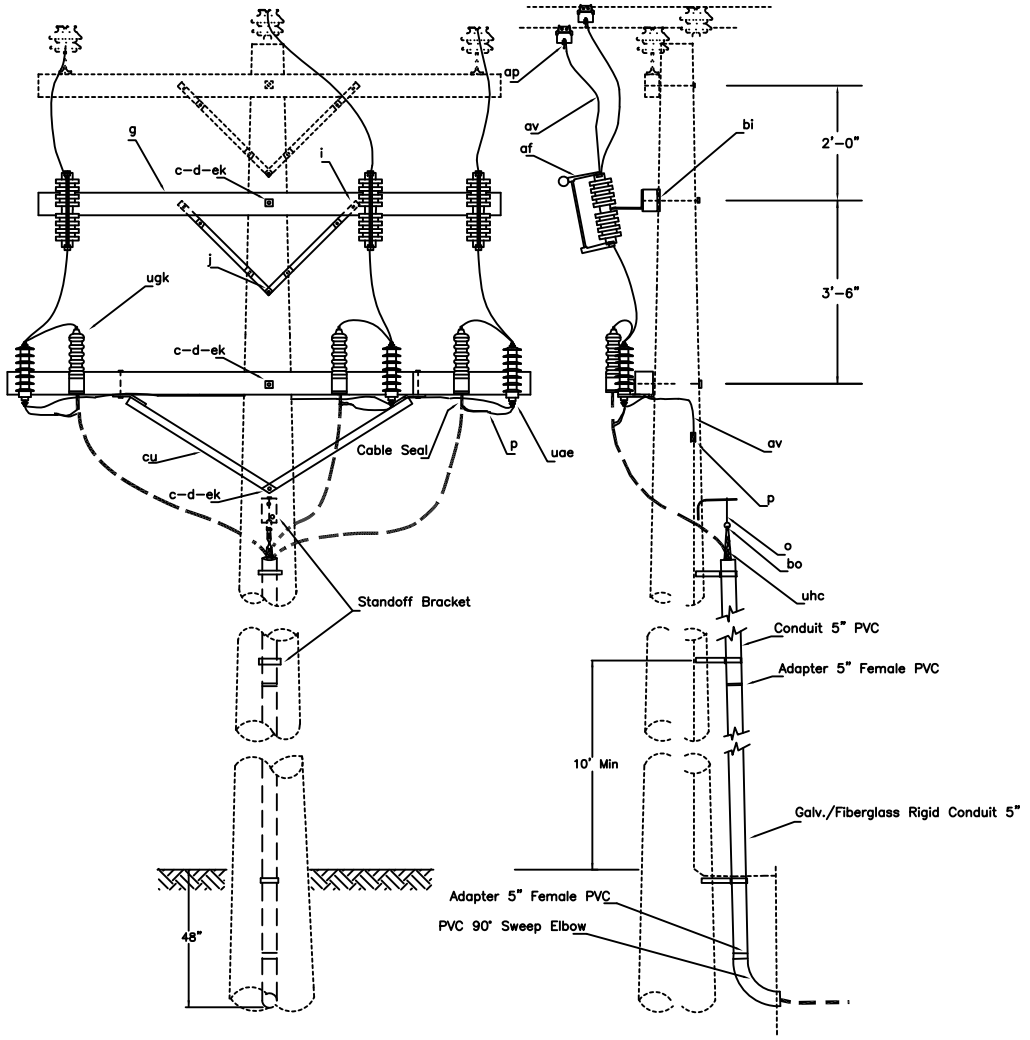
Appendix C - Construction Standards (Framing Units)

TILLAMOOK PUD AVIAN-FRIENDLY DEVICES

EQUIPMENT COVERS

BIRD FLIGHT DIVERTERS

LINE COVERS



NOTES:

1. For polymer termination use no. UM5 3/0 P

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
c	3	Bolt, machine, 5/8" x req'd length	cu	1	Brace, wood, 28" span (1 set)
c	2	Bolt, machine, 1/2" x 6"	cu	1	Brace, wood 60" span (1 set)
d	2	Washer, square 2"	ek	*	Locknuts
d	5	Washer, square 2 1/4"	uae	3	Arrester, dist, 18 kV urd. riser, polymer
g	1	Crossarm, 3 3/4" x 4 3/4" x 10'-0"	ugk	3	Termination, 1/0 strand pothead-25 kV
g	1	Crossarm, 3 3/4" x 4 3/4" x 8'-0"	uhc	3	Cable support
i	2	Bolt, carriage		2	Adapters, 5" PVC, female
j	9	Screw, lag, 1/2"x4"		3	Hot line stirrup
o	1	Bolt, oval eye, 5/8"x req'd length		20	Conduit, 5" PVC, schedule 40
p	*	Connectors		10	Conduit, 5" galv. rigid
af	3	Cutout, LBC 100 amp heavy duty		1	Conduit, 5" PVC 90° sweep elbow
ap	3	Connector, hot tap (small)		3	Standoff bracket, kendorf type w/ clamps
av	#	Wire, #6 insulated str. copper		1	Standoff bracket, meter loop type
av	#	Wire, #4 insulated str. copper		3	Cable seal kit, cold shrink
bi	1	Pole gain		1	Connector, ground, 5"
bo	1	Anchor, shackle			

* As required
\# Required Length

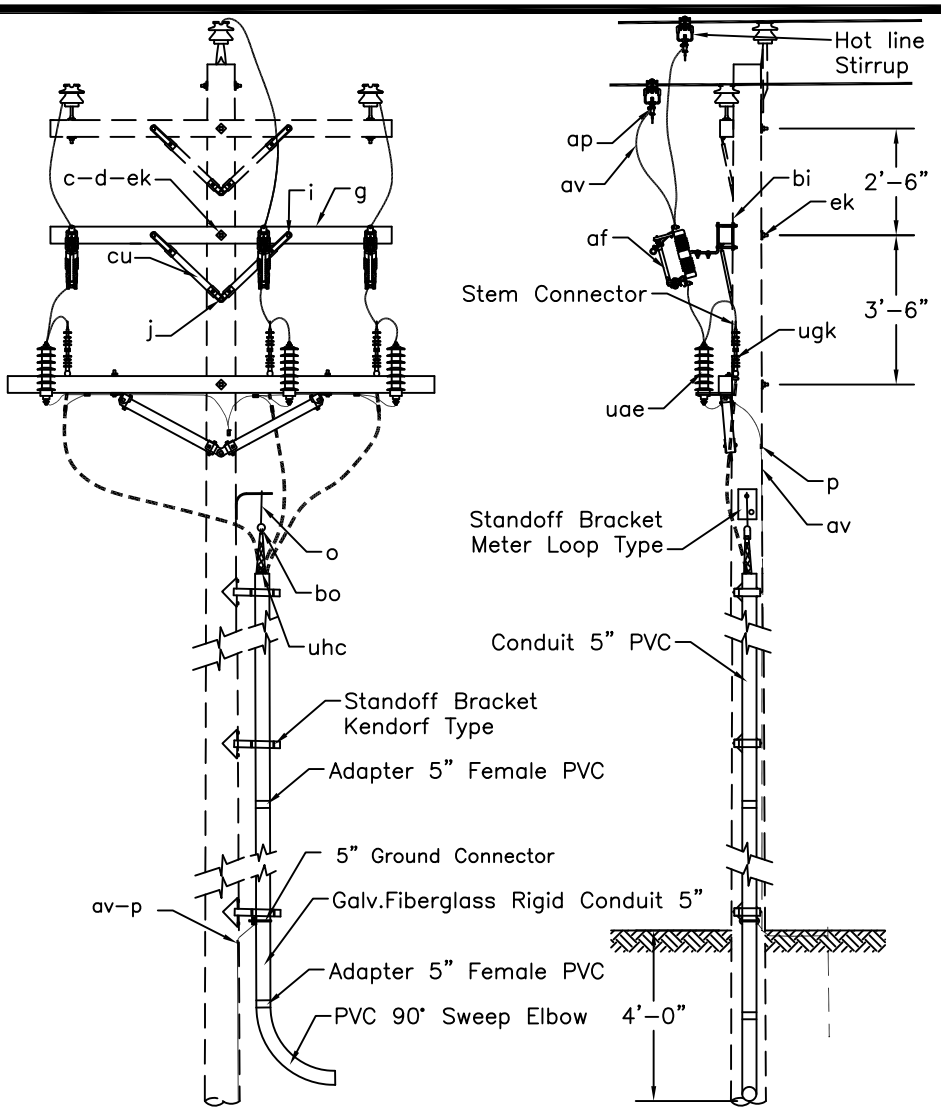
DATE	REVISION
12/14/2006	Correct sizes

THREE PHASE - PORCELAIN
PRIMARY CABLE RISER
1/0 AL URD PRIMARY CABLE

DATE 5-1-01
DWN. BY T Penney
DWG NAME um5-30

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

UM5 3/0



NOTES:

1. Show required amount of PVC conduit in parenthesis following the spec. no. E.g. UM5 3/0P (10' PVC 4")
2. For porcelain termination use no. UM5 3/0

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
c	3	Bolt, machine, 5/8" x req'd length	cu	1	Brace, wood, 28" span (1 set)
c	2	Bolt, machine, 1/2" x 6"	cu	1	Brace, wood 60" span (1 set)
d	2	Washer, square 2"	ek	*	Locknuts
d	5	Washer, square 2 1/4"	uae	3	Arrester, dist, 18 kV urd. riser
g	1	Crossarm, 3 3/4" x 4 3/4" x 10'–0"	ugk	3	Termination, 1/0 strand polymer–25 kV
g	1	Crossarm, 3 3/4" x 4 3/4" x 8'–0"	uhc	3	Cable support
i	2	Bolt, carriage		2	Adapters, 5" PVC, female
j	9	Screw, lag, 1/2"x4"		3	Hot line stirrup
o	1	Bolt, oval eye, 5/8"x req'd length		#	Conduit, 5" PVC, schedule 40
p	*	Connectors		10	Conduit, 5" galv. rigid
af	3	Cutout, LBC 100 amp heavy duty		1	Conduit, 5" PVC 90° sweep elbow
ap	3	Connector, hot tap (small)		3	Standoff bracket, kendorf type w/ clamps
av	#	Wire, #6 insulated str. copper		1	Standoff bracket, meter loop type
av	#	Wire, #4 insulated str. copper		3	Connector, stem, 1/0 AL STR
bi	1	Pole gain		1	Connector, ground, 5"
bo	1	Anchor, shackle			

