WASHINGTON AFFILIATED INTEREST FILING

ATTACHMENT A

License for Electric Supply Line Across or Along Railway Property

(Permit #22W-13618)

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Jones Lang LaSalle Brokerage, Inc.
2650 Lou Menk Drive – MOB2
Fort Worth, TX 76131
817-352-1035

October 10, 2023

PacifiCorp 22W-13618
Attention: Mr. Imogen Taylor
825 NE Multnomah Street, Suite 1700
Portland, OR 97232

Dear Mr. Taylor:

Attached please find a copy of the requested contract for execution by an official authorized to execute contract agreements on behalf of your company. Please print one (1) copy, execute, and ***return with original signature*** for completion on part of BNSF Railway Company ("BNSF") to this office, along with the following requirements:

- A check in the amount of $22,373.00 payable to BNSF Railway Company which covers the contract fee.

Please note the agreements cannot be executed by BNSF without an approved insurance certificate. If there are any issues with your insurance, you will be contacted by a member of the Risk Management team of BNSF Railway.

1. A Certificate of Insurance as required in the agreement.
2. A **separate policy** for Railroad Protective Liability Insurance as required in the agreement (**ORIGINAL POLICY MUST BE PROVIDED**). BNSF Railway Company will be the only insured party; OR;

In lieu of providing a separate policy for Railroad Protective Liability Insurance, you may participate in the BNSF's Railroad Protective Policy by checking the appropriate box in the contract and including an additional $995.39 with your check.

PLEASE ADVISE IF THIS PROJECT IS ARRA FUNDED.

Licensee must ensure that each of its employees, contractors, agents or invitees entering upon the premises completes the safety orientation program at the website www.BNSFcontractor.com prior to entering upon the premises. The certification is good for one year, and each person entering the premises must possess the card certifying completion.

Acceptance and deposit of any check by BNSF does not constitute an agreement between BNSF and Licensee for the requested license. BNSF shall not be obligated to hold the check in a separate fund, but may commingle the funds with other funds of BNSF, and in no event shall BNSF be responsible for interest on said funds.

The enclosed permit is not a binding agreement and shall become binding only when, and if, it is executed by you and fully approved and executed by BNSF Railway Company. Upon completion on behalf of BNSF, one fully executed counterpart will be returned for your records.

The specifications/plans you provided may differ from BNSF's minimum specification requirements. Therefore, prior to your installation, please review the Exhibit A to determine the specifications necessary for your installation.

Sincerely,

Katie Robles
Manager - Permits
Attachment

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

LICENSE FOR ELECTRIC SUPPLY LINE ACROSS OR ALONG RAILWAY PROPERTY

(Electric Light, Power Supply, Irrespective of Voltage, Overhead or Underground)

THIS LICENSE FOR ELECTRIC SUPPLY LINE ("**License**") is made to be effective _____, 2023 (the "**Effective Date**") by and between **BNSF RAILWAY COMPANY**, a Delaware corporation ("**Licensor**") and **PACIFICORP**, an Oregon corporation ("**Licensee**").

In consideration of the mutual covenants contained herein, the parties agree to the following:

GENERAL

1. Grant of License. Licensor hereby grants Licensee a non-exclusive license, subject to all rights, interests, and estates of third parties, including, without limitation, any leases, use rights, easements, liens, or other encumbrances, and upon the terms and conditions set forth below, to construct and maintain, in strict accordance with the drawings and specifications approved by Licensor as part of Licensee's application process (the "**Drawings and Specifications**"), an electric supply line containing a maximum of Three (3) new conductors, Five (5) existing conductors, and One (1) new neutral line, together with its supporting or containing structures (collectively, the "Electric Supply Line"), across or along Licensor's rail corridor at or near the station of Klammath Falls, County of Klamath, State of Oregon, Line Segment 0640, Mile Post 1.41 to 2.09 as shown on the attached Drawing No. 84304, dated August 5, 2022, attached hereto as **Exhibit "A"** and incorporated herein by reference (the "**Premises**").

2. Term. This License shall commence on the Effective Date and shall continue for a period of twenty-five (25) years, subject to prior termination as hereinafter described.

3. Existing Improvements. Licensee shall not disturb any improvements of Licensor or Licensor's existing lessees, licensees, easement beneficiaries or lien holders, if any, or interfere with the use, repair, maintenance or replacement of such improvements.

4. Use of the Premises. Licensee shall use the Premises solely for construction, maintenance, and use of the Electric Supply Line in accordance with the Drawings and Specifications. Licensee shall not use the Premises for any other purpose and Licensee is expressly prohibited from using or allowing any telecommunication facilities or equipment within the Premises or using or allowing the use of the Premises for any other purpose.

5. Alterations. Except as set forth in this License, Licensee may not make any alterations to the Premises or permanently affix anything to the Premises or any buildings or other structures adjacent to the Premises without Licensor's prior written consent.

COMPENSATION

6. License Fee.

A. Licensee shall pay Licensor, as compensation for this license, the sum of Twenty-Two Thousand Three Hundred Seventy-Three and No/100 Dollars ($22,373.00) for the first year this License is in effect, and the annual sum of Twenty Three Thousand Forty-Four Dollars and Nineteen Cents ($23,044.19.00) payable annually and in advance ("Base License Fee"). Such Base License Fee shall be subject to a minimum annual escalation of three (3) percent on the anniversary date of the Effective Date of this License. Licensor may, in its sole discretion, adjust the Base License Fee annually to reflect a then current fair market rental value. "Fair market rental value" for purposes of this Section 3 shall mean the market rental rate, per square foot, multiplied by the number of square feet contained in the Premises, in effect for comparable premises and improvements the county in which the Premises are located. Billing or acceptance by Licensor of any rental shall not imply a definite term or otherwise restrict either party from canceling this License as provided herein. Either party hereto may assign any receivables due it under this License; provided, however, such assignments shall not relieve the assignor of any of its rights or obligations under this License. All rent and other monetary payments under this License from Licensee to Licensor shall be delivered solely to the following address:

BNSF Railway Company
P.O. Box 676160
Dallas, Texas 75267-6160

Licensor shall have the right to designate at any time and from time to time a different address for delivery of such payments by written notice to Licensee pursuant to the notice provisions of Section 36 below. No rent or other payment sent to any other address shall be deemed received by Licensor unless and until Licensor has actually posted such payment as received on the account of Licensee, and Licensee shall be subject to all default provisions hereunder, late fees and other consequences as a result thereof in the same manner as if Licensee had failed or delayed in making any payment.

B. Licensee acknowledges that Licensor utilizes the rental collection system involving direct deposit of monies received through a financial institution selected by Licensor, which precludes Licensor's ability to exercise rejection of a rental payment before Licensee's check is cashed. Licensee agrees that as a condition of Licensor granting this License Licensee hereby waives any rights it may have under law to force continuation of this License due to Licensor having accepted and cashed Licensee's rental remittance. Licensor shall have the option of rejecting Licensee's payment by refunding to Licensee the rental amount paid by Licensee, adjusted as set forth in this License, and enforcing the termination provisions of this License.

C. Licensee shall pay the Base License Fee and all additional amounts due pursuant to Section 9 as and when the same become due and payable, without demand, set-off, or deduction. Licensee's obligation to pay Base License Fee and all amounts due under this License is an independent covenant and no act or circumstance, regardless of whether such act or circumstance constitutes a breach under this License by Licensor, shall release Licensee of its obligation to pay Base License Fee and all amounts due as required by this License.

D. If any Base License Fee or any payment under Section 9 or any other payment due by Licensee hereunder is not paid within five (5) days after the date the same is due, Licensor may assess Licensee a late fee ("Late Fee") in an amount equal to 5% of the amount which was not paid when due to compensate Licensor for Licensor's administrative burden in connection with such late payment. In addition to said Late Fee, Licensee shall pay interest on the unpaid sum from the due date thereof to the date of payment by Licensee at an annual rate equal to (i) the greater of (a) for the period January 1 through June 30, the prime rate last published in The Wall Street Journal in the preceding December plus two and one-half percent (2 1/2%), and for the period July 1 through December 31, the prime rate last published in The Wall Street Journal in the preceding June plus two and one-half percent (2 1/2%), or (b) twelve percent (12%), or (ii) the maximum rate permitted by law, whichever is less.

7. Costs and Expenses.

7.1 For the purpose of this License, "cost" or "costs" and "expense" or "expenses" includes, but is not limited to, actual labor and material costs including all assignable additives, and material and supply costs at current value where used.

7.2 Licensee agrees to reimburse Licensor (pursuant to the terms of **Section 8** below) for all costs and expenses incurred by Licensor in connection with Licensee's use of the Premises or the presence, construction and maintenance of the Electric Supply Line, including but not limited to the furnishing of Licensor's flaggers and any vehicle rental costs incurred, inspection coordination, safety, mobilization and/or other observation services described in this License (collectively, the "**Services**"). Licensee shall bear the cost of the Services when deemed necessary by Licensor's representative. Flagging costs shall include, but not be limited to, the following: pay for at least an eight (8) hour basic day with time and one-half or double time for overtime, rest days and holidays (as applicable); vacation allowance; paid holidays (as applicable); railway and unemployment insurance; public liability and property damage insurance; health and welfare benefits; transportation; meals; lodging and supervision. Negotiations for railway labor or collective bargaining agreements and rate changes authorized by appropriate Federal authorities may increase flagging rates. Flagging rates in effect at the time of performance by the flaggers will be used to calculate the flagging costs pursuant to this **Section 7**.

7.3 Licensor, at its sole discretion, may elect to designate a third party (the "**Scheduling Agent**"), to perform and/or arrange for the performance of the Services.

8. Payment Terms. All invoices are due thirty (30) days after the date of invoice. If Licensee fails to pay any monies due to Licensor within thirty (30) days after the invoice date, then Licensee shall pay interest on such unpaid sum from the due date until paid at an annual rate equal to the lesser of (i) the prime rate last published in *The Wall Street Journal* in the preceding December plus two and one-half percent (2-1/2%), or (ii) the maximum rate permitted by law.

LICENSOR'S RESERVED RIGHTS

9. Reserved Rights of Use. Licensor excepts and reserves the right, to be exercised by Licensor and any other parties who may obtain written permission or authority from Licensor:

9.1 to maintain, use, operate, repair, replace, modify and relocate any utility, power or communication pipe/lines/cables and appurtenances (other than the Electric Supply Line) and other facilities or structures of like character upon, over, under or across the Premises existing as of the Effective Date;

9.2 to construct, maintain, renew, use, operate, change, modify and relocate any tracks or additional facilities, structures and related appurtenances upon, over, under or across the Premises; or

9.3 to use the Premises in any manner as Licensor in its sole discretion deems appropriate, provided Licensor uses all commercially reasonable efforts to avoid material interference with the use of the Premises by Licensee for the purpose specified in **Section 4** above.

10. Right to Require Relocation. If at any time during the term of this License, Licensor desires the use of its rail corridor in such a manner as would, in Licensor's reasonable opinion, be interfered with by the Electric Supply Line, Licensee shall, at its sole expense, within thirty (30) days after receiving written notice from Licensor to such effect, make such changes in the Electric Supply Line as in the sole discretion of Licensor may be necessary to avoid interference with the proposed use of Licensor's rail corridor, including, without limitation, the relocation of the Electric Supply Line, or the construction of a new electric line to replace the Electric Supply Line. Notwithstanding the foregoing, Licensee agrees to make all emergency changes and minor adjustments, as determined by Licensor in its sole discretion, to the Electric Supply Line promptly upon Licensor's request.

LICENSEE'S OPERATIONS

11. Construction and Maintenance of the Electric Supply Line.

11.1 Licensee shall not enter the Premises or commence construction unless accompanied by Licensor's representative, the Scheduling Agent or its designee. Licensee shall notify Licensor's Roadmaster, Glenn Monti at Glenn.Monti@bnsf.com, telephone 541-880-5639, at least ten (10) business days prior to installation of the Electric Supply Line and prior to entering the Premises for any subsequent maintenance thereon. In the event of emergency, Licensee shall notify Licensor of Licensee's entry onto the Premises at the telephone number above as soon as practicable and shall promptly thereafter follow up with written notice of such entry.

11.2 Licensee's on-site supervisors shall retain/maintain a fully executed copy of this License at all times while on the Premises.

11.3 While on the Premises, Licensee shall use only public roadways to cross from one side of Licensor's tracks to the other.

11.4 Any contractors or subcontractors performing work on the Electric Supply Line or entering the Premises on behalf of Licensee shall be deemed servants and agents of Licensee for purposes of this License.

11.5 Under no conditions shall Licensee be permitted to conduct any tests, investigations or any other activity using mechanized equipment and/or machinery, or place or store any mechanized equipment, tools or other materials, within twenty-five (25) feet of the centerline of any railroad track on the Premises unless Licensee

has obtained prior written approval from Licensor. Licensee shall, at its sole cost and expense, perform all activities on and about the Premises, including without limitation all construction and maintenance of the Electric Supply Line, in such a manner and of such materials as not at any time to endanger or interfere with (i) the existence or use of present or future tracks, roadbeds, or property of Licensor, (ii) the safe operation and activities of Licensor or existing third parties, or (iii) the rights or interests of third parties. If ordered to cease using the Premises at any time by Licensor's personnel due to any hazardous condition, Licensee shall immediately do so. Notwithstanding the foregoing right of Licensor, the parties agree that Licensor has no duty or obligation to monitor Licensee's use of the Premises to determine the safe nature thereof, it being solely Licensee's responsibility to ensure that Licensee's use of the Premises is safe. Neither the exercise nor the failure by Licensor to exercise any rights granted in this Section will alter the liability allocation provided by this License.

11.6 Licensee shall, at its sole cost and expense, construct and maintain the Electric Supply Line in such a manner and of such material that the Electric Supply Line will not at any time endanger or interfere with (i) the existence or use of present or future tracks, roadbeds, or property of Licensor, (ii) the safe operation and activities of Licensor or existing third parties, or (iii) the rights or interests of third parties. The construction of the Electric Supply Line shall be completed within one (1) year of the Effective Date, and any subsequent maintenance shall be completed within one (1) year of initiation. Within fifteen (15) days after completion of the construction of the Electric Supply Line or the performance of any subsequent maintenance thereon, Licensee shall, at Licensee's own cost and expense, restore the Premises to substantially their state as of the Effective Date, unless otherwise approved in advance by Licensor in writing. On or before expiration or termination of this License for any reason, Licensee shall, at its sole cost and expense, surrender the Premises to Licensor pursuant to the terms and conditions set forth in **Section 24** hereof.

11.7 Licensor may direct one or more of its field engineers or inspectors to observe or inspect the construction and/or maintenance of the Electric Supply Line at any time for compliance with the Drawings and Specifications and Legal Requirements (defined below). Licensee shall reimburse Licensor for the cost of such observation or inspection related services pursuant to Section 8. If ordered at any time to halt construction or maintenance of the Electric Supply Line by Licensor's personnel due to non-compliance with the Drawings and Specifications or any other hazardous condition, Licensee shall immediately do so. Notwithstanding the foregoing right of Licensor, the parties agree that Licensor has no duty or obligation to observe or inspect, or to halt work on, the Electric Supply Line, it being solely Licensee's responsibility to ensure that the Electric Supply Line is constructed and maintained in strict accordance with the Drawings and Specifications and in a safe and workmanlike manner in compliance with all terms hereof. Neither the exercise of, nor the failure by Licensor to exercise, any right granted by this Section will alter in any way the liability allocation provided by this License. If at any time Licensee shall, in the sole judgment of Licensor, fail to properly perform its obligations under this **Section 11**, Licensor may, at its option and at Licensee's sole expense, arrange for the performance of such work as it deems necessary for the safety of its operations and activities. Licensee shall promptly reimburse Licensor for all costs and expenses of such work, pursuant to the terms of **Section 8**. Licensor's failure to perform any obligations of Licensee shall not alter the liability allocation hereunder.

11.8 Licensee shall, at its sole cost and expense, construct and at all times maintain the Electric Supply Line in accordance with the National Electric Safety Code.

11.9 If the operation or maintenance of the Electric Supply Line at any time causes interference, including but not limited to physical interference from electromagnetic induction, electrostatic induction, or from stray or other currents, with the facilities of Licensor or of any lessee or licensee of Licensor, or in any manner interfere with the operation, maintenance, or use by Licensor of its right-of-way, tracks, structures, pole lines, signal and communication lines, radio, or other equipment, devices, other property or appurtenances thereto, Licensee agrees immediately to make such changes in the Electric Supply Line and furnish such protective devices and/or replacement equipment to Licensor and its lessees or licensees as shall be necessary, in the judgment of Licensor's representative, to eliminate such interference. The cost of such protective devices and their installations shall be borne solely by Licensee. If any of the interference covered by this **Section 11.9** shall be, in the judgment of Licensor, of such importance to the safety of

Licensor's operations as to require immediate corrective action, Licensee, upon notice from Licensor, shall either, at Licensor's election, cease using the Electric Supply Line for any purpose whatsoever and remove same, or reduce the voltage or load on the Electric Supply Line, or take such other interim protective measures as Licensor may deem advisable, until the protective devices and/or replacement equipment required by this **Section 11.9** have been installed, put in operation, tested, and found to be satisfactory to correct the interference. Any protective device installed pursuant to this section or otherwise required by the License shall be maintained, repaired, or replaced, as determined in Licensor's sole discretion for the duration of the Term or the life of the protective device, whichever is longer. Licensee must install the protective devices identified in section 6.1 of the attached Klamath Falls – Snow Goose Transmission Line Upgrade BNSF Railroad AC Interference Analysis, as detailed in **Exhibit "C"** attached hereto and incorporated herein as if set out verbatim.

11.10 Licensee shall, at its sole cost and expense, remove all combustible material from around wooden poles on the Premises, if any, and will at all times keep the space around such poles free of such material, and if removal of such combustible material shall not be attended to with fifteen (15) days after having been requested by Licensor to do so, Licensor shall have the right itself to perform the work and Licensee hereby agrees to reimburse Licensor for the expense so incurred.

12. Boring and Excavation.

12.1 Prior to Licensee conducting any boring, excavation, or similar work on or about any portion of the Premises, Licensee shall contact the applicable State's call-before-you-dig utility location service to have 3rd parties mark the location of utilities. Licensee shall explore the proposed location for such work with hand tools to a depth of at least three (3) feet below the surface of the ground to determine whether pipelines or other structures exist below the surface, provided, however, that in lieu of the foregoing hand-tool exploration, Licensee shall have the right to use suitable detection equipment or other generally accepted industry practice (*e.g.*, consulting with the State Infrastructure Corporation) to determine the existence or location of pipelines and other subsurface structures prior to drilling or excavating with mechanized equipment. Licensee shall request information from Licensor concerning the existence and approximate location of Licensor's underground lines, utilities, and pipelines at or near the vicinity of the proposed Electric Supply Line by contacting Licensor's Telecommunications Helpdesk, currently at 1-800-713-3599 (option 1), at least ten (10) business days prior to installation of the Electric Supply Line. Upon receiving Licensee's timely request, Licensor will provide Licensee with the information Licensor has in its possession regarding any existing underground lines, utilities, and pipelines at or near the vicinity of the proposed Electric Supply Line and, if applicable, identify the location of such lines on the Premises pursuant to Licensor's standard procedures. Licensor does not warrant the accuracy or completeness of information relating to subsurface conditions of the Premises and Licensee's operations will be subject at all times to the liability provisions herein.

12.2 For all bores greater than 26-inch diameter and at a depth less than 10.0 feet below bottom of rail, a soil investigation must be performed by Licensee and reviewed by Licensor prior to construction. This study is to determine if granular material is present, and to prevent subsidence during the installation process. If the investigation determines in Licensor's reasonable opinion that granular material is present, Licensor may select a new location for Licensee's use, or may require Licensee to furnish for Licensor's review and approval, in Licensor's sole discretion, a remedial plan to deal with the granular material. Once Licensor has approved any such remedial plan in writing, Licensee shall, at Licensee's sole cost and expense, carry out the approved plan in accordance with all terms thereof and hereof.