* As required
\# Required Length

DATE	REVISION
12/14/2006	Correct sizes

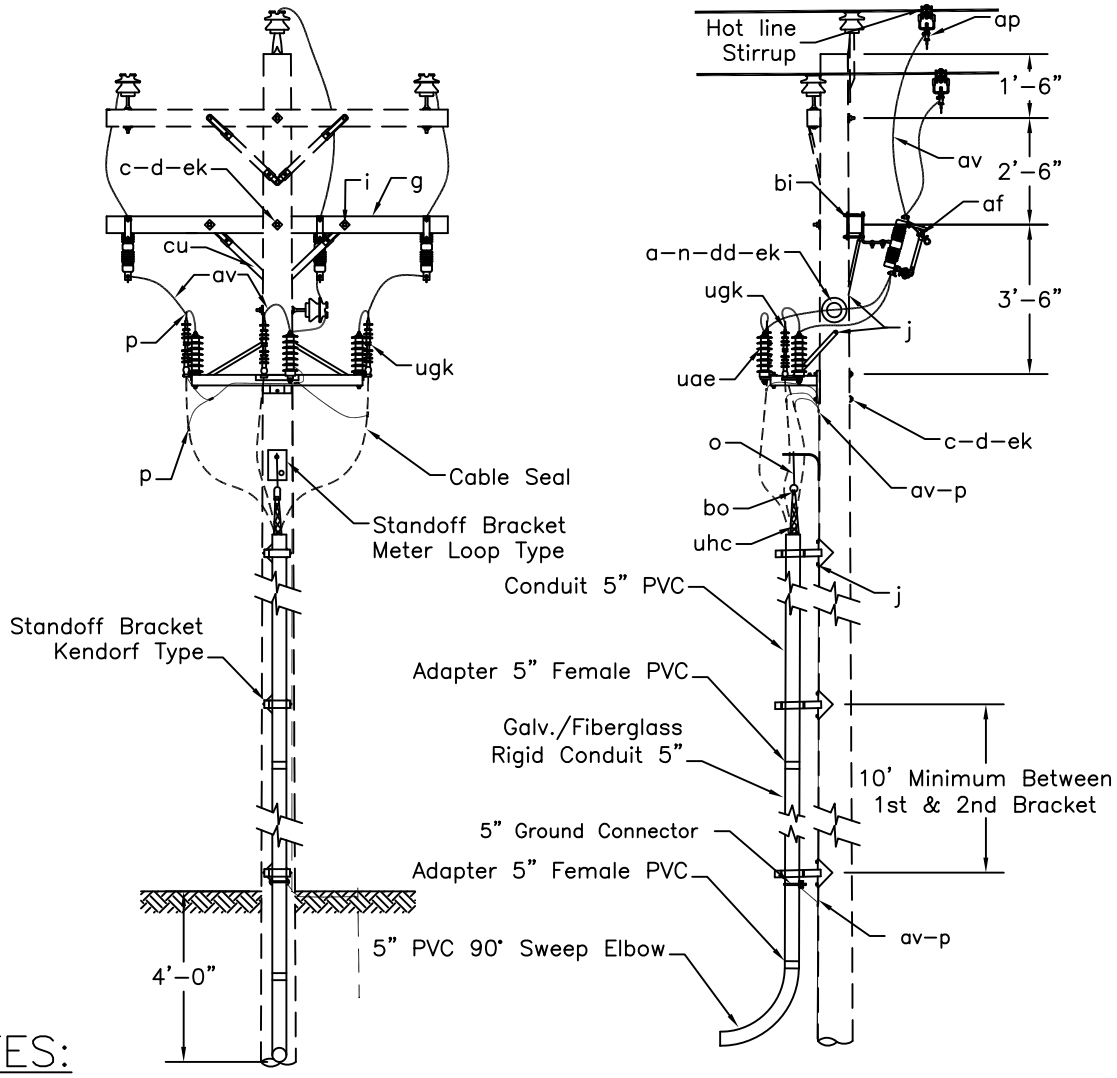
TILLAMOOK PUBLIC POWER PEOPLE'S UTILITY DISTRICT

THREE PHASE – POLYMER
PRIMARY CABLE RISER
1/0 AL URD PRIMARY CABLE

DATE 5–1–01
DWN. BY T Penney
DWG NAME um5–30p

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

UM5 3/0P



NOTES:

1. For porcelain termination use no. UM5 3/0

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
a	1	Insulator, pin type	dd	1	Adapter, insulator
c	3	Bolt, machine, 5/8" x req'd length	ek	*	Locknuts
d	5	Washer, square 2 1/4"	uae	3	Arrester, dist, 18 kV urd. riser, polymer
g	1	Crossarm, 3 3/4" x 4 3/4" x 8'–0"	ugk	3	Termination, 1/0 strand polymer–35 kV
i	2	Bolt, carriage	uhc	3	Cable support
j	9	Screw, lag, 1/2"x4"		2	Adapters, 5" PVC, female
n	1	Bolt, double arming, 5/8" x req'd length		20	Conduit, 5" PVC, schedule 40
o	1	Bolt, oval eye, 5/8"x req'd length		10	Conduit, 5" galv. rigid
p	*	Connectors		1	Conduit, 5" PVC 90° sweep elbow
af	3	Cutout, LBC 100 amp w/ solid doors		3	Hot line stirrup
ap	3	Connector, hot tap (small)		3	Standoff bracket, meter loop type
av	#	Wire, #6 insulated str. copper		1	Standoff bracket, kendorf type, w/ clamps
av	#	Wire, #4 insulated str. copper		3	Connector, stem, 1/0 AL STR
bi	1	Pole gain		1	Bracket, aluminum cat# WT3CA–48
bo	1	Anchor, shackle		3	Cable seal kit, cold shrink
cu	1	Brace, wood, 28" span (1 set)		1	Connector, ground, 5"

* As required
\# Required Length

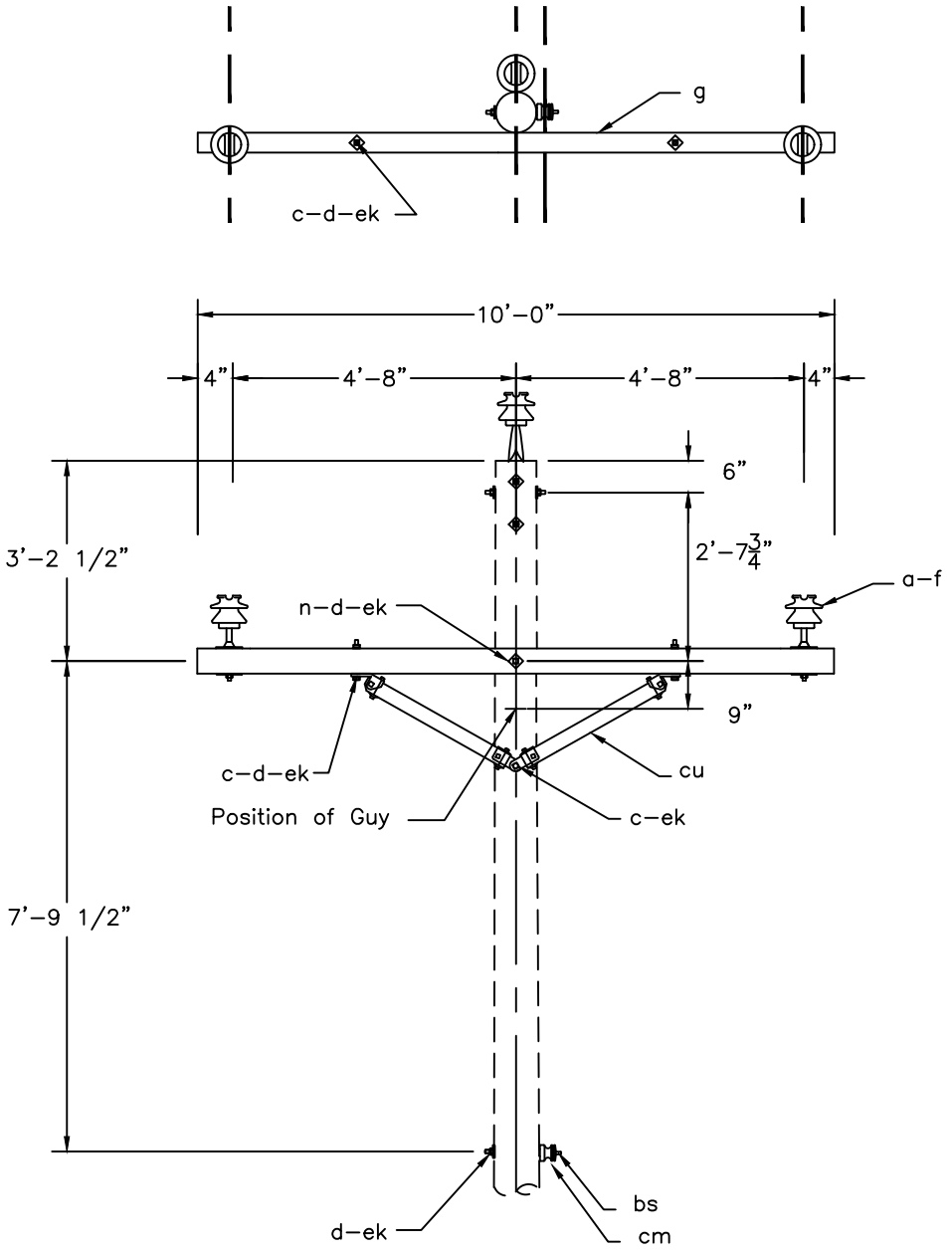
DATE	REVISION
12/14/2006	Correct sizes

THREE PHASE – POLYMER
PRIMARY CABLE RISER
1/0 AL URD PRIMARY CABLE

DATE 5–01–01
DWN. BY T Penney
DWG NAME um5–30pz

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

UM5 3/0PZ



RAPTOR FRIENDLY

Pole Top Pin Assembly

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
a	6	Insulator, pin type	f	4	Pin, crossarm, steel
b	2	Pin, pole top, 20"	g	2	Crossarm, 3–5/8" x 4–5/8" x 10'–0"
c	3	Bolt, machine, 5/8 x req'd length	n	3	Bolt, single upset, insulated
c	4	Bolt, machine, 1/2" x 6"	cu	2	Brace, wood, 60" span (1 set)
d	1	Washer, curved 3" x 3"	bs	1	Bolt, single, upset
d	10	Washer, square 2 1/4"	ek	*	Locknuts
cm	1	Insulator, spool, 3"			

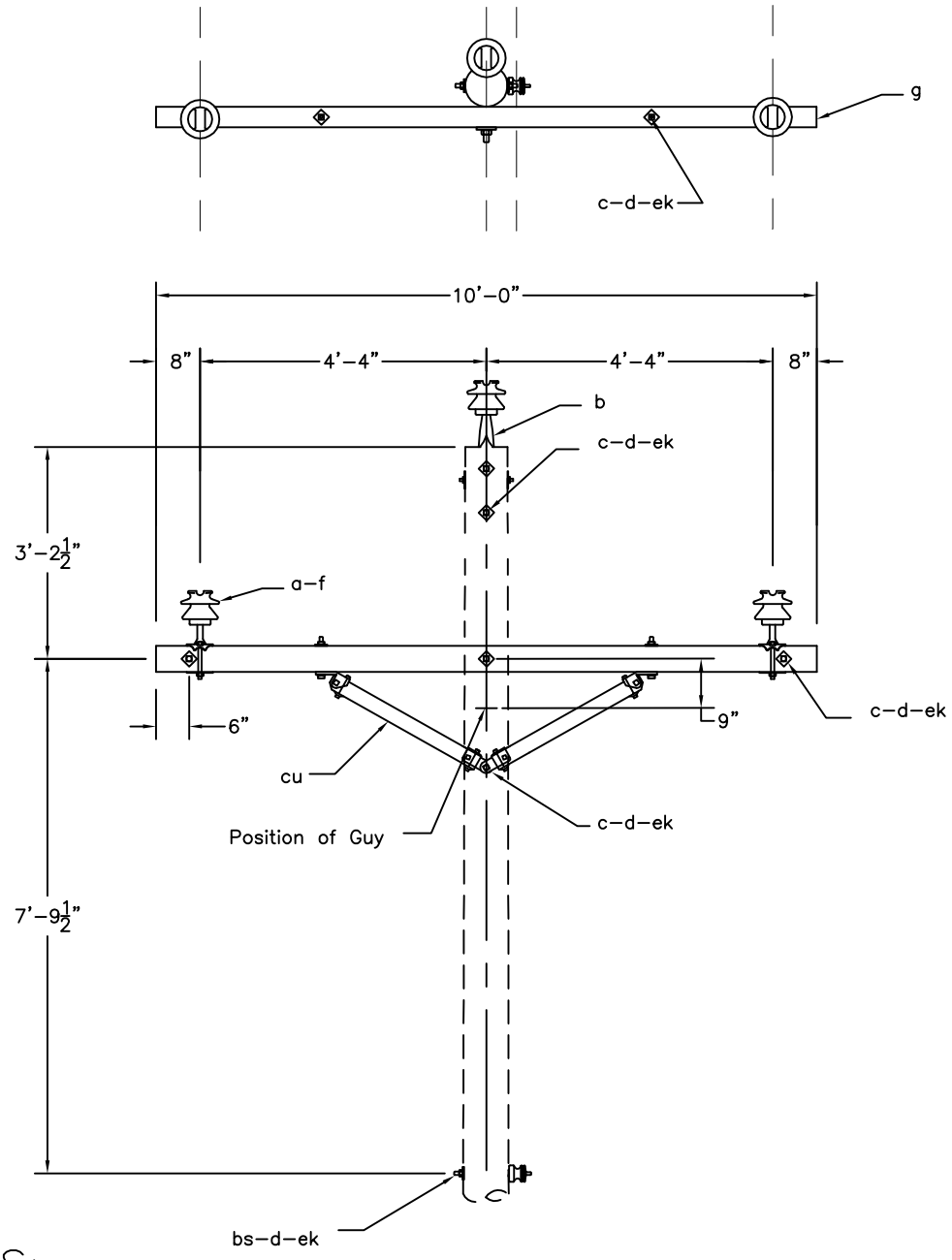
* As required
\# Required length

RAPTOR FRIENDLY CONSTRUCTION – 14.4/24.9–kV.
THREE–PHASE CROSSARM CONSTRUCTION
0° TO 2° ANGLE

DATE 5–9–16
DWN. BY D VanLant
DWG VC1.1R

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VC1.1R



NOTES:

1. This construction required for all conductors having a breaking strength of more than 4500 lbs.

RAPTOR FRIENDLY

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
a	3	Insulator, pin type	f	2	Pin, crossarm, steel, clamp type
b	1	Pin, pole top 20"	g	1	Crossarm, 3 3/4" x 4 3/4" x 10'–0"
c	6	Bolt, machine, 5/8" x req'd length	bs	1	Bolt, single upset, insulated
c	2	Bolt, machine, 1/2" x 6"	cu	1	Brace, wood, 60" span (1 set)
d	6	Washer, square 2 1/4"	ek	*	Locknuts
d	5	Washer, curved 3" x 3"			

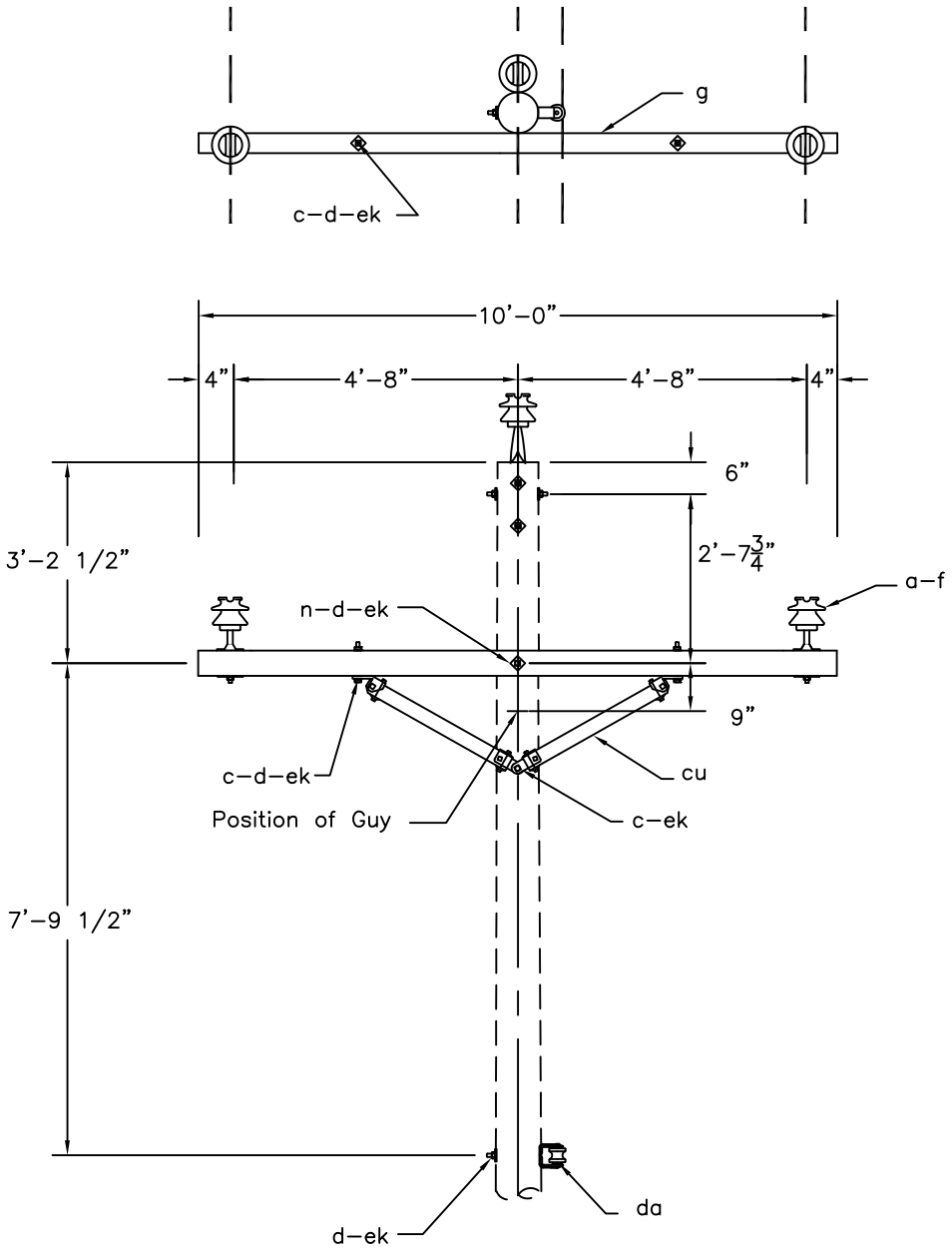
* As required
\# Required length

RAPTOR FRIENDLY CONSTRUCTION – 14.4/24.9–kV.
THREE–PHASE CROSSARM CONSTRUCTION
0° TO 2° ANGLE (LARGE CONDUCTORS)

DATE 7–02–15
DWN. BY J Broad
DWG NAME VC12LXR

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VC1.2LXR



RAPTOR FRIENDLY

Pole Top Pin Assembly

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
a	6	Insulator, pin type	f	4	Pin, crossarm, steel
b	2	Pin, pole top, 20"	g	2	Crossarm, 3–5/8" x 4–5/8" x 10'–0"
c	3	Bolt, machine, 5/8 x req'd length	n	3	Bolt, single upset, insulated
c	4	Bolt, machine, 1/2" x 6"	cu	2	Brace, wood, 60" span (1 set)
d	1	Washer, curved 3" x 3"	da	1	Bracket, insulated
d	10	Washer, square 2 1/4"	ek	*	Locknuts

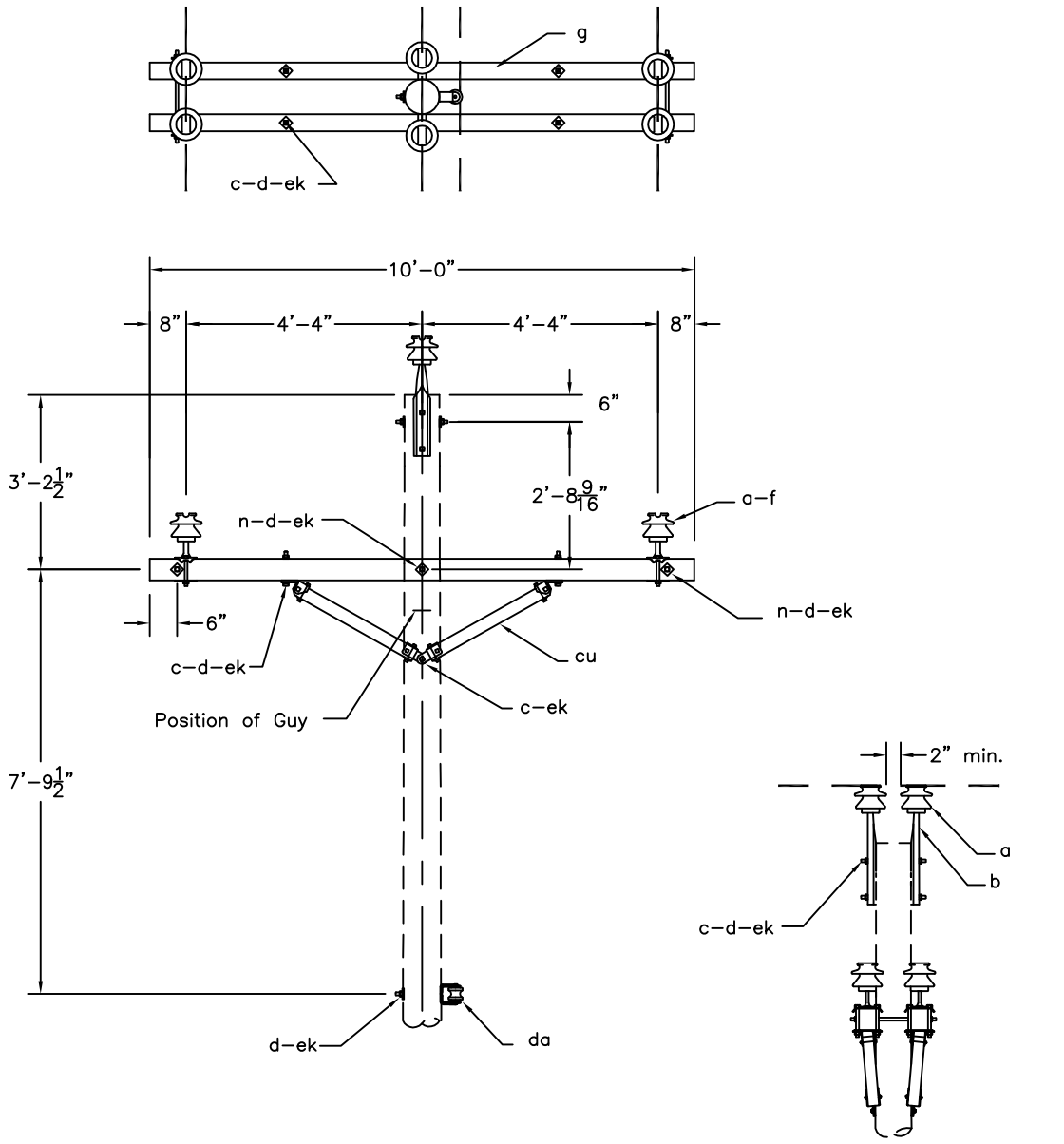
* As required
\# Required length

RAPTOR FRIENDLY CONSTRUCTION – 14.4/24.9–kV.
THREE–PHASE CROSSARM CONSTRUCTION
0° TO 2° ANGLE (LARGE CONDUCTORS)

DATE 9–22–11
DWN. BY T. Sherrill
DWG VC111R

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VC1.11R



Pole Top Pin Assembly

RAPTOR FRIENDLY

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
a	6	Insulator, pin type	f	4	Pin, crossarm, steel
b	2	Pin, pole top, 20"	g	2	Crossarm, 3 3/4" x 4 3/4" x 10'–0"
c	3	Bolt, machine, 5/8 x req'd length	n	3	Bolt, double arming, 5/8" x req'd length
c	4	Bolt, machine, 1/2" x 6"	cu	2	Brace, wood, 60" span (1 set)
d	1	Washer, curved 3" x 3"	da	1	Bracket, insulated
d	10	Washer, square 2 1/4"	ek	*	Locknuts