12.3 Any open hole, boring, or well constructed on the Premises by Licensee shall be safely covered and secured at all times when Licensee is not working in the actual vicinity thereof. Following completion of that portion of the work, all holes or borings constructed on the Premises by Licensee shall be:

12.3.1 filled in to surrounding ground level with compacted bentonite grout; or

12.3.2 otherwise secured or retired in accordance with any applicable Legal Requirement. No excavated materials may remain on Licensor's property for more than ten (10) days, but must be properly disposed of by Licensee in accordance with applicable Legal Requirements.

LIABILITY AND INSURANCE

13. Liability and Indemnification.

13.1 For purposes of this License: (a) "**Indemnitees**" means Licensor and Licensor's affiliated companies, partners, successors, assigns, legal representatives, officers, directors, shareholders, employees, and agents; (b) "**Liabilities**" means all claims, liabilities, fines, penalties, costs, damages, losses, liens, causes of action, suits, demands, judgments, and expenses (including, without limitation, court costs, reasonable attorneys' fees, costs of investigation, removal and remediation, and governmental oversight costs) environmental or otherwise; and (c) "**Licensee Parties**" means Licensee and Licensee's officers, agents, invitees, licensees, employees, or contractors, or any party directly or indirectly employed by any of them, or any party they control or exercise control over.

13.2 **TO THE FULLEST EXTENT PERMITTED BY LAW, LICENSEE SHALL, AND SHALL CAUSE ITS CONTRACTOR TO, RELEASE, INDEMNIFY, DEFEND AND HOLD HARMLESS INDEMNITEES FOR, FROM, AND AGAINST ANY AND ALL LIABILITIES OF ANY NATURE, KIND, OR DESCRIPTION DIRECTLY OR INDIRECTLY ARISING OUT OF, RESULTING FROM, OR RELATED TO (IN WHOLE OR IN PART):**

13.2.1 **THIS LICENSE, INCLUDING, WITHOUT LIMITATION, ITS ENVIRONMENTAL PROVISIONS,**

13.2.2 **ANY RIGHTS OR INTERESTS GRANTED PURSUANT TO THIS LICENSE,**

13.2.3 **LICENSEE'S OCCUPATION AND USE OF THE PREMISES,**

13.2.4 **THE ENVIRONMENTAL CONDITION AND STATUS OF THE PREMISES CAUSED BY OR CONTRIBUTED TO BY LICENSEE, OR**

13.2.5 **ANY ACT OR OMISSION OF ANY LICENSEE PARTY.**

13.3 **TO THE FULLEST EXTENT PERMITTED BY LAW, LICENSEE NOW AND FOREVER WAIVES, AND WILL INDEMNIFY, DEFEND, AND HOLD THE INDEMNITEES HARMLESS FROM ANY AND ALL CLAIMS THAT BY VIRTUE OF ENTERING INTO THIS LICENSE, LICENSOR IS A GENERATOR, OWNER, OPERATOR, ARRANGER, OR TRANSPORTER FOR THE PURPOSES OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT, AS AMENDED ("CERCLA") OR OTHER ENVIRONMENTAL LAWS (DEFINED BELOW). NOTHING IN THIS LICENSE IS MEANT BY EITHER PARTY TO CONSTITUTE A WAIVER OF ANY INDEMNITEE'S COMMON CARRIER DEFENSES AND THIS LICENSE SHOULD NOT BE SO CONSTRUED. IF ANY AGENCY OR COURT CONSTRUES THIS LICENSE TO BE A WAIVER OF ANY INDEMNITEE'S COMMON CARRIER DEFENSES, LICENSEE AGREES TO INDEMNIFY, HOLD HARMLESS, AND DEFEND INDEMNITEES FOR ANY LIABILITIES RELATED TO THAT CONSTRUCTION OF THIS LICENSE. IN NO EVENT AS BETWEEN LICENSOR AND LICENSEE AS TO USE OF THE PREMISES AS CONTEMPLATED BY THIS LICENSE SHALL LICENSOR BE RESPONSIBLE TO LICENSEE FOR THE ENVIRONMENTAL CONDITION OF THE PREMISES.**

13.4 **IF ANY EMPLOYEE OF ANY LICENSEE PARTY ASSERTS THAT HE OR SHE IS AN EMPLOYEE OF ANY INDEMNITEE, TO THE FULLEST EXTENT PERMITTED BY LAW, LICENSEE SHALL, AND SHALL CAUSE ITS CONTRACTOR TO, RELEASE, INDEMNIFY, DEFEND, AND HOLD THE INDEMNITEES HARMLESS FROM AND AGAINST ANY LIABILITIES ARISING OUT OF OR RELATED TO (IN WHOLE**

OR IN PART) ANY SUCH ASSERTION INCLUDING, BUT NOT LIMITED TO, ASSERTIONS OF EMPLOYMENT BY AN INDEMNITEE RELATED TO THE FOLLOWING OR ANY PROCEEDINGS THEREUNDER: THE FEDERAL EMPLOYERS' LIABILITY ACT, THE SAFETY APPLIANCE ACT, THE LOCOMOTIVE INSPECTION ACT, THE OCCUPATIONAL SAFETY AND HEALTH ACT, THE RESOURCE CONSERVATION AND RECOVERY ACT, AND ANY SIMILAR STATE OR FEDERAL STATUTE.

13.5 **THE FOREGOING OBLIGATIONS OF LICENSEE SHALL NOT APPLY TO THE EXTENT LIABILITIES ARE PROXIMATELY CAUSED BY THE GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF ANY INDEMNITEE, BUT SHALL APPLY TO ALL OTHER LIABILITIES, INCLUDING THOSE ARISING FROM OR ATTRIBUTED TO ANY OTHER ALLEGED OR ACTUAL NEGLIGENCE, INTENTIONAL ACTS, OR STRICT LIABILITY OF ANY INDEMNITEE.**

13.6 Upon written notice from Licensor, Licensee agrees to assume the defense of any lawsuit or other proceeding brought against any Indemnitee by any entity, relating to any matter covered by this License for which Licensee has an obligation to assume liability for and/or save and hold harmless any Indemnitee. Licensee shall pay all costs and expenses incident to such defense, including, but not limited to, reasonable attorneys' fees, investigators' fees, litigation and appeal expenses, settlement payments, and amounts paid in satisfaction of judgments.

14. Personal Property Risk of Loss. **ALL PERSONAL PROPERTY, INCLUDING, BUT NOT LIMITED TO, FIXTURES, EQUIPMENT, OR RELATED MATERIALS UPON THE PREMISES WILL BE AT THE RISK OF LICENSEE ONLY, AND NO INDEMNITEE WILL BE LIABLE FOR ANY DAMAGE THERETO OR THEFT THEREOF, WHETHER OR NOT DUE IN WHOLE OR IN PART TO THE NEGLIGENCE OF ANY INDEMNITEE.**

15. Insurance. Licensee shall, at its sole cost and expense, procure and maintain during the term of this License the following insurance coverage:

15.1 Commercial General Liability “CGL” Insurance.

a. The policy will provide a minimum of $2,000,000 per occurrence and an aggregate limit of at least $4,000,000 but in no event will the coverage be in an amount less than the amount otherwise carried by Licensee. Coverage must be purchased on a post 2004 ISO occurrence form or equivalent and include coverage for, but not limited to, the following:
   - Bodily Injury and Property Damage
   - Personal Injury and Advertising Injury
   - Fire legal liability
   - Products and completed operations
   - Contractual Liability for an “Insured Contract” consistent with the definition under the standard ISO general liability policy form.

b. This policy will include the following endorsements or language, which shall be indicated on or attached to the certificate of insurance:
   - The definition of “Insured Contract” will be amended to remove any exclusion or other limitation for any work being done within 50 feet of Licensor’s property;
   - Waiver of subrogation in favor of and acceptable to Licensor;
   - Additional insured endorsement in favor of and acceptable to Licensor and Jones Lang LaSalle Brokerage, Inc.to include coverage for ongoing operations and completed operations;
   - Separation of insureds;
   - The policy shall be primary and non-contributing with respect to any insurance carried by Licensor.

c. The parties agree that the workers’ compensation and employers’ liability related exclusions in the CGL policy(s) are intended to apply to employees of the policyholder and will not apply to Licensor’s employees.

d. No other endorsements that limit coverage with respect to Licensee's obligations under this agreement may be included on the policy.

15.2 Business Automobile Insurance

a. The insurance will provide minimum coverage with a combined single limit of at least $1,000,000 per accident, and include coverage for, but not limited to the following:
   - Bodily injury and property damage.
   - Any and all vehicles owned, used or hired.

b. The policy will include the following endorsements or language, which will be indicated on or attached to the certificate of insurance:
   - Waiver of subrogation in favor of and acceptable to Licensor;
   - Additional insured endorsement in favor of and acceptable to Licensor;
   - Separation of insureds;
   - The policy shall be primary and non-contributing with respect to any insurance carried by Licensor.

15.3 Workers' Compensation and Employers' Liability Insurance

a. The policy will provide coverage of all employees performing any part of the work or services including coverage for, but not limited to:
   - Licensee's statutory liability under the workers' compensation laws of the state(s) in which the work or services are to be performed. The policy will cover all of Licensee's employees, regardless of whether such coverage is optional under the law of that state(s).
   - Employers' Liability (Part B) with limits of at least $500,000 each accident, $500,000 by disease policy limit, $500,000 by disease each employee.

b. The policy will include contain the following endorsements or language, which shall be indicated on or attached to the certificate of insurance:
   - Waiver of subrogation in favor of and acceptable to Licensor.