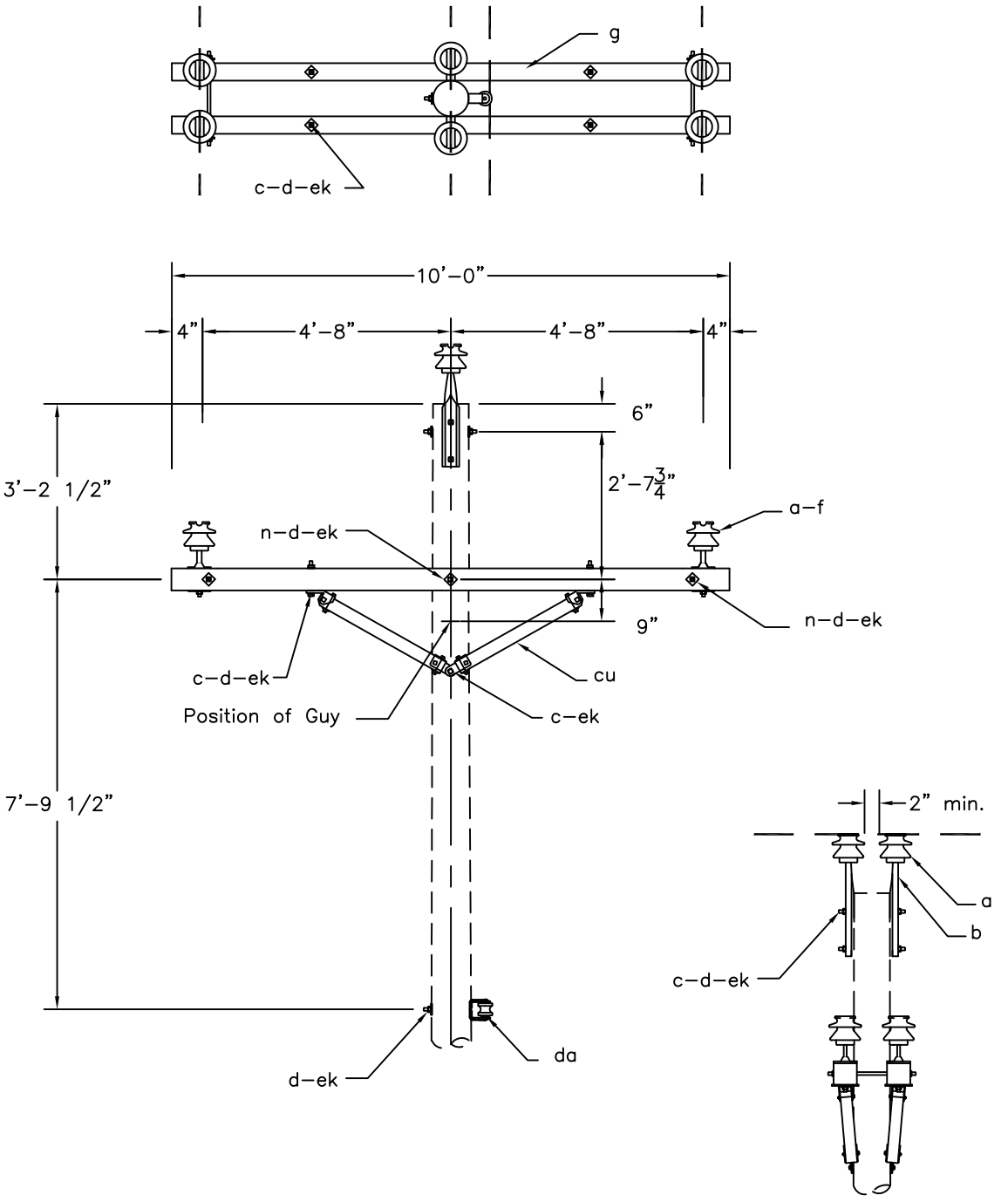
* As required
\# Required length

RAPTOR FRIENDLY CONSTRUCTION – 14.4/24.9–kV.
THREE–PHASE CROSSARM CONSTRUCTION–DOUBLE PRIMARY SUPPORT
0° TO 5° ANGLE (LARGE CONDUCTORS)

DATE 7–02–15
DWN. BY J Broad
DWG VC221LXR

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VC2.21LXR



Pole Top Pin Assembly

RAPTOR FRIENDLY

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
a	6	Insulator, pin type	f	4	Pin, crossarm, steel
b	2	Pin, pole top, 20"	g	2	Crossarm, 3–5/8" x 4–5/8" x 10'–0"
c	3	Bolt, machine, 5/8 x req'd length	n	3	Bolt, double arming, 5/8" x req'd length
c	4	Bolt, machine, 1/2" x 6"	cu	2	Brace, wood, 60" span (2 sets)
d	1	Washer, curved 3" x 3"	da	1	Bracket, insulated
d	10	Washer, square 2 1/4"	ek	*	Locknuts

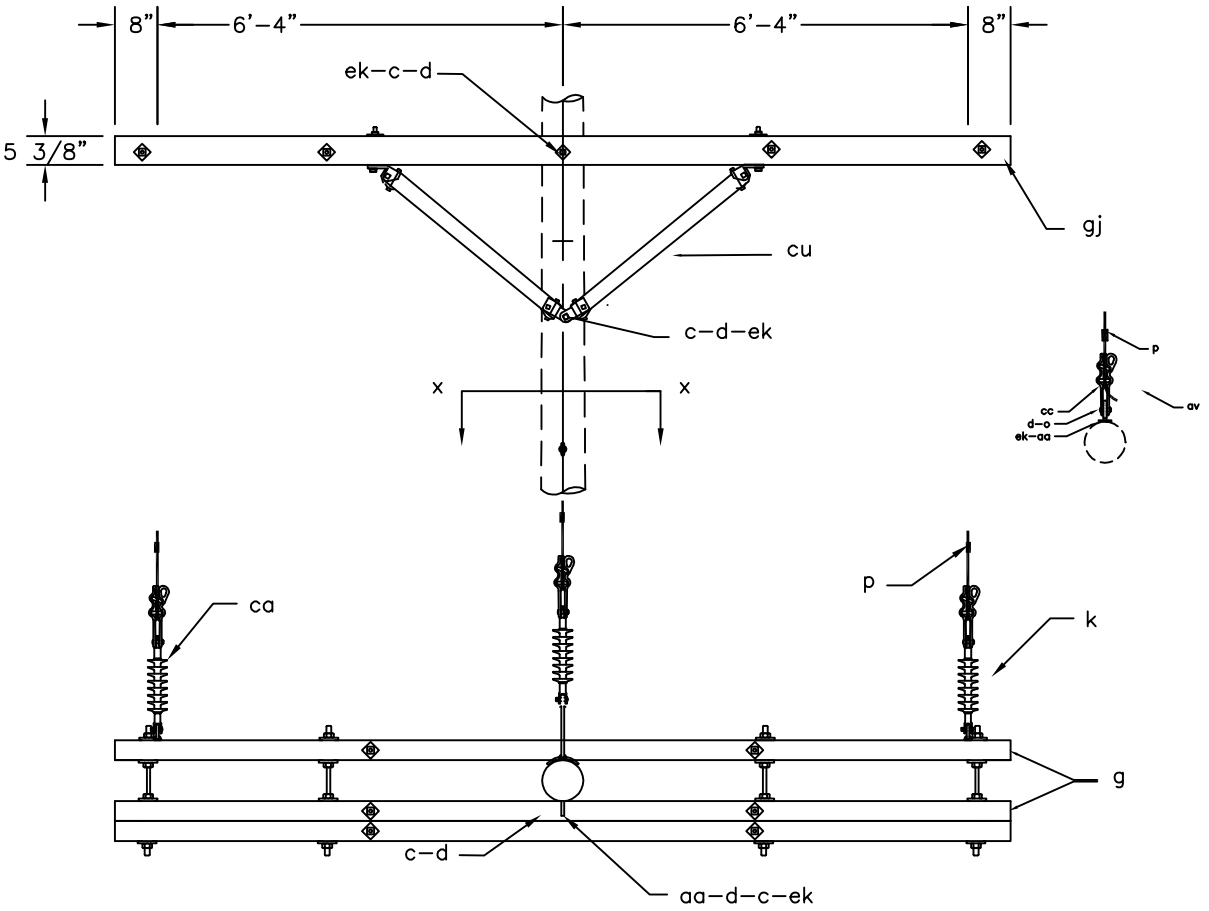
* As required
\# Required length

RAPTOR FRIENDLY CONSTRUCTION – 14.4/24.9–kV.
THREE–PHASE CROSSARM CONSTRUCTION–DOUBLE PRIMARY SUPPORT
0° TO 5° ANGLE (LARGE CONDUCTORS)

DATE 9–13–11
DWN. BY T. Sherrill
DWG VC221R

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VC2.21R



ITEM	MATERIAL	VC5–314
c	Bolt, machine, 3/4" x req'd length	2
d	Washer, curved 3" x 3"	4
d	Washer, Square, 3"	2
k	Insulator, polymer–35 kV	3
o	Bolt, eye, 5/8" x req'd length	1
c	Bolt, machine, 5/8" x req'd length	1
p	Connectors	*
aa	Nut, eye, 3/4"	1
aa	Nut, eye, 5/8"	1
av	Jumpers and leads	#
ca	Deadend assembly, primary	3
cc	Deadend assembly, neutral	1
ek	Locknuts	*
gj	14' crossarm deadend assembly	3

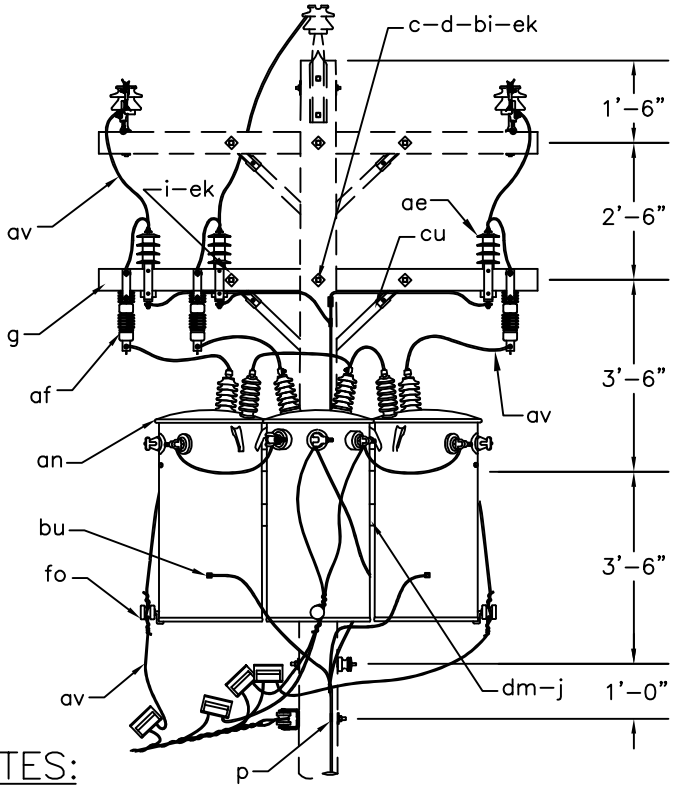
* As required
\# Required Length

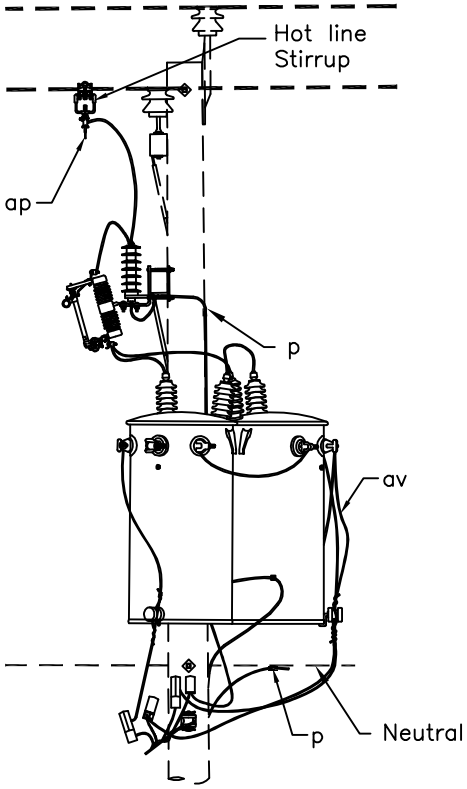
14.4/24.9–KV.
3ø SINGLE DEADEND ASSEMBLY – TRIPLE CROSSARM

DATE 8–18–14
DWN. BY J Aman
DWG NAME vc5–14

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VC5.314





NOTES:

1. Designate VG3.1AGX for crossarm mounted cutout.
2. Designate VG3.1AX for crossarm mounted cutout and arrester.
3. Specify kVA and voltage of transformer.
4. Transformers are to be stainless steel.
5. All secondary connectors will be approved before use.
6. 3/4" machine bolts will be used when transformer is bigger than 75 kVA.

ITEM	MATERIAL	VG3.1AGX	VG3.1AX
c	Bolt, machine, 3/4" x req'd length	1	1
c	Bolt, machine, 5/8" x req'd length	1	1
d	Washer, square 2 1/4"	1	1
d	Washer, curved 3" x 3"	1	1
g	Crossarm, 3 3/4" x 4 3/4" x 8'–0"	1	1
i	Bolt, carriage	2	2
j	Screw, lag, 1/2" x 4"	2	2
p	Connectors, (see note 5)	*	*
ae	Arrester, polymer – 18 kV (Ohio Brass 213–615–50–65)	0	3
af	Cutout LBC 100 amp heavy duty (S&C)	3	3
an	Transformers (see notes 3 & 4)	*	*
ap	Connectors, hot tap (small)	3	3
av	Jumpers, #4 insulated stranded copper	#	#
av	Jumpers, #6 insulated stranded copper	#	#
bi	Pole gain	1	1
bu	Transformer, ground lug, connector	3	3
cu	Brace, wood 28" (1 set)	1	1
dm	Bracket, transformer, cluster mount	1	1
ek	Locknuts	*	*
fo	Transformer secondary bracket, insulated	3	3
	Hot line stirrup connectors	3	3

* As required
\# Required length

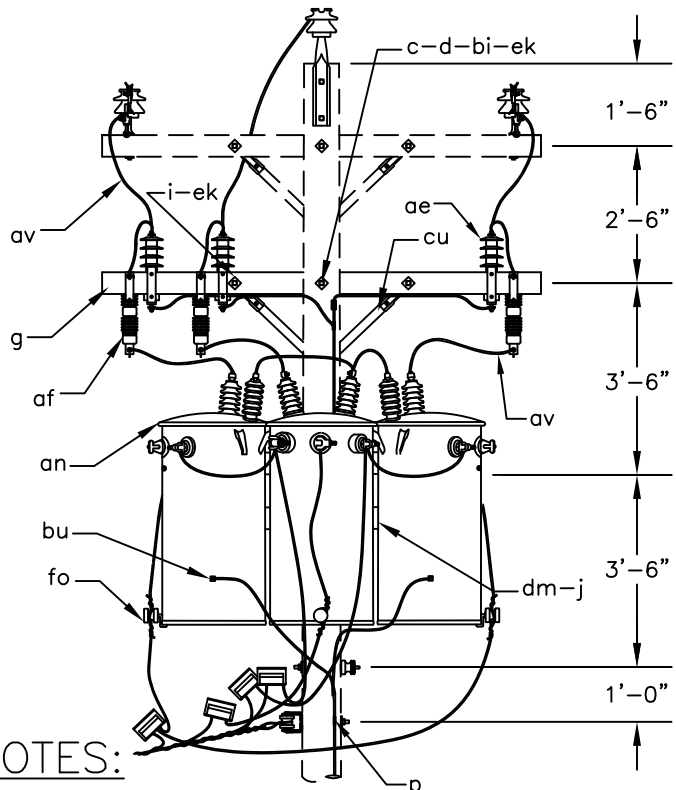
TILLAMOOK PUBLIC POWER PEOPLE'S UTILITY DISTRICT

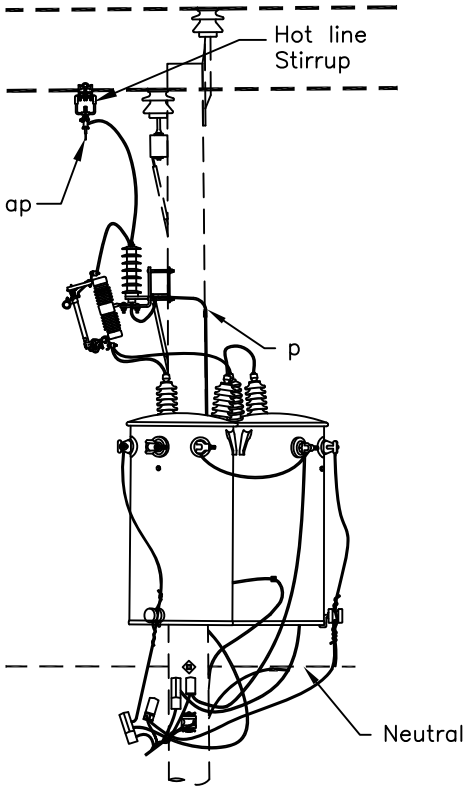
THREE TRANSFORMERS, CLUSTER MOUNTED
UNGROUNDED WYE PRIMARY–GROUNDED DELTA SECONDARY
FOR 240/120 OR 480/240V POWER LOAD

DATE 4–24–01
DWN. BY T Penney
DWG NAME vg31x

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VG3.1AGX
VG3.1AX





NOTES:

1. Designate VG3.2X for crossarm mounted cutout.
2. Designate VG3.2AX for crossarm mounted cutout and arrester.
3. Specify voltage and kVA of transformers.
4. Transformers are to be stainless steel.
5. All secondary connectors will be approved before use.
6. 3/4" machine bolts will be used when transformer is bigger than 75 kVA.

ITEM	MATERIAL	VG3.2X	VG3.2AX
c	Bolt, machine, 5/8" x req'd length	1	1
c	Bolt, machine, 3/4" x req'd length – see note 6	1	1
d	Washer, square 2 1/4"	1	1
d	Washer, curved 3" x 3"	1	1
g	Crossarm, 3 3/4" x 4 3/4" x 8'–0"	1	1
i	Bolt, carriage	2	2
j	Screw, lag, 1/2" x 4"	1	1
p	Connectors – see note 5	*	*
ae	Arrester, polymer – 18 kV (Ohio Brass 213–615–50–65)	0	3
af	Cutout LBC 100 amp heavy duty (S&C)	3	3
an	Transformers – see notes 3 & 4	*	*
ap	Connector, hot tap (small)	3	3
av	Jumpers, #4 insulated stranded copper	#	#
av	Jumpers, #6 insulated stranded copper	#	#
bi	Pole gain	1	1
bu	Transformer, ground lug, connector	3	3
cu	Brace, wood 28" (1 set)	1	1
dm	Bracket, transformer, cluster mount	1	1
ek	Locknuts	*	*
fo	Transformer secondary bracket, insulated	3	3
	Hot line stirrup connectors	3	3

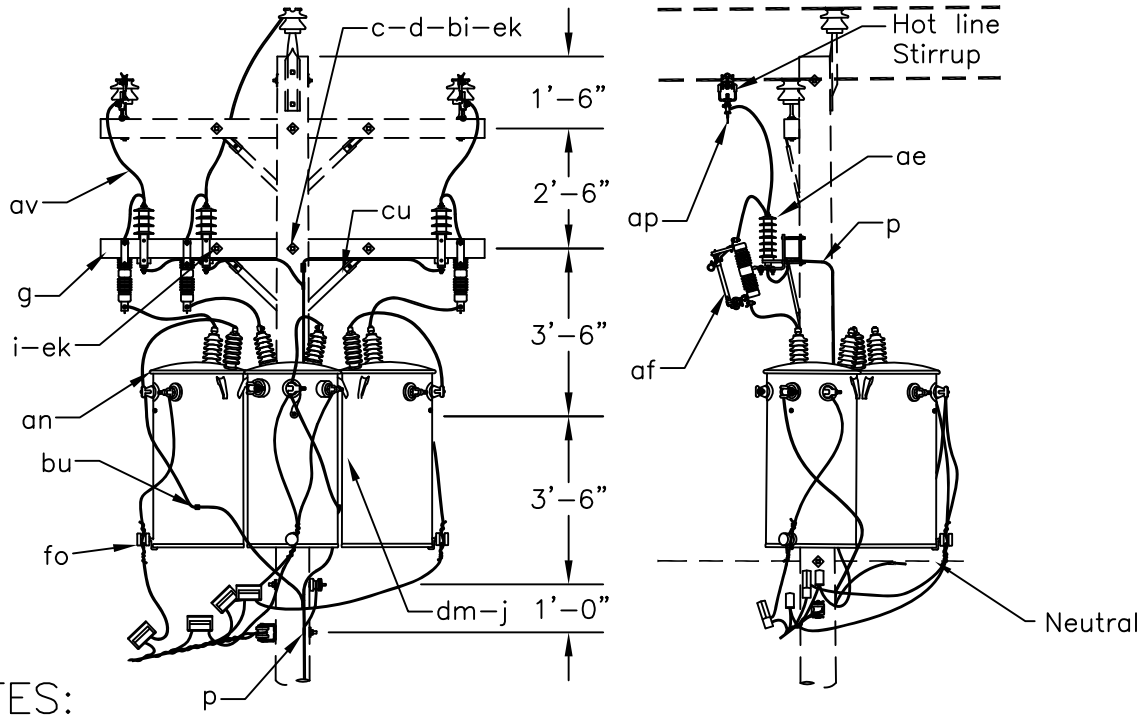
* As required
\# Required length

THREE TRANSFORMERS, CLUSTER MOUNTED
UNGROUNDED WYE PRIMARY – THREE WIRE SECONDARY
FOR 240 OR 480V POWER LOADS

DATE 6–22–01
DWN. BY T Penney
DWG NAME vg32x

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VG3.2X
VG3.2AX



NOTES:

1. Designate VG3.3GX for crossarm mounted cutout.
2. Designate VG3.3AGX for crossarm mounted cutout and arrester.
3. Specify kVA and voltage of transformer.
4. Transformer is to be stainless steel.
5. All secondary connectors will be approved before use.
6. 3/4" Machine bolts will be used when transformer is bigger than 75 kVA.

ITEM	MATERIAL	VG3.3GX	VG3.3AGX
c	Bolt, machine, 5/8" x req'd length	1	1
c	Bolt, machine, 3/4" x req'd length – see note 6	1	1
d	Washer, square 2 1/4"	1	1
d	Washer, curved 3" x 3"	1	1
g	Crossarm, 3 3/4" x 4 3/4" x 8'–0"	1	1
i	Bolt, carriage	2	2
j	Screw, lag, 1/2" x 4"	2	2
p	Connectors – see note 5	*	*
ae	Arrester, polymer – 18 kV (Ohio Brass 213–615–50–65)	0	3
af	Cutout LBC 100 amp heavy duty (S&C)	3	3
an	Transformers – see notes 3 & 4	*	*
ap	Connector, hot tap (small)	3	3
av	Jumpers, #4 insulated stranded copper	#	#
av	Jumpers, #6 insulated stranded copper	#	#
bi	Pole gain	1	1
bu	Transformer, ground lug, connector	3	3
cu	Brace, wood 28" (1 set)	1	1
dm	Bracket, transformer, cluster mount	1	1
ek	Locknuts	*	*
fo	Transformer secondary bracket, insulated	3	3
	Hot line stirrup connectors	3	3

* As required
\# Required length

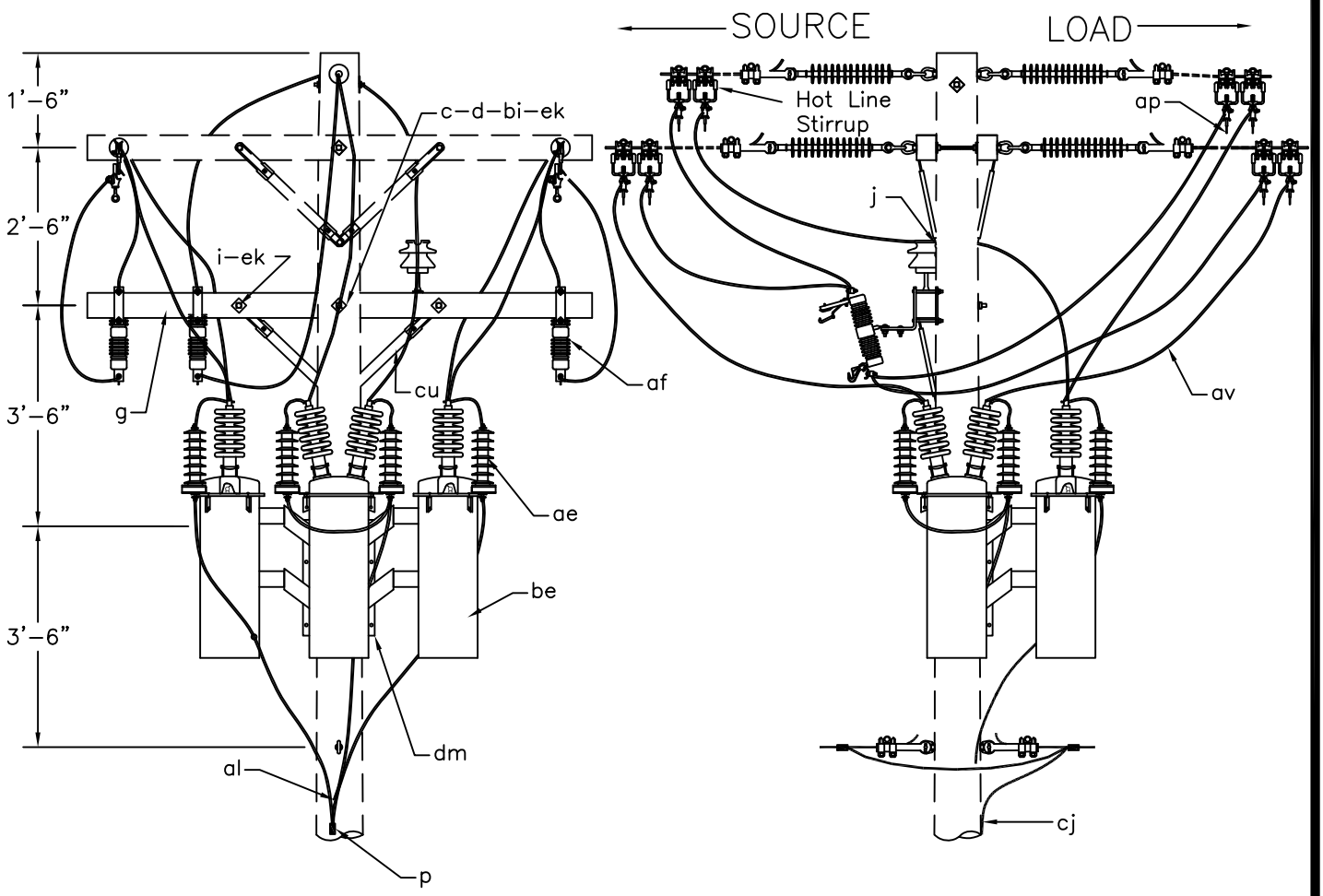
THREE TRANSFORMERS, CLUSTER MOUNTED
GROUNDED WYE PRIMARY – GROUNDED WYE SECONDARY
FOR 208/120 OR 480/277V POWER LOADS