15.4 Railroad Protective Liability Insurance. The policy will name only Licensor as the Insured and will provide coverage of at least $2,000,000 per occurrence and $6,000,000 in the aggregate. The coverage obtained under this policy shall only be effective during the initial installation and/or construction of the Electric Supply Line. **THE CONSTRUCTION OF THE ELECTRIC SUPPLY LINE SHALL BE COMPLETED WITHIN ONE (1) YEAR OF THE EFFECTIVE DATE.** If further maintenance of the Electric Supply Line is needed at a later date, an additional Railroad Protective Liability Insurance Policy shall be required. The policy will be issued on a standard ISO form CG 00 35 12 04 and include the following:

- Endorsed to include the Pollution Exclusion Amendment.
- Endorsed to include the Limited Seepage and Pollution Endorsement.
- Endorsed to remove any exclusion for punitive damages.
- Endorsed to include Evacuation Expense Coverage Endorsement.
- No other endorsements restricting coverage may be added.
- The original policy must be provided to Licensor and Licensee shall not perform any work or services of any kind under this agreement until Licensor has reviewed and approved the policy.
- The definition of "Physical Damage to Property" will be endorsed to read: "means direct and accidental loss of or damage to all property owned by any named insured and all property in any named insured's care, custody and control (including, but not limited to rolling stock and their contents, mechanical construction equipment or motive power equipment, railroad tracks, roadbeds, catenaries, signals, tunnels, bridges and buildings) arising out of the acts or omissions of the contractor named on the Declarations."

In lieu of providing a Railroad Protective Liability Policy, for a period of one (1) year from the Effective Date, Licensee may participate in Licensor's Blanket Railroad Protective Liability Insurance Policy available to Licensee or its contractor. The limits of coverage are the same as above. The cost is $995.39.

- ❑ Licensee **elects** to participate in Licensor's Blanket Policy;
- ❑ Licensee **declines** to participate in Licensor's Blanket Policy.

15.5 Other Requirements:

15.5.1 Where allowable by law, no exclusion for punitive damages may be included in any policy.

15.5.2 Licensee agrees to waive its right of recovery against Licensor for all claims and suits against Licensor. In addition, Licensee's insurers, through the terms of the policy or policy endorsement, waive their right of subrogation against Licensor for all claims and suits. Licensee further waives its right of recovery, and its insurers also waive their right of subrogation against Licensor for loss of Licensee's owned or leased property or property under Licensee's care, custody, or control.

15.5.3 Allocated Loss Expense, including but not limited to defense costs and expenses, will be in addition to all policy limits for coverage under the insurance requirements.

15.5.4 Licensee is not allowed to self-insure without the prior written consent of Licensor. If Licensor allows Licensee to self-insure, Licensee shall directly cover any self-insured retention or other financial responsibility for claims in lieu of insurance. Any and all Licensor liabilities that would otherwise be covered by Licensee's insurance in accordance with the provisions of this agreement, will be covered as if Licensee elected not to include a self-insured retention or other financial responsibility for claims.

15.5.5 Prior to entering the Premises or commencing the services or work, Licensee shall furnish to Licensor an acceptable certificate(s) of insurance from an authorized representative evidencing the required coverage(s), endorsements, and amendments.

15.5.6 Licensee shall notify BNSF in writing at least 30 days prior to any cancellation, non-renewal, substitution or material alteration of any insurance requirement.

15.5.7 Any insurance policy shall be written by a reputable insurance company acceptable to Licensor or with a current Best's Guide Rating of A- and Class VII or better, and authorized to do business in the state(s) in which the service is to be provided.

15.5.8 If the coverage provided by any of the insurance policies required by this agreement is purchased on a "claims made" basis, Licensee hereby agrees to maintain coverage in force for a minimum of three years after expiration, cancellation or termination of this agreement.

15.5.9 Licensee agrees to provide evidence to Licensor that it has the required coverage in place at least annually or in the event of a renewal or material change of coverage.

15.5.10 Licensee represents that this License has been thoroughly reviewed by Licensee's insurance agent(s)/broker(s), and that Licensee has instructed them to procure the insurance coverage required by this License.

15.5.11 Not more frequently than once every five years, Licensor may, at its discretion, reasonably modify the insurance requirements to reflect the then-current risk management practices in the railroad industry and underwriting practices in the insurance industry.

15.5.12 If Licensee will subcontract any portion of the operation, Licensee shall require that the subcontractor provide and maintain insurance coverage(s) as set forth herein, naming Licensor as an additional insured. In addition, Licensee shall require that the subcontractor shall release, defend and indemnify Licensee to the same extent and under the same terms and conditions as Licensee is required to release, defend and indemnify Licensor under this agreement.

15.5.13 Failure to provide evidence as required by this section shall entitle, but not require, Licensor to terminate this License immediately. Acceptance of a certificate that does not comply with this section shall not operate as a waiver of Licensee's obligations hereunder.

15.5.14 The fact that Licensee obtains insurance (including, without limitation, self-insurance) shall not release or diminish Licensee's liabilities or obligations including, without limitation, the liabilities and obligations under the indemnity provisions of the License. Damages recoverable by Licensor shall not be limited by the amount of the required insurance coverage.

15.5.15 In the event of a claim or lawsuit involving Licensor arising out of this Agreement, Licensee will make the policy covering such claims or lawsuits available to Licensor.

15.5.16 If Licensee maintains broader coverage and/or higher limits than the minimum requirements in this Agreement, Licensor requires and shall be entitled to the broader coverage and/or the higher limits. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to Licensor.

15.5.17 These insurance provisions are intended to be a separate and distinct obligation on the part of the Licensee. Therefore, these provisions shall be enforceable and Licensee shall be bound thereby regardless of whether or not indemnity provisions are determined to be enforceable in the jurisdiction in which the work or services performed under this License is performed.

15.5.18 For purposes of this **Section 15**, Licensor shall mean "Burlington Northern Santa Fe, LLC", "BNSF Railway Company" and the subsidiaries, successors, assigns and affiliates of each.

COMPLIANCE WITH LAWS, REGULATIONS, AND ENVIRONMENTAL MATTERS

16. Compliance with Laws, Rules, and Regulations.

16.1 Licensee shall observe and comply with any and all applicable federal, state, local and tribal laws, statutes, regulations, ordinances, orders, covenants, restrictions, or decisions of any court of competent jurisdiction ("**Legal Requirements**") relating to the construction, maintenance, and use of the Electric Supply Line and the use of the Premises.

16.2 Prior to entering the Premises, Licensee shall and shall cause its contractor(s) to comply with all of Licensor's applicable safety rules and regulations. Licensee must ensure that each of its employees, contractors, agents or invitees entering upon the Premises completes the safety orientation program at the Website "www.BNSFcontractor.com" (the "**Safety Orientation**") within one year prior to entering upon the Premises. Additionally, Licensee must ensure that each and every employee of Licensee, its contractors, agents and invitees possess a card certifying completion of the Safety Orientation prior to entering upon the Premises. Licensee must renew (and ensure that its contractors, agents or invitees, as applicable, renew) the Safety Orientation annually.

16.3 Licensee shall obtain on or before the date it or its contractor enters the Premises, any and all additional rights-of way, easements, licenses and other agreements relating to the grant of rights and interests in and/or access to the Premises (collectively, the "**Rights**") and such other rights, licenses, permits, authorizations, and approvals (including without limitation, any necessary local, state, federal or tribal authorizations and environmental permits) that are necessary in order to permit Licensee to construct, maintain, own and operate the Electric Supply Line and otherwise to perform its obligations hereunder in accordance with the terms and conditions hereof.

16.4 Licensee shall either require that the initial stated term of each such Rights be for a period that does not expire, in accordance with its ordinary terms, prior to the last day of the term of this License or, if the initial stated term of any such Right expires in accordance with its ordinary terms on a date earlier than the last day of the term of this License, Licensee shall, at its cost, exercise any renewal rights thereunder, or

otherwise acquire such extensions, additions and/or replacements as may be necessary, in order to cause the stated term thereof to be continued until a date that is not earlier than the last day of the term of this License.

16.5 Upon the expiration or termination of any Right that is necessary in order for Licensee to own, operate or use the Electric Supply Line in accordance with the terms and conditions of this License, this License thereby shall automatically expire upon such expiration or termination of the Right.

17. Environmental.

17.1 Licensee shall strictly comply with all federal, state and local environmental Legal Requirements and regulations in its use of the Premises, including, but not limited to, the Resource Conservation and Recovery Act, as amended (RCRA), the Clean Water Act, the Oil Pollution Act, the Hazardous Materials Transportation Act, and CERCLA (collectively referred to as the "**Environmental Laws**"). Licensee shall not maintain a treatment, storage, transfer or disposal facility, or underground storage tank, as defined by Environmental Laws on the Premises. Licensee shall not release or suffer the release of oil or hazardous substances, as defined by Environmental Laws on or about the Premises.

17.2 Licensee covenants that it will not handle or transport "hazardous waste" or "hazardous substances", as "hazardous waste" and "hazardous substances" may now or in the future be defined by any federal, state, or local governmental agency or body on the Premises. Licensee agrees periodically to furnish Licensor with proof, satisfactory to Licensor that Licensee is in compliance with the provisions of this **Section 17.2**.

17.3 Licensee shall give Licensor immediate notice to Licensor's Resource Operations Center at (800) 832-5452 of any known (i) release of hazardous substances on, from, or affecting the Premises, (ii) violation of Environmental Laws, or (iii) inspection or inquiry by governmental authorities charged with enforcing Environmental Laws with respect to Licensee's use of the Premises. Licensee shall use the best efforts to promptly respond to any release on, from, or affecting the Premises. Licensee also shall give Licensor immediate notice of all measures undertaken on behalf of Licensee to investigate, remediate, respond to or otherwise cure such release or violation.

17.4 If Licensor has notice from Licensee or otherwise of a release or violation of Environmental Laws arising in any way with respect to the Electric Supply Line which occurred or may occur during the term of this License, Licensor may require Licensee, at Licensee's sole risk and expense, to take timely measures to investigate, remediate, respond to or otherwise cure such release or violation affecting the Premises or Licensor's right-of-way.

17.5 Licensee shall promptly report to Licensor in writing any conditions or activities upon the Premises known to Licensee which create a risk of harm to persons, property or the environment and shall take whatever action is necessary to prevent injury to persons, property, or the environment arising out of such conditions or activities; provided, however, that Licensee's reporting to Licensor shall not relieve Licensee of any obligation whatsoever imposed on it by this License. Licensee shall promptly respond to Licensor's request for information regarding said conditions or activities.

DISCLAIMER OF WARRANTIES

18. No Warranties.

18.1 **LICENSOR'S DUTIES AND WARRANTIES ARE LIMITED TO THOSE EXPRESSLY STATED IN THIS LICENSE AND SHALL NOT INCLUDE ANY IMPLIED DUTIES OR IMPLIED WARRANTIES, NOW OR IN THE FUTURE. NO REPRESENTATIONS OR WARRANTIES HAVE BEEN MADE BY LICENSOR OTHER THAN THOSE CONTAINED IN THIS LICENSE. LICENSEE HEREBY WAIVES ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO THE PREMISES OR WHICH MAY EXIST BY OPERATION OF LAW OR IN EQUITY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, HABITABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

18.2 **LICENSOR MAKES NO WARRANTY, REPRESENTATION OR CONDITION OF ANY KIND, EXPRESS OR IMPLIED, CONCERNING (A) THE SCOPE OF THE LICENSE OR OTHER RIGHTS GRANTED HEREUNDER TO LICENSEE OR (B) WHETHER OR NOT LICENSEE'S CONSTRUCTION, MAINTENANCE, OWNERSHIP, USE OR OPERATION OF THE ELECTRIC SUPPLY LINE WILL VIOLATE OR INFRINGE UPON THE RIGHTS, INTERESTS AND ESTATES OF THIRD PARTIES, INCLUDING, WITHOUT LIMITATION, ANY LEASES, USE RIGHTS, EASEMENTS AND LIENS OF ANY THIRD PARTY.**

19. Disclaimer of Warranty for Quiet Enjoyment. **LICENSOR DOES NOT WARRANT ITS TITLE TO THE PREMISES NOR UNDERTAKE TO DEFEND LICENSEE IN THE PEACEABLE POSSESSION OR USE THEREOF. NO COVENANT OF QUIET ENJOYMENT IS MADE.**

20. Eviction at Risk of Licensee. In case of the eviction of Licensee by anyone owning, claiming title to, or claiming any interest in the Premises, or by the abandonment by Licensor of the affected rail corridor, Licensor shall not be liable (i) to refund Licensee any compensation paid hereunder, except for the pro-rata part of any recurring charge paid in advance, or (ii) for any damages or costs Licensee sustains in connection with the eviction.

LIENS AND TAXES

21. Liens and Charges. Licensee shall promptly pay and discharge any and all liens arising out of any construction, alterations or repairs done, suffered or permitted to be done by Licensee on the Premises. Licensor is hereby authorized to post any notices or take any other action upon or with respect to the Premises that is or may be permitted by law to prevent the attachment of any such liens to the Premises; provided, however, that failure of Licensor to take any such action shall not relieve Licensee of any obligation or liability under this **Section 21** or any other Section of this License.

22. Taxes. Licensee shall pay when due any taxes, assessments or other charges (collectively, "**Taxes**") levied or assessed by any governmental or quasi-governmental body upon the Electric Supply Line or any other improvements constructed or installed on the Premises by or for Licensee (collectively, the "**Improvements**") or any Taxes levied or assessed against Licensor or the Premises that are attributable to the Improvements.

DEFAULT, TERMINATION, AND SURRENDER

23. Default and Termination. In addition to and not in limitation of Licensor's right to terminate for failure to provide evidence of insurance as required pursuant to the terms of **Section 15**, the following events are also deemed to be events of default pursuant to which Licensor has the right to terminate as set forth below:

23.1 If default shall be made in any of Licensee's covenants, agreements, or obligations contained in this License and Licensee fails to cure said default within thirty (30) days after written notice is provided to Licensee by Licensor, or in case of any assignment or transfer of this License in violation of **Section 26** below, Licensor may, at its option, terminate this License by serving five (5) days' notice in writing upon Licensee. Notwithstanding the foregoing, Licensor shall have the right to terminate this License immediately if Licensee fails to provide evidence of insurance as required in **Section 15**.

23.2 Should Licensee not comply fully with the obligations of **Section 17** regarding the handling or transporting of hazardous waste or hazardous material, notwithstanding anything contained in any other provision of this License, Licensor may, at its option, terminate this License by serving five (5) days' notice of termination upon Licensee.

23.3 Any waiver by Licensor of any default or defaults shall not constitute a waiver of the right to terminate this License for any subsequent default or defaults, nor shall any such waiver in any way affect Licensor's ability to enforce any Section of this License. The remedies set forth in this **Section 23** shall be in addition to, and not in limitation of, any other remedies that Licensor may have at law or in equity.

23.4 In addition to and not in limitation of Licensor's rights to terminate this License for failure to provide evidence of insurance or occurrence of defaults as described above, this License may be terminated by either party,

at any time, by serving thirty (30) days' written notice of termination upon the other party. Such termination shall not release either party hereto from any liability or obligation under the License, whether of indemnity or otherwise, resulting from any acts, omissions or events happening prior to the date of termination or thereafter in case by the terms of the License it is provided that anything shall or may be done after termination hereof.

24. Surrender of the Premises.

24.1 On or before expiration or termination of this License for any reason, Licensee shall, at its sole cost and expense:

24.1.1 if so directed by Licensor in writing, remove the Improvements, the Electric Supply Line and all appurtenances thereto, or, at the sole discretion of Licensor, appropriately decommission the Electric Supply Line with a method satisfactory to Licensor;

24.1.2 report and restore any damage to the Premises or Licensor's other property arising from, growing out of, or connected with Licensee's use of the Premises;

24.1.3 remedy any unsafe conditions on the Premises created or aggravated by Licensee; and

24.1.4 leave the Premises in substantially the condition which existed as of the Effective Date or as otherwise agreed to by Licensor.

24.2 Upon any expiration or termination of this License, if Licensee fails to surrender the Premises to Licensor or if Licensee fails to complete its obligations under **Section 24.1** above (the "**Restoration Obligations**"), Licensee shall have a limited license to enter upon the Premises solely to the extent necessary for Licensee to complete the Restoration Obligations, and all liabilities and obligations of Licensee hereunder shall continue in effect until the Premises are surrendered and the Restoration Obligations are completed. Neither termination nor expiration shall release Licensee from any liability or obligation under this License, whether of indemnity or otherwise, resulting from any acts, omissions or events happening prior to the date of termination, or, if later, the date when Licensee surrenders the Premises and all of the Restoration Obligations are completed.

24.3 If Licensee fails to complete the Restoration Obligations within thirty (30) days after the date of such termination of its tenancy, then Licensor may, at its election, either: (i) remove the Electric Supply Line and the other Improvements or otherwise restore the Premises, and in such event Licensee shall, within thirty (30) days after receipt of bill therefor, reimburse Licensor for cost incurred, (ii) upon written notice to Licensee, take and hold the Electric Supply Line and the other Improvements and personal property as its sole property, without payment or obligation to Licensee therefor, or (iii) specifically enforce Licensee's obligation to restore and/or pursue any remedy at law or in equity against Licensee for failure to so restore. Further, if Licensor has consented to the Electric Supply Line and the other Improvements remaining on the Premises following termination, Licensee shall, upon request by Licensor, provide a bill of sale in a form acceptable to Licensor conveying the Electric Supply Line and the other Improvements to Licensor for no additional consideration.

MISCELLANEOUS

25. Successors and Assigns. All provisions contained in this License shall be binding upon, inure to the benefit of, and be enforceable by the respective successors and assigns of Licensor and Licensee to the same extent as if each such successor and assign was named a party to this License.

26. Assignment.

26.1 Licensee may not sell, assign, transfer, or hypothecate this License or any right, obligation, or interest herein (either voluntarily or by operation of law, merger, or otherwise) without the prior written consent of Licensor, which consent may not be unreasonably withheld or delayed by Licensor. Any attempted

assignment by Licensee in violation of this **Section 26** shall be a breach of this License and, in addition, shall be voidable by Licensor in its sole and absolute discretion.

26.2 For purposes of this **Section 26**, the word "assign" shall include without limitation (a) any sale of the equity interests of Licensee following which the equity interest holders of Licensee immediately prior to such sale own, directly or indirectly, less than 50% of the combined voting power of the outstanding voting equity interests of Licensee, (b) any sale of all or substantially all of the assets of (i) Licensee and (ii) to the extent such entities exist, Licensee's parent and subsidiaries, taken as a whole, or (c) any reorganization, recapitalization, merger or consolidation involving Licensee. Notwithstanding the foregoing, any reorganization, recapitalization, merger or consolidation following which the equity interest holders of Licensee immediately prior to such reorganization, recapitalization, merger or consolidation own, directly or indirectly, at least 50% of the combined voting power of the outstanding voting equity interests of Licensee or any successor thereto or the entity resulting from such reorganization, recapitalization, merger or consolidation shall not be deemed an assignment. THIS LICENSE SHALL NOT RUN WITH THE LAND WITHOUT THE EXPRESS WRITTEN CONSENT OF LICENSOR, SUCH CONSENT TO BE IN LICENSOR'S SOLE DISCRETION.

26.3 Notwithstanding the provisions of **Section 26.1** above or anything contained in this License to the contrary, if Licensee sells, assigns, transfers, or hypothecates this License or any interest herein in contravention of the provisions of this License (a "**Purported Assignment**") to another party (a "**Purported Transferee**"), the Purported Transferee's enjoyment of the rights and privileges granted under this License shall be deemed to be the Purported Transferee's agreement to be bound by all of the terms and provisions of this License, including but not limited to the obligation to comply with the provisions of **Section 15** above concerning insurance requirements. In addition to and not in limitation of the foregoing, Licensee, for itself, its successors and assigns, shall indemnify, defend and hold harmless Licensor for all Liabilities of any nature, kind or description of any person or entity directly or indirectly arising out of, resulting from or related to (in whole or in part) a Purported Assignment. The provisions of this **Section 26.3** shall survive the expiration or earlier termination of this License.