DATE 6–22–01
DWN. BY T Penney
vc111lx vg33gx

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VG3.3GX
VG3.3AGX

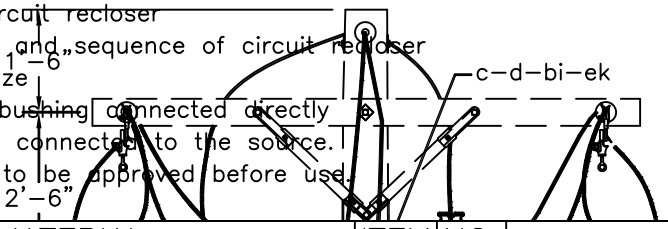
TPUD/310
Fagen/136



NOTES:

SOURCE: FRONT LOAD: BACK

1. Specify circuit recloser type
2. Specify coil size of circuit recloser
3. Specify operating data and sequence of circuit recloser
4. Specify bypass fuse size
5. The recloser terminal bushing connected directly to the coil should be connected to the source.
6. Secondary connectors to be approved before use.



ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
d	1	Washer, square 2 1/4"	av	#	Jumper, #4 insulated stranded copper
d	1	Washer, curved 3" x 3"	av	#	Jumper, #6 insulated stranded copper
g	1	Crossarm, 3 3/4" x 4 3/4" x 8'–0"	be	3	Circuit recloser w/ control
i	2	Bolt, carriage	bi	1	Pole gain
j	2	Lag screw 1/2" x 4"	dm	1	Bracket, transformer, cluster
p	*	Connectors	cu	1	Brace, wood 28" (1 set)
ae	6	Arrester, polymer – 18 kV	ek	*	Locknuts
		(Ohio brass 213–615–50–65)	cj	#	Ground wire, #2 stranded copper
af	3	Cutout LBC 100 amp heavy duty (S&C)		12	Hot line stirrup connectors
ap	12	Connector, hot tap (small)			

* As required
\# Required length

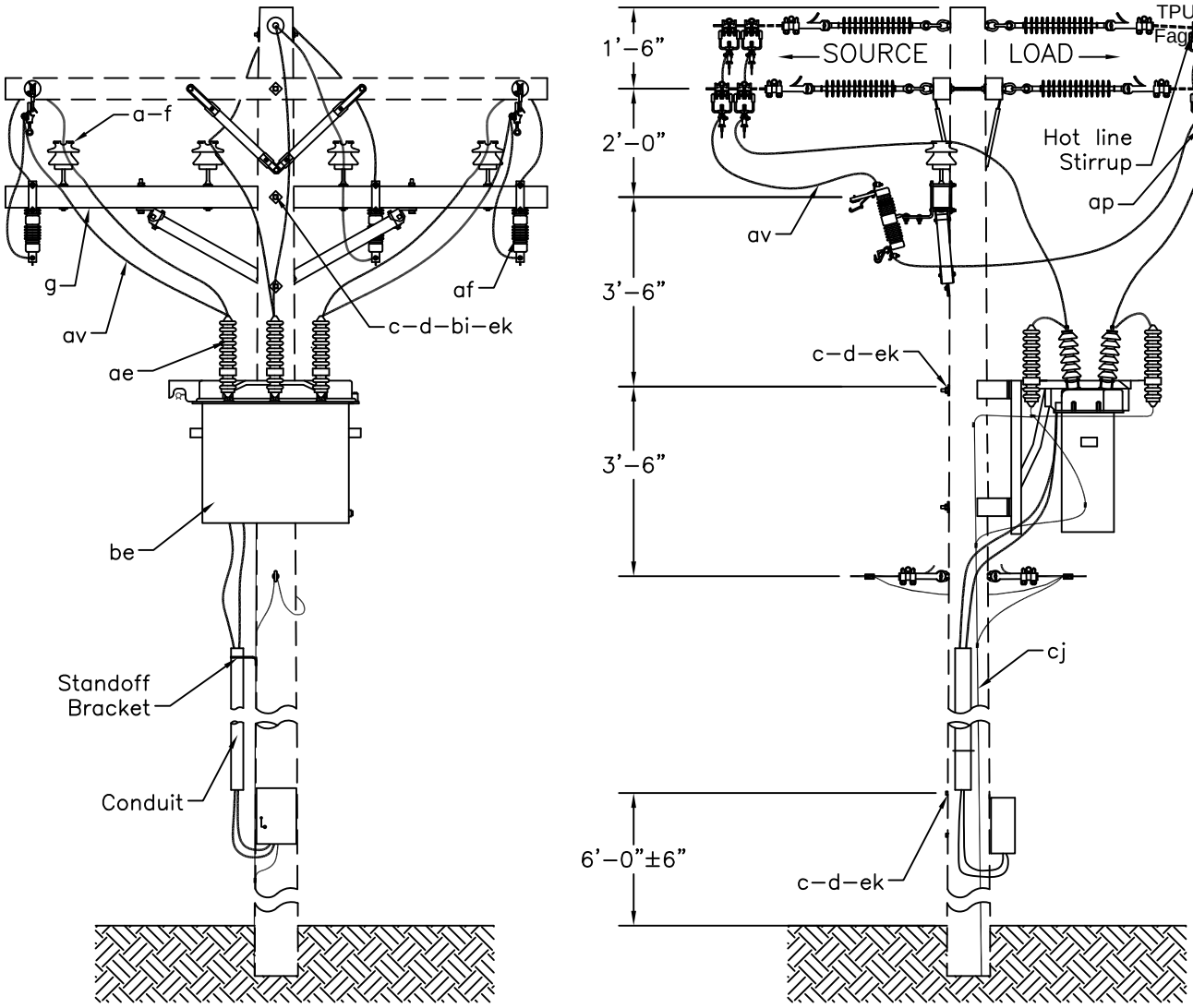
TILLAMOOK PUBLIC POWER PEOPLE'S UTILITY DISTRICT

THREE SINGLE–PHASE CIRCUIT RECLOSERS

DATE 6–22–01
DWN. BY J Penney
DWG NAME vr31x

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VR3.1X



NOTES:

1. Show size and amount of PVC conduit in parenthesis following the specification number. e.g. VR3.3X (20' PVC 3")
2. Specify circuit recloser type.
3. Specify operating data and sequence for circuit recloser.
4. Specify bypass fuse size.
5. Secondary connectors to be approved before use.

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
c	2	Bolt, machine, 3/4" x req'd length	ap	12	Connector, hot tap (large)
c	4	Bolt, machine, 5/8" x req'd length	av	#	Jumpers, #4 insulated stranded copper
c	2	Bolt, machine, 1/2" x 6"	av	#	Jumpers, #6 insulated stranded copper
g	1	Crossarm, 3 3/4" x 4 3/4" x 10'–0"	be	1	Three–phase circuit recloser w/ control
d	1	Washer, square 2 1/4"	bi	1	Pole gain
d	4	Washer, curved 3" x 3"	a	4	Insulator, pin type
cj	#	Ground wire, #2 stranded copper	cu	1	Brace, wood 60" (1 set)
f	4	Pin, crossarm, steel 5/8"x14"	ek	*	Locknuts
ae	6	Arrester, polymer – 18 kV (Ohio brass 213–615–50–65)		#	Cable, #12 copper type SO
				#	3" conduit PVC schedule 40
af	3	Cutout LBC 100 amp heavy duty (S&C)		6	Hot line stirrup connectors
p	*	Connectors		3	Standoff bracket, kindorf type w/ clamps

* As required
\# Required length

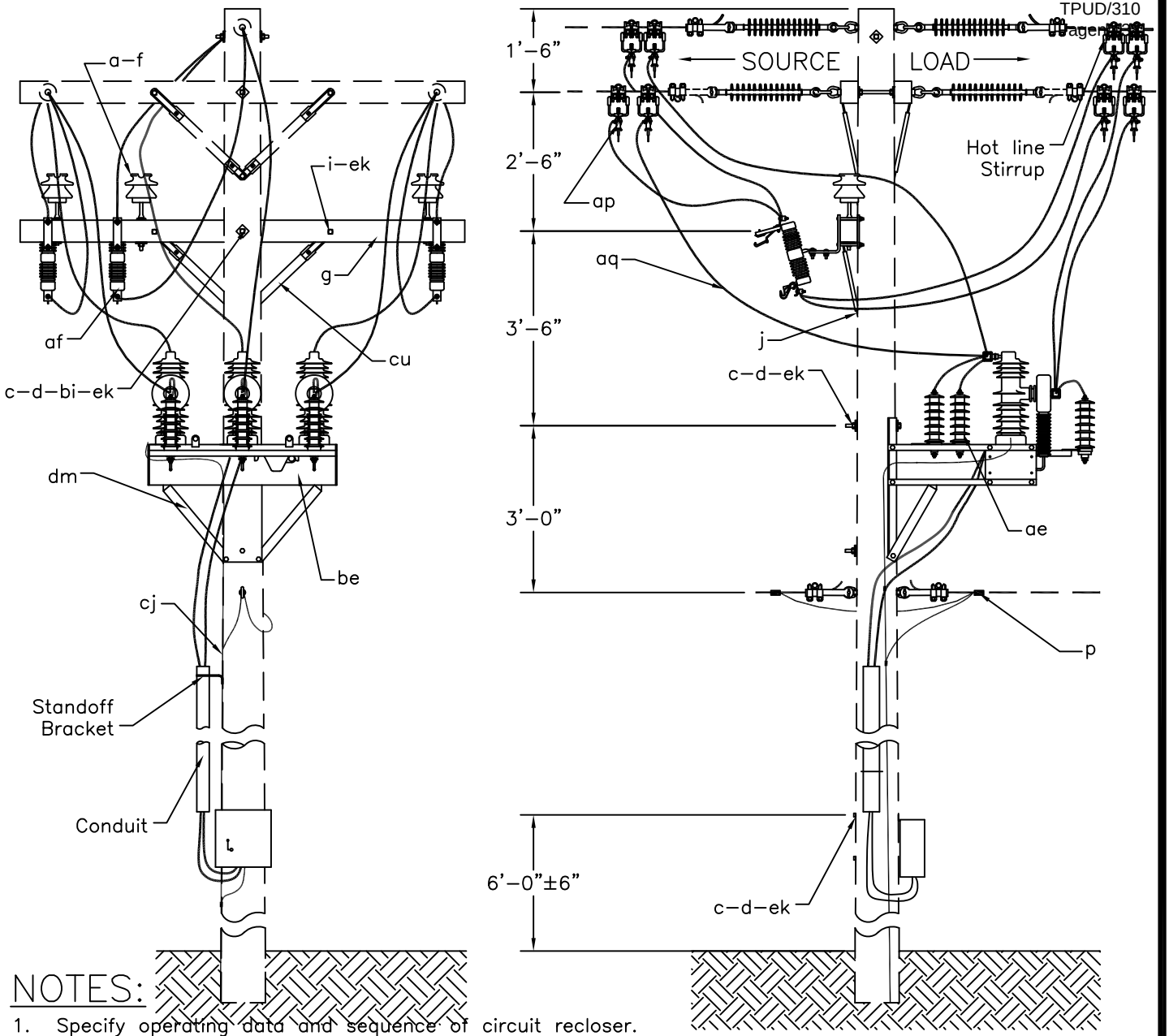
TILLAMOOK PUBLIC POWER PEOPLE'S UTILITY DISTRICT

THREE–PHASE CIRCUIT RECLOSER

DATE 6–22–01
DWN. BY J Penney
DWG NAME vr33x

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VR3.3X



NOTES:

1. Specify operating data and sequence of circuit recloser.
2. Specify bypass fuse size.
3. Secondary connectors to be approved before use.