26.4 Licensor shall have the right to transfer and assign, in whole or part, all of its rights and obligations under this License, and upon any such transfer or assignment, Licensor shall be released from any further obligations hereunder and Licensee agrees to look solely to the successor in interest of Licensor for the performance of such obligations.

27. Notices. Any notice, invoice, or other writing required or permitted to be given hereunder by one party to the other shall be in writing and the same shall be given and shall be deemed to have been served and given if (i) placed in the United States mail, certified, return receipt requested, or (ii) deposited into the custody of a nationally recognized overnight delivery service, addressed to the party to be notified at the address for such party specified below, or to such other address as the party to be notified may designate by giving the other party no less than thirty (30) days' advance written notice of such change in address.

If to Licensor: Jones Lang LaSalle Brokerage, Inc.
2650 Lou Menk Drive – MOB2
Fort Worth, TX 76131
Attn: Permits/Licenses

with a copy to: BNSF Railway Company
2650 Lou Menk Dr.
Fort Worth, TX 76131
Attn: Senior Manager Real Estate

If to Licensee: PacifiCorp
825 NE Multnomah Street, Suite 1700
Portland, OR 97232
Attn: Imogen Taylor

28. Survival. Neither termination nor expiration will release either party from any liability or obligation under this License, whether of indemnity or otherwise, resulting from any acts, omissions or events happening prior to the date of termination or expiration, or, if later, the date when the Electric Supply Line and the other Improvements are removed and the Restoration Obligations are completed in accordance with the terms hereof.

29. Recordation. It is understood and agreed that this License shall not be placed or allowed to be placed on public record.

30. Applicable Law. All questions concerning the interpretation or application of provisions of this License shall be decided according to the substantive laws of the State of Texas without regard to conflicts of law provisions.

31. Severability. To the maximum extent possible, each provision of this License shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this License shall be prohibited by, or held to be invalid under, applicable law, such provision shall be ineffective solely to the extent of such prohibition or invalidity, and this shall not invalidate the remainder of such provision or any other provision of this License.

32. Integration. This License is the full and complete agreement between Licensor and Licensee with respect to all matters relating to Licensee's use of the Premises, and supersedes any and all other agreements between the parties hereto relating to Licensee's use of the Premises as described herein. However, nothing herein is intended to terminate any surviving obligation of Licensee or Licensee's obligation to defend and hold Licensor harmless in any prior written agreement between the parties.

33. Joint and Several Liability. If Licensee consists of two or more parties, all the covenants and agreements of Licensee herein contained shall be the joint and several covenants and agreements of such parties.

34. Waiver. The waiver by Licensor of the breach of any provision herein by Licensee shall in no way impair the right of Licensor to enforce that provision for any subsequent breach thereof.

35. Interpretation.

35.1 This License shall be interpreted in a neutral manner, and not more strongly for or against any party based upon the source of the draftsmanship; both parties hereby agree that this License shall not be subject to the principle that a contract would be construed against the party which drafted the same. Article titles, headings to sections and paragraphs and the table of contents (if any) are inserted for convenience of reference only and are not intended to be a part or to affect the meaning or interpretation hereof. The exhibit or exhibits referred to herein shall be construed with and as an integral part of this License to the same extent as if they were set forth verbatim herein.

35.2 As used herein, "include", "includes" and "including" are deemed to be followed by "without limitation" whether or not they are in fact followed by such words or words of like import; "writing", "written" and comparable terms refer to printing, typing, lithography and other means of reproducing words in a visible form; references to any person are also to that person's successors and permitted assigns; "hereof", "herein", "hereunder" and comparable terms refer to the entirety hereof and not to any particular article, section, or other subdivision hereof or attachment hereto; references to any gender include references to the masculine or feminine as the context requires; references to the plural include the singular and vice versa; and references to this License or other documents are as amended, modified or supplemented from time to time.

36. Counterparts. This License may be executed in multiple counterparts, each of which shall, for all purposes, be deemed an original but which together shall constitute one and the same instrument, and the signature pages from any counterpart may be appended to any other counterpart to assemble fully executed documents, and counterparts of this License may also be exchanged electronically and any electronic version of any party's signature shall be deemed to be an original signature for all purposes.

37. Licensor's Representative. Jones Lang LaSalle Brokerage, Inc. is acting as representative for BNSF Railway Company.

END OF PAGE – SIGNATURE PAGE FOLLOWS

This License has been duly executed by the parties hereto as of the Effective Date.

LICENSOR:

BNSF Railway Company, a Delaware corporation

By: Jones Lang LaSalle Brokerage, Inc.
2650 Lou Menk Drive – MOB2
Fort Worth, TX 76131

By: _____
By: Cary Hutchings
Title: Director Corporate Real Estate

LICENSEE:

PacifiCorp, an Oregon corporation

By: _____
By: Imogen Taylor
Title:

COORDINATE SYSTEM: OR_S

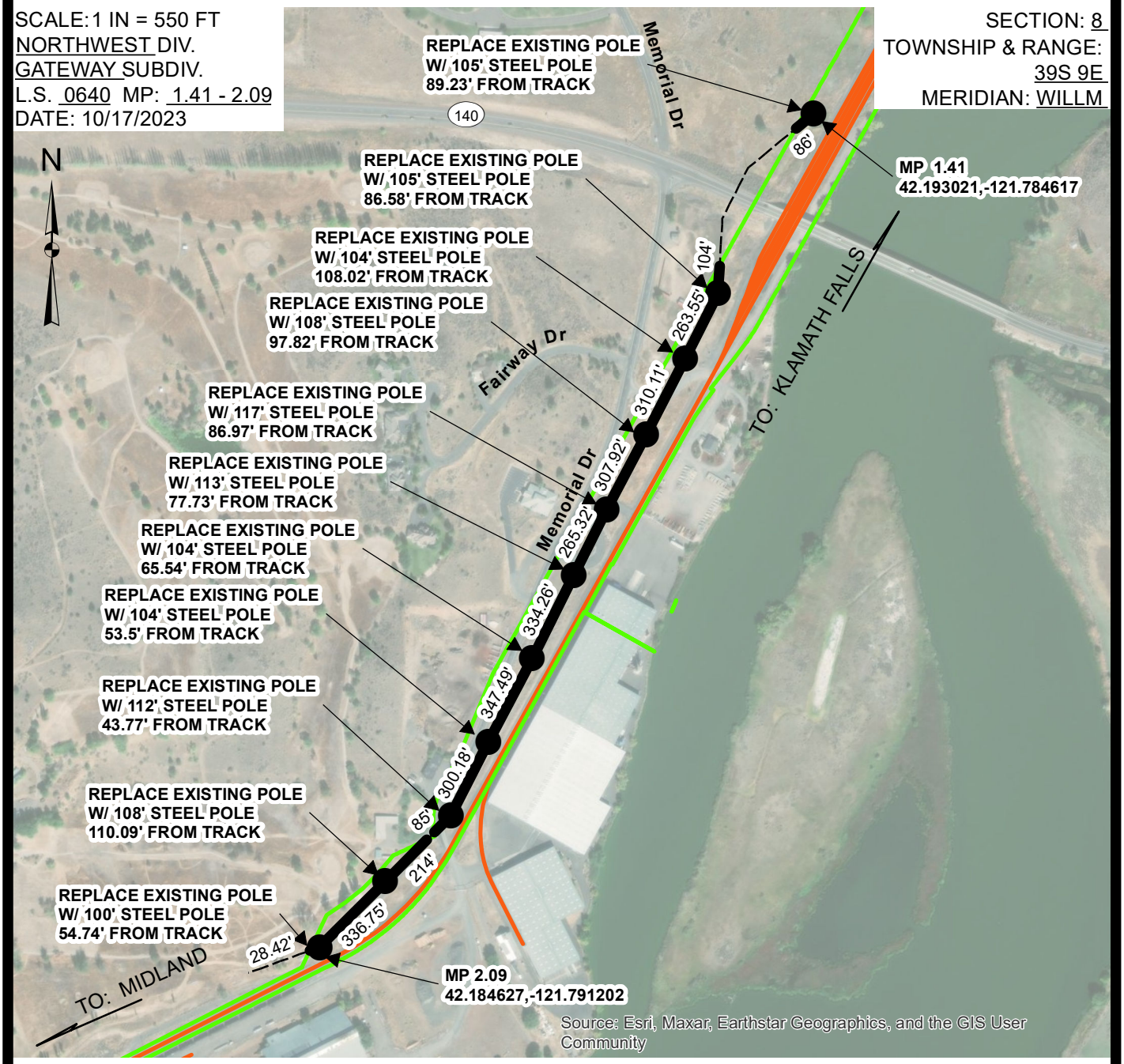
TRACKING NO. 22W-13618

MAP REF. s52182

EXHIBIT "A"

SCALE: 1 IN = 550 FT
NORTHWEST DIV.
GATEWAY SUBDIV.
L.S. 0640 MP: 1.41 - 2.09
DATE: 10/17/2023

SECTION: 8
TOWNSHIP & RANGE: 39S 9E
MERIDIAN: WILLM



NOTE:
EXISTING POLES AND WIRES
BY AGREEMENT GN-60299
WILL BE REMOVED

TOTAL LENGTH ON ROW: 2,983'

DESCRIPTION OF WIRES OVER TRACK
WIRES LOCATED AS SHOWN BOLD

TYPE	NUMBER	VOLTAGE	DISTANCE ABOVE GROUND	CLEARS RAILWAY COMPANY'S WIRES
ELECTRIC / NEUTRAL	5 EXISTING, 3 NEW / 1 EXISTING 1 NEW	230kV / 69kV -	22'	-

KLAMATH FALLS
COUNTY OF KLAMATH

STATE OF OR

JNC

REVISION 4

DRAWING NO. 84304

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

EXHIBIT B

April 5, 2023

PACIFICORP

Klamath Falls – Snow Goose Transmission Line Upgrade

BNSF Railroad AC Interference Analysis

Revision 0

PROJECT NUMBER:
181614

PROJECT CONTACT:
KURT BELL, P.E.
EMAIL:
KURT.BELL@POWERENG.COM
PHONE:
(208) 288-6343

POWER ENGINEERS

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Railroad AC Interference Analysis

PREPARED FOR:

PACIFICORP

PREPARED BY:

KALE KAUWE– (509) 758-8777 – KALE.KAUWE@POWERENG.COM
MAJID SIAHRANG, P.E. – (315) 295-7423 – MAJID.SIAHRANG@POWERENG.COM

REVISION HISTORY						
REV.	ISSUE DATE	ISSUED FOR	PREP BY	CHKD BY	APPD BY	NOTES
A	2023-03-31	Appvl	CKK	MS	JFS	Issued for review and approval
0	2023-04-05	Impl	CKK	MS	JFS	Issued for implementation

"Issued For" Definitions:

- "Prelim" means this document is issued for preliminary review, not for implementation
- "Appvl" means this document is issued for review and approval, not for implementation
- "Impl" means this document is issued for implementation
- "Record" means this document is issued after project completion for project file

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

TABLE OF CONTENTS

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

LIST OF TABLES

LIST OF FIGURES

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

1.0 EXECUTIVE SUMMARY

PacifiCorp is upgrading an existing 69 kV transmission line between Klamath Falls and Snow Goose Substations in Klamath Falls, OR to include a new 230 kV transmission circuit. The transmission line corridor parallels an industrial Burlington Northern Santa Fe (BNSF) track system for approximately 1.8 miles.

The objective for this study is to analyze the AC interference impact of the proposed transmission line upgrade project on the coexisting BNSF railroad track system within the project corridor. Both the existing 69 kV transmission line arrangement as well as the future double circuit line arrangement with new 230 kV circuit were analyzed. This analysis considers the AC interference investigation under the steady state and fault conditions of the transmission line.

The results of the investigation show the following:

- The calculated track system touch voltages under the steady state operation of the transmission lines are below the 50 volt compliance limit.
- Under transmission line fault conditions, the calculated rail touch voltages along the shared corridor exceed the 650 volt compliance limit along sections of the track system.

A recommended mitigation solution involves the installation of eight sets of insulating joints (IJ to reduce the rails touch voltages below the 650 volt compliance limit. Details are shown in Section 6.0.

The investigations performed in this study are based on the transmission line and railroad parameters and field measurement data as detailed in this report. Should system characteristics vary, the results may also vary.

2.0 ANALYSIS SOFTWARE AND GENERAL APPROACH

The Safe Engineering Services (SES) Current Distribution, Electromagnetic interference, Grounding and Soil analysis (CDEGS) computer program (version 18.0) was used to perform the analytical studies for this project. The analysis for this study involved creating a three-dimensional model of the electrical and track systems throughout the transmission line corridor. The HIFREQ module of the CDEGS software is capable of analyzing a three-dimensional system at any given frequency (accurately up to the megahertz range) and calculating electromagnetic fields throughout the modeled areas. Inductive, capacitive, and conductive interference effects are computed simultaneously.

3.0 COMPLIANCE LIMITS

Under both steady state operation and fault conditions of the transmission system touch voltages were taken under consideration as this could be a personnel safety issue. A summary of the limits is seen in Table 1.

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

TABLE 1: SUMMARY OF COMPLIANCE LIMITS			
ASSESSMENT	**APPLICABLE STANDARD**	**COMPLIANCE LIMITS**	
		STEADY STATE	**FAULTED CONDITION**
Rail-to-Ground Voltage Voltage Across Accessible Points	OSHA/AREMA* BNSF SES 15.01	50 volts	NA
Touch Voltage to Rails	BNSF/EPRI/AREMA** BNSF SES 15.01	50 volts	650 volts

*Occupational and Health Administration (OSHA), American Railway Engineering and Maintenance-of-Way Association (AREMA)
** Electric Power Research Institute (EPRI)

3.1 Steady State Limits

Steady state AC interference effects were evaluated for safety of people in and around the track system. Signaling systems are normally an important consideration of railroad interference studies but the BNSF track system studied in this analysis is not signaled.

Under steady state conditions, a limit of 50 volts across any accessible points on the track system was used. This voltage would occur across an insulated joint or as rail-to-ground voltage. The 50 volt limit is based on Occupational Health and Safety Administration (OSHA) Regulations (29 C.F.R. Part 1910). Note that this limit is not expected to result in faulty operation of track circuits, but rather is a limit presented by OSHA for personnel protection and is consistent with the American Railway Engineering and Maintenance-of-Way Association (AREMA) standard as well as the BNSF SES 15.01 Criteria.

3.2 Faulted Limits

Faulted effects were also evaluated for safety of people in and around the track system. Under faulted conditions a limit of 650 Vac RMS rail touch voltage was used. This limit is required by BNSF Railway's Signal Engineering Standard Number SES 15.01 based on high-speed fault clearing.

4.0 DATA AND MODELING DETAILS

Due to the complexity of the system, this section details the source data and modeling methods used for creating the model of the system. Since CDEGS performs calculations in three dimensions, all overhead electric lines paralleling the corridor and the track system must be modeled in their entirety, in three dimensions, throughout the corridor. The model includes both the physical characteristics (such as the structures, conductors, and rail locations) and the electrical characteristics (line loadings, conductor impedances, etc.) of all objects under analysis.

4.1 Shared Corridor Overview

The new 230 kV circuit with the existing 69 kV circuit will parallel the BNSF track system in Klamath Falls, Oregon, for approximately 1.8 miles. The BNSF track system primarily consists of single unsignalized track with a five-track yard in the northern section of the corridor.

The model created for this analysis consists of the transmission line, an approximate grounding system of both Klamath Falls and Snow Goose Substations, and the BNSF track system through the

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

corridor under analysis. Figure 2 in Appendix A shows a representation of the study domain as considered in the models for this study.

4.2 BNSF Railway

The BNSF track system is a single track with a five-track yard in the northern section along the parallel corridor. Track drawings were provided by BNSF, and aerial imagery was used to confirm the drawings and identify any discrepancies between the provided drawings and the installed equipment. The geometry of the track system was determined by using aerial imagery and the provided railroad track system drawings.

The track system was modeled extending one mile beyond the shared corridor with the transmission line in each direction.

Although attempts are made to isolate the individual rails from ground to protect the integrity of track circuits, it is impossible to completely isolate the rails. The ballast rock and rail ties provide a high impedance connection between the two rails, referred to as leakage impedance. Over a large distance, the parallel paths of leakage impedance can affect the quality of the isolation. This leakage impedance is typically described in ohms per thousand feet, although it is technically a value of ohms over a thousand-foot section of rail. A value of 30 ohm-kft was assumed as the rail-to-rail leakage impedance for this study and represents a ballast equivalent impedance of a well-maintained track system.

Abnormal track conditions, such as shorted insulating joints, were not considered for the initial analysis, as no signaling equipment was identified within the BNSF corridor of interest.

Insulating joints (IJs) are used primarily to terminate track blocks controlled by wayside signaling or electrically isolate sections of track from one another. No IJs were identified on the track system along the transmission line shared corridor. Two sets of IJs were identified along the rails located approximately 0.4 miles and one mile from the north end of the shared corridor with the transmission lines.

4.3 PacifiCorp Transmission Lines

4.3.1 Transmission Line Design

Both the existing single circuit 69 kV transmission line and the future double circuit line with new 230 kV circuit and existing 69 kV circuit were modeled resulting in two separate models. The coordinates for all transmission line conductor attachments and structure locations were available from the transmission line's most recent PLS-CADD model which was provided by PacifiCorp. Based on this data, the phase and shield conductors were modeled at their average heights considering the maximum sag conditions. Figure 8 and Figure 11 in Appendix C shows a cross-section sketch of the existing and future transmission line as modeled along the shared corridor with BNSF track system respectively. The transmission line was used as a basis for the model space geometry. The railroad was imported with reference to the transmission line structures using Google Earth.

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Referencing BNSF's track plan and profile drawings in combination with Google Earth, the transmission line was developed in the models with appropriate spacing to the BNSF track system. Figure 1 (in Appendix A) show the overview map of the study area.

In addition to the induced voltage caused by the currents flowing through the phase and neutral conductors, the transfer potential through the soil, caused by the current discharged by the transmission line structure foundations, was considered in the simulations. In this study, transmission line foundations were assumed to be 16 feet deep with a typical diameter of 3 feet and were considered for fault scenarios. Design drawings of the transmission line structures are provided in Appendix C.

4.3.2 Transmission Line Steady State Loading

The following transmission line loadings were provided by PacifiCorp:

- Klamath Falls – Weyerhauser 69 kV line N-1 loading: 379 amperes; 46 MVA
- Klamath Falls – Snow Goose #2 230 kV line N-1 loading: 476 amperes; 197 MVA

The 69 kV system is unaffected by the 230 kV line addition. The 379 amperes at 46 MVA was used for both the existing 69 kV transmission line model as well as the future line arrangement with new 230 kV line model. To account for increase in the AC interference impacts of the transmission line circuits under unbalanced load conditions in this study, five percent unbalance load condition was considered for the loading of the transmission lines. The load unbalance among the phases was selected to cause the worst case induced voltage on the track system.

4.3.3 Transmission Line Fault Scenarios

To evaluate the AC interference impact of the transmission line on the track system under fault conditions, single line-to-ground faults were simulated at various structures in the shared corridor. The fault locations were evenly spaced in the areas where the transmission line is near the BNSF track system. POWER used the PacifiCorp provided ASPEN models "PACIFICORP 2021_03_01.OLR" and "PACIFICORP WORKING FILE 2022 07-27 Klamath Falls - Snow Goose Update.OLR", to extract the required short circuit data for the existing 69 kV transmission line arrangement and future line arrangement with new 230 kV circuit respectfully. In addition to the induced voltages caused by the currents flowing through the phase and shield conductors, the transfer potentials through the soil caused by the current discharged by the transmission line structure foundations were considered in the simulations. The considered fault values are listed in Table 9 and Table 10 found in Appendix C.