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
i	2	Bolt, carriage, 3/8" x req'd length	a	3	Insulator, pin type
c	3	Bolt, machine, 5/8" x req'd length	av	#	Jumper, #4 insulated stranded copper
d	1	Washer, square 2 1/4"	av	#	Jumper, #6 insulated stranded copper
d	3	Washer, curved 3" x 3"	be	1	Three–phase circuit recloser w/ control
g	1	Crossarm, 3 3/4" x 4 3/4" x 8'–0"	bi	1	Pole gain
p	*	Connectors	dm	1	Bracket, K Nova recloser
ae	6	Arrester, polymer – 18 kV	cu	1	Brace, wood 28" (1 set)
		(Ohio brass 213–615–50–65)	ek	*	Locknuts
f	3	Pin, crossarm, steel 5/8" x 14"	j	1	Screw, lag, 1/2" x 4"
	#	3" conduit PVC schedule 40		#	Cable, #12 copper type SO
af	3	Cutout LBC 100 amp heavy duty (S&C)		12	Hot line stirrup connectors
ap	12	Connector, hot tap (large)		3	Standoff bracket, kindorf type w/ clamps

* As required
\# Required length

TILLAMOOK PUBLIC POWER PEOPLE'S UTILITY DISTRICT

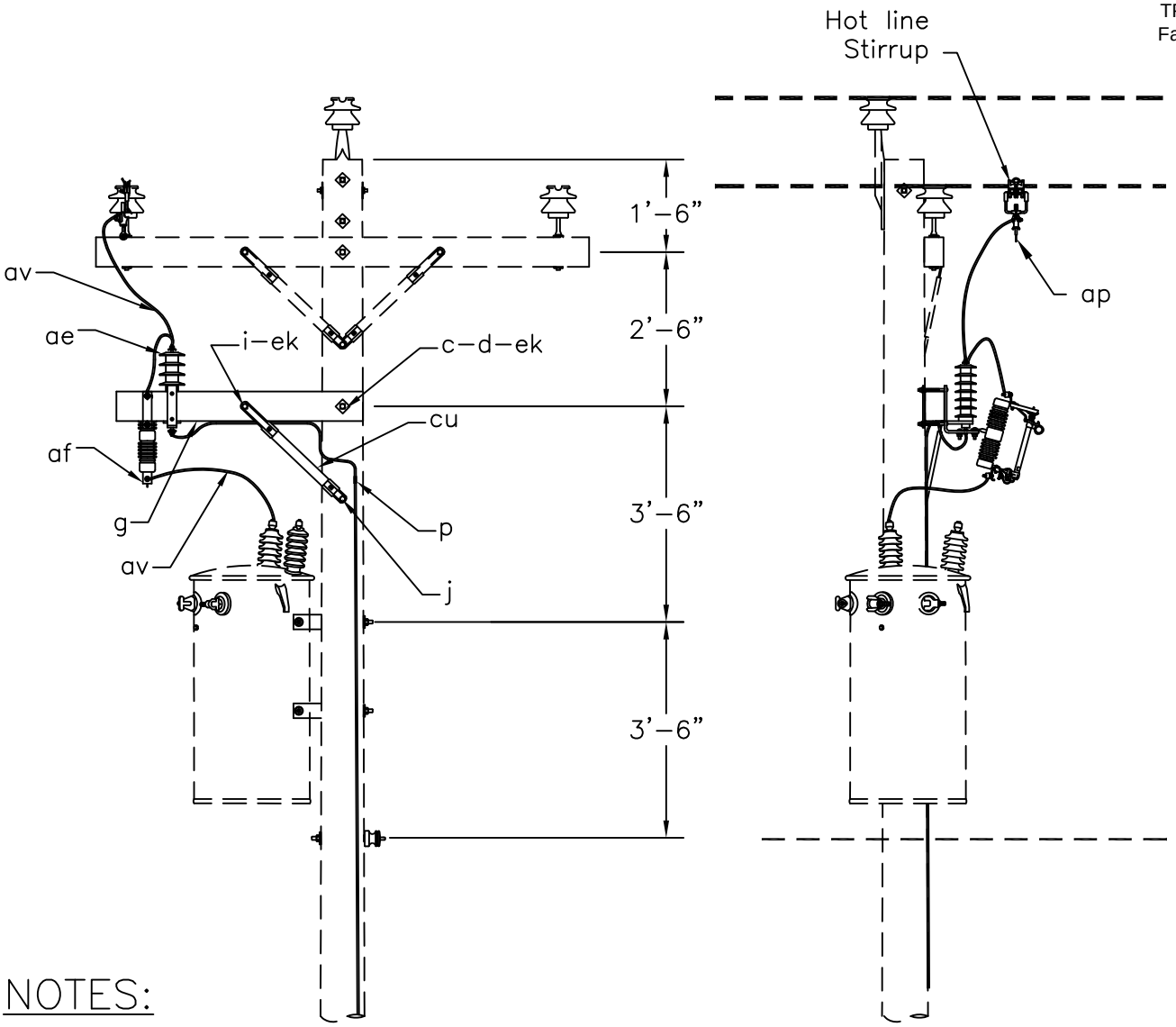
K NOVA THREE–PHASE CIRCUIT RECLOSER

DATE 6–22–01
DWN. BY J Penney
DWG NAME vr34x

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VR3.4X

TPUD/310
Fagen/139



NOTES:

1. Designate VS1.12X if no arrester is required.
2. Designate VS1.12AX if arrester is required.
3. Secondary connectors to be approved before use.

ITEM	MATERIAL	VS1.12X	VS1.12AX
c	Bolt, machine, 5/8" x req'd length	1	1
d	Washer, square 2 1/4"	1	1
d	Washer, curved 3" x 3"	1	1
g	Crossarm, 3 3/4" x 4 3/4" x 4'–0"	1	1
i	Bolt, carriage 3/8" x 4 1/2"	1	1
j	Screw, lag, 1/2" x 4"	1	1
p	Connectors – see note 3	*	*
ae	Arrester, polymer – 18 kV (Ohio Brass 213–615–50–65)	0	1
av	Jumpers, #4 insulated stranded copper	#	#
av	Jumpers, #6 insulated stranded copper	#	#
ap	Connector, hot tap (small)	1	1
af	Cutout LBC 100 amp heavy duty	1	1
cu	Brace, wood, 28" span	1	1
ek	Locknuts	*	*
	Hotline stirrup connectors	1	1

* As required
\# Required length

TILLAMOOK PUBLIC POWER PEOPLE'S UTILITY DISTRICT

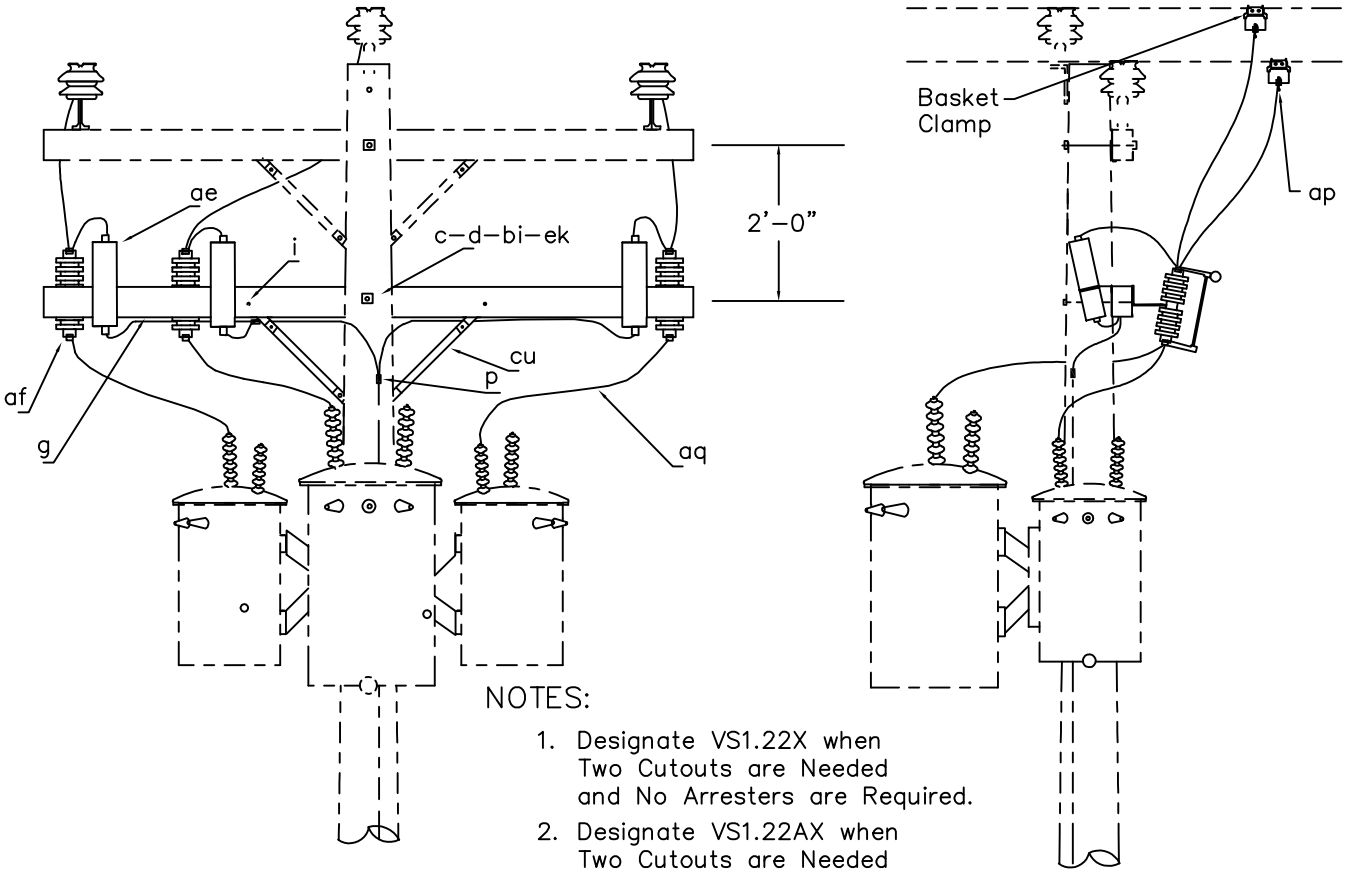
CUTOUT ARM ASSEMBLY
4 FOOT CROSSARM

DATE 6–22–01
DWN. BY T Penney
DWG NAME vs112x

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VS1.12X
VS1.12AX

TPUD/310
Fagen/140



NOTES:

1. Designate VS1.22X when Two Cutouts are Needed and No Arresters are Required.
2. Designate VS1.22AX when Two Cutouts are Needed and Two Arresters are Required.
3. Designate VS1.22X when Three Cutouts are Needed and No Arresters are Required.
4. Designate VS1.22AX when Three Cutouts are Needed and Three Arresters are Required.

ITEM	MATERIAL	VS1.22X	VS1.22AX	VS1.32X	VS1.32AX
c	Bolt, Machine, 5/8" x Req'd Length	1	1	1	1
d	Washer, Square 2 1/4"	2	2	2	2
g	Crossarm, 3 3/4" x 4 3/4" x 8'–0"	1	1	1	1
i	Bolt, Carriage	2	2	2	2
j	Lag Screw 1/2" x 4"	1	1	1	1
p	Connectors	as req'd	as req'd	as req'd	as req'd
ae	Arrester 18–KV	0	2	0	3
af	Cutout LBC 100 Amp Heavy Duty	2	2	3	3
ap	Connector, Hot Tap (Small)	2	2	3	3
av	Jumpers, Insulated Stranded Copper	as req'd	as req'd	as req'd	as req'd
cu	Brace, Wood 28"	2	2	2	2
ek	Locknut	1	1	1	1
	Basket Clamp	2	2	3	3

* As required
# Required Length

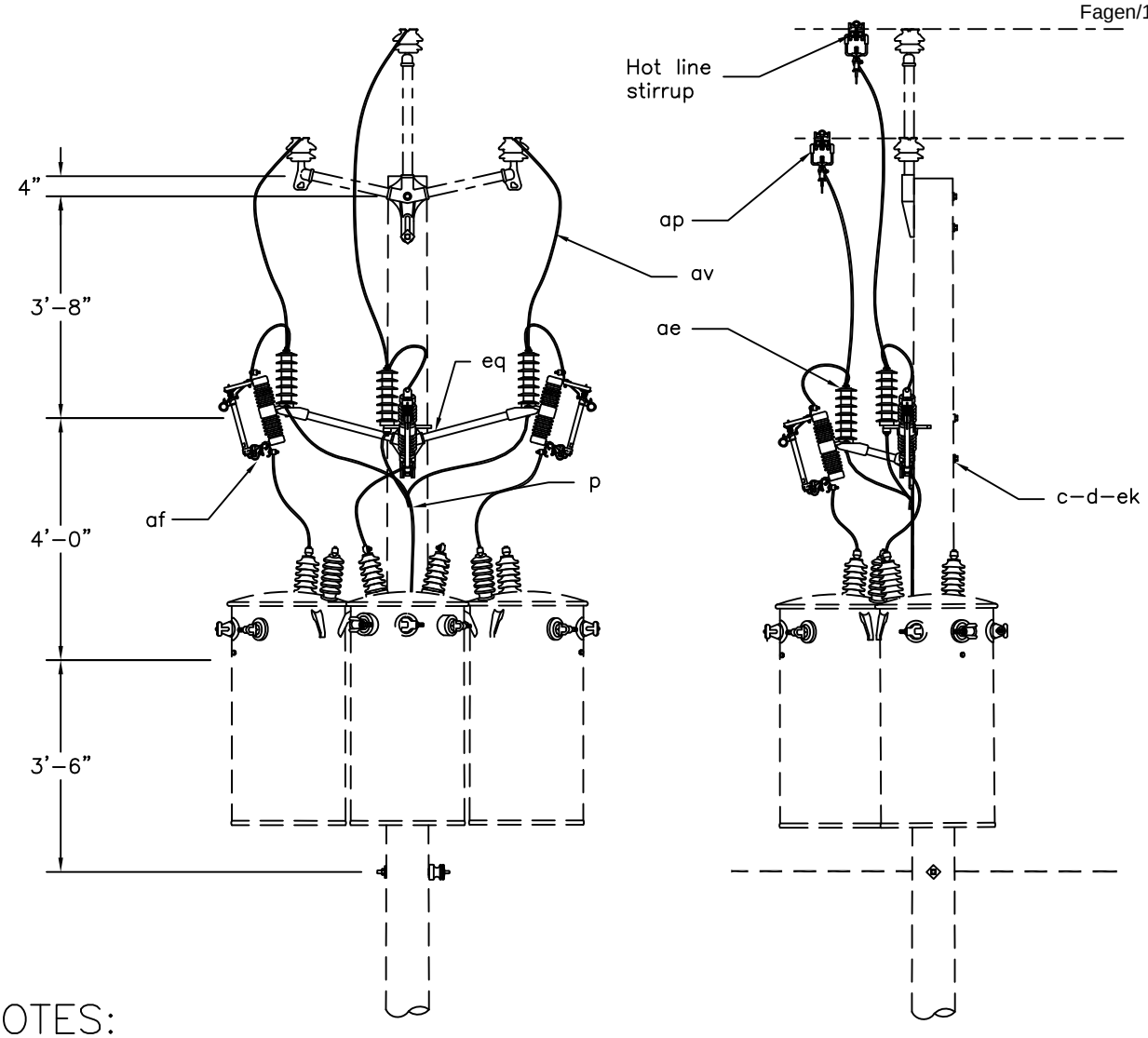
TILLAMOOK PUBLIC POWER PEOPLE'S UTILITY DISTRICT

CUTOUT ARM ASSEMBLY
8 FOOT CROSSARM

DWN. BY. D. VanSant
5/9/2016

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VS1.22X
VS1.22AX
VS1.32X
VS1.32AX



NOTES:

1. Designate VS1.23X when two cutouts are needed and no arresters are required.
2. Designate VS1.23AX when two cutouts are needed and two arresters are required.
3. Designate VS1.33X when three cutouts are needed and no arresters are required.
4. Designate VS1.33AX when three cutouts are needed and three arresters are required.
5. Secondary connectors to be approved before use.

ITEM	MATERIAL	VS1.23X	VS1.23AX	VS1.33X	VS1.33AX
c	Bolt, machine, 5/8" x req'd length	2	2	2	2
d	Washer, curved 3" x 3"	2	2	2	2
eq	Bracket, fiberglass cutout & arrester mtg	1	1	1	1
p	Connectors – see note 5	*	*	*	*
ae	Arrester, polymer – 18 kV (Ohio Brass 213–615–50–65)	0	2	0	3
af	Cutout LBC 100 amp heavy duty (S&C)	2	2	3	3
ap	Connector, hot tap (small)	2	2	3	3
av	Jumpers, #4 insulated stranded copper	#	#	#	#
av	Jumpers, #6 insulated stranded copper	#	#	#	#
ek	Locknuts	*	*	*	*
	Hot line stirrup connectors	2	2	3	3

* As required
\# Required Length

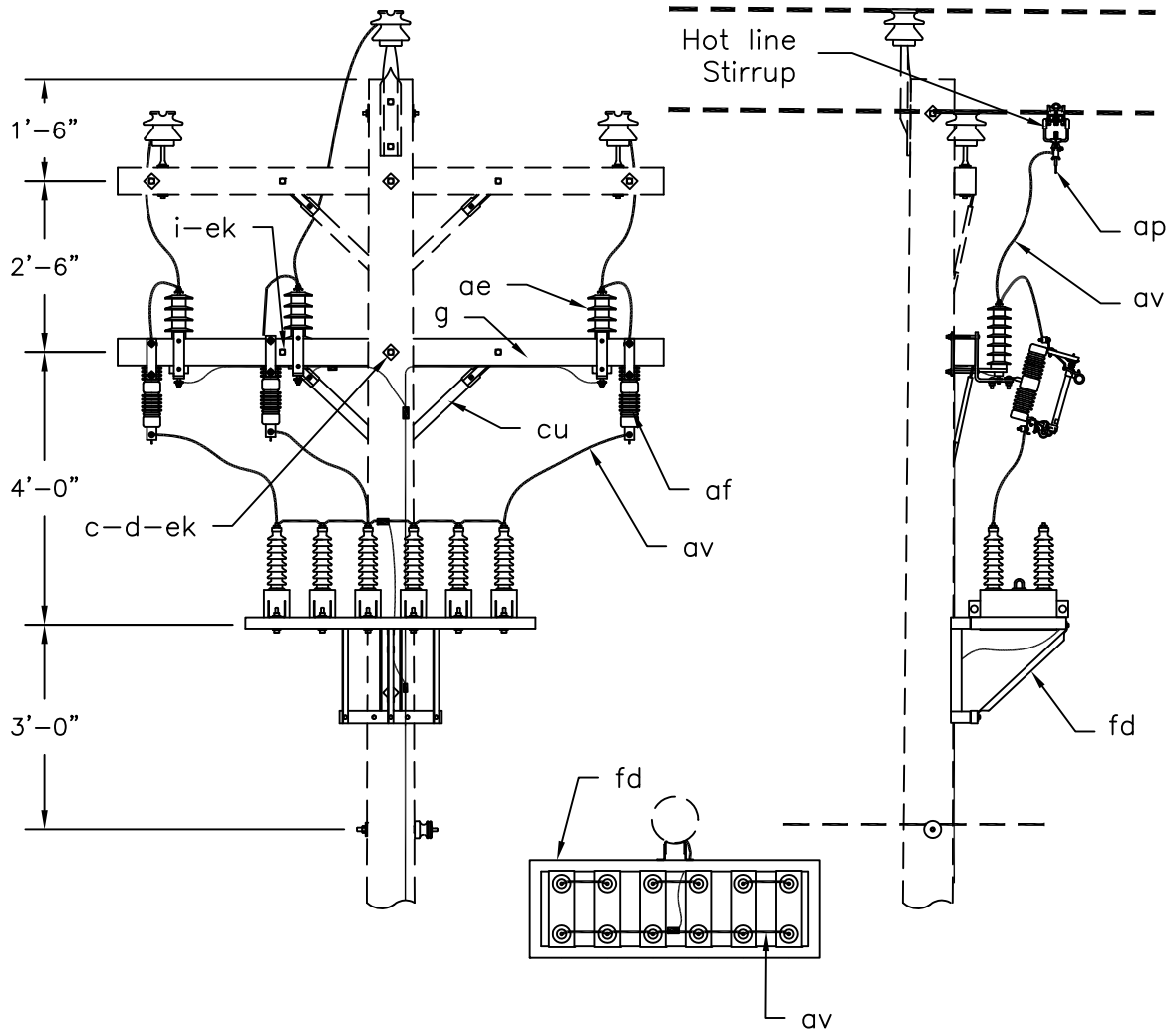
TILLAMOOK PUBLIC POWER PEOPLE'S UTILITY DISTRICT

CUTOUT ARM ASSEMBLY FIBERGLASS CROSSARM

DATE 4–24–01
DWN. BY T Penney
DWG NAME VS123X

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VS1.23X
VS1.23AX
VS1.33X
VS1.33AX



SUGGESTED FUSING TABLE:

Voltage	KVAR Connected to each Cutout...			
	100	200	300	400
7.2 kV	5	7	10	15
12.0 kV	7	15	20	25
14.4 kV	7	15	25	30

NOTES:

1. Specify number and KVAR required.
2. Specify insulating caps for primary terminal bushings.
3. Table is for 14.4–kV rated capacitors only
4. Care must be taken to coordinate fuse with sectionalizing plan.
5. Secondary connectors to be approved before use.

ITEM	NO.	MATERIAL	ITEM	NO.	MATERIAL
c	2	Bolt, machine, 5/8" x req'd length	p	*	Connectors – see note 5
i	1	Bolt, carriage, 3/8" x 4 1/2"	ap	12	Connector, hot tap (small)
d	1	Washer, square 2 1/4"	af	3	Cutout LBC 100 amp heavy duty (S&C)
d	1	Washer, curved 3" x 3"	fc	3	Capacitor_____KVAR each
j	1	Lag screw 1/2" x 4"	g	2	Crossarm, 3 3/4" x 4 3/4" x 8'–0"
av	#	Jumper, #4 insulated stranded copper	fd	1	Bracket, capacitor
av	#	Jumper, #6 insulated stranded copper	cu	1	Brace, wood, 28" span (1 set)
ae	6	Arrester, polymer – 18 kV, (Ohio brass 213–615–50–65)	ek	*	Locknuts
				3	Hot line stirrup connectors

* As required
\# Required length

TILLAMOOK PUBLIC POWER PEOPLE'S UTILITY DISTRICT

14.4/24.9–kV THREE–PHASE CAPACITOR ASSEMBLY

DATE 6–22–01
DWN. BY J Penney
DWG NAME vy33x

TILLAMOOK P.U.D.
OREGON 24 TILLAMOOK

VY3.3X