4.4 Soil Model

Soil resistivity measurements near Klamath Falls and Snow Goose Substations were provided by PacifiCorp. Additionally, two traverses of soil resistivity measurements were performed using the Wenner four-pin method, along the railroad corridor at locations depicted on Figure 18 found in Appendix C.

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

The RESAP module of the CDEGS software was used to analyze the measurement data and create a representative equivalent soil model. All measurement results obtained were relatively consistent with each other. The measurement data and the interpreted equivalent soil models are provided in Appendix D.

For this study, as a conservative soil structure, the data obtained at Location 1 was used to create the horizontally layered soil model used in all simulated models (see Figure 23).

5.0 SUMMARY OF UNMITIGATED RESULTS

The following sections present a summary of the results of the AC electromagnetic analysis due to steady state and fault conditions.

5.1 Steady State

Calculation plots from the CDEGS software use colored areas to show voltage magnitude along the railroad track systems. Figures 25 and 26 depict the steady state rail touch voltages, under N-1 contingency loading. These voltages do not exceed the OSHA 50 volt compliance for either the existing or future condition. The maximum calculated railroad track touch voltage is approximately 3.0 volts for the existing condition and 17.1 volts for the future condition as seen in Table 2.

TABLE 2: MAXIMUM CALCULATED STEADY STATE TRACK SYSTEM TOUCH VOLTAGES

EXISTING CONDITION	FUTURE CONDITION	COMPLIANCE LIMITS
3.0 volts	17.1 volts	50 volts

5.2 Faulted State

To determine the AC interference impacts of the transmission line on the track system under fault conditions, single line-to-ground faults at eight transmission structures on the parallel corridor were examined. Additional single line-to-ground faults between these original eight structures were taken as needed to determine an area of compliance. In addition to the induced voltage caused by the currents flowing through the phase and shield conductors, the transfer potential through the soil caused by the current discharged by the foundations of the transmission line structures has been considered in the simulations.

The maximum calculated value is approximately 1,600 volts for the existing condition and 1,225 volts for the future condition. Both calculated values are above the 650 volt limit. The results can be seen in Table 3. The red values indicate non-compliant touch voltages.

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

TABLE 3: MAXIMUM CALCULATED FAULTED STATE TRACK SYSTEM TOUCH VOLTAGES			
FAULT LOCATION (STRUCTURE #)	**EXISTING CONDITION (VOLTS)**	**FUTURE CONDITION 69 KV FAULT (VOLTS)**	**FUTURE CONDITION 230 KV FAULT (VOLTS)**
4/1	127	487	504
6/1	566	582	463
9/1	598	652	485
11/1	587	991	*
12/1	674	*	*
13/1	*	*	631
14/1	*	*	707
16/1	1,317	*	930
2/2	1,135	977	830
8/2	1,601	1,224	1049
10/2	661	1,129	949
12/2	563	1,028	869
13/2	-	646	826

*No fault placed at structure as compliance or non-compliance is already determined by faults before and after.

The calculated track system touch voltages during transmission line fault conditions, under the existing and future line configurations, exceed the 650 volt touch compliance limit along sections of the BNSF track system as follows:

- For the existing 69 kV transmission line configuration:
  - Single line-to-ground faults along the transmission line between Structures 12/1 and 10/2 produce non-compliant track system touch voltages.
- For the future 69/230 kV transmission line configuration:
  - Single line-to-ground faults along the 69 kV transmission line between Structures 9/1 and 12/2 produce non-compliant track system touch voltages along.
  - Single line-to-ground faults along the 230 kV transmission line between Structures 14/1 and 16/2 produce non-compliant touch voltages.

Figures 27 through 32 in Appendix E show the maximum rail touch voltage along the tracks for the first and last structures in the non-compliant region. The fault studies show that there were higher track system touch voltages for the existing 69 kV transmission line primarily due to the lack of shield wires along the transmission line. The future 230 kV circuit addition with added shield wires results in lower touch voltages but are still above the 650 volt limit.

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

6.0 MITIGATION RECOMMENDATIONS AND RESULTS

6.1 Mitigation Techniques

The magnitude of the induced voltage on the track system caused by the transmission lines is proportional to the length of continuous track sections along the transmission line corridor. Insulating Joints (IJs) electrically break the track system resulting in shorter parallel sections along the transmission line shared corridor. By adding IJs, the parallel path distance is reduced along with magnitude of induced voltage on the tracks.

By installing a total of eight sets of IJs at four locations along the track system as identified in Table 4 and Figure 33, the touch voltages are reduced below the touch voltage limit of 650 volts.

For ease of construction the IJs can be installed along the track system anywhere within the 300 foot ranges identified in Table 4 (the ranges are shown as between GPS Location A and GPS Location B for each location) and Figure 33. Locations 1-3 require a single set of IJs and location 4 requires five sets of IJs across the track system yard.

TABLE 4: MITIGATION IJ LOCATIONS

LOCATION NUMBER	GPS LOCATION A		GPS LOCATION B	
IJ_1 (1 set of IJs)	Latitude	42°10’58.96”N	Latitude	42°11’0.34”N
	Longitude	121°47’41.26”W	Longitude	121°47’37.70”W
IJ_2 (1 set of IJs)	Latitude	42°11'10.85"N	Latitude	42°11'13.47"N
	Longitude	121°47'19.94"W	Longitude	121°47'18.07"W
IJ_3 (1 set of IJs)	Latitude	42°11’23.46”N	Latitude	42°11’26.06”N
	Longitude	121°47’10.87”W	Longitude	121°47’9.03”W
IJ_4 (5 sets of IJs)	Latitude	42°11'38.18"N	Latitude	42°11'40.77"N
	Longitude	121°47'1.18"W	Longitude	121°46'59.30"W

6.2 Mitigation Results

The results of the investigation, with the added eight sets of IJs, show that the calculated track system touch voltages are reduced under both the steady state and faulted conditions of the transmission lines.

6.2.1 Steady State

As it was the case with the unmitigated system, calculated rail touch voltages under the steady state operating condition of the transmission line including considering N-1 contingency maximum loading are below the 50 volt compliance limits. With the installation of the recommended IJs the maximum calculated rail touch voltage is approximately 9.7 volts. The maximum calculated voltage across the IJs is approximately 14.8 volts.

Table 5 shows the calculated maximum voltage across the IJ’s under the steady state operating conditions with the IJs modeled in the center of the identified 300 foot range.

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

TABLE 5: MAXIMUM CALCULATED STEADY STATE VOLTAGE ACROSS INSULATING JOINTS		
LOCATION	VOLTAGE ACROSS IJs	COMPLIANCE LIMIT
Insulating Joint #1	14.8 volts	50 volts
Insulating Joint #2	13.4 volts	
Insulating Joint #3	9.6 volts	
Insulating Joint #4	4.8 volts	

Abnormal Track Conditions

With the installation of the recommended IJs, two types of abnormal track conditions, as specified in SES 15.01, were analyzed. Conditions for one shorted IJ and a stopped train shorting three sets of IJs were considered. Table 6 shows the maximum calculated rail touch voltage and voltage across the IJs under worst case track abnormal conditions. Rail touch voltages for all abnormal track conditions are below the 50 volt compliance limit.

TABLE 6: MAXIMUM CALCULATED STEADY STATE VOLTAGE UNDER ABNORMAL TRACK CONDITIONS			
ABNORMAL CONDITION	MAXIMUM TOUCH VOLTAGE	MAXIMUM VOLTAGE ACROSS IJ	COMPLIANCE LIMIT
Single Shorted IJ 1	21.2 volts	26.7 volts (Across IJ 2)	50 volts
Stopped Train Over IJ 2, IJ 3 and IJ 4.	27.3 volts	35.7 volts (Across IJ 1)	

6.2.1 Faulted State

Table 7 shows the maximum calculated rail touch voltage under worst case fault condition of the proposed transmission line along track sections, with the IJs modeled in the center of the identified 300 foot range. Figure 35 through Figure 40 show the touch voltage plots.

TABLE 7: FAULTED STATE MITIGATED TRACK SYSTEM TOUCH VOLTAGES		
FAULT LOCATION (STRUCTURE #)	FUTURE CONDITION 69 KV FAULT (VOLTS)	FUTURE CONDITION 230 KV FAULT (VOLTS)
4/1	416	362
6/1	440	376
9/1	419	392

Table 8 shows the maximum calculated rail touch voltage along track sections. The IJs were moved within to the extremes of the range to find the worst-case touch voltage for each section of track between the IJs.

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

TABLE 8: MAXIMUM MITIGATED CALCULATED TRACK SYSTEM TOUCH VOLTAGES		
TRACK SECTION	**MAXIMUM TOUCH VOLTAGE**	**COMPLIANCE LIMIT**
Between IJ_1 and IJ_2	593 volts	650 volts
Between IJ_2 and IJ_3	536 volts	
Between IJ_3 and IJ_4	473 volts	
North of IJ_4	418 volts	

7.0 CONCLUSIONS

The investigation done in this study was performed to determine the AC interference impacts of PacifiCorp's proposed 69/230 kV transmission line upgrade project, interconnecting Klamath Falls and Snow Goose Substations, on the nearby coexisting BNSF track system along the shared corridor.

The results of the investigation show that for steady state conditions, the calculated track voltages are below the compliance limit of 50 volts. However, the calculated track system touch voltages during transmission line fault conditions, under the existing and future line configurations, exceed the 650 volts touch compliance limit along sections of the track system.

A recommended mitigation measure was proposed to reduce the rail touch voltage below the compliance limit under the transmission line conditions, the proposed mitigation option requires installation of eight sets of insulating joints (IJ') on the rails at identified locations.

Based on the simulation results, with the installation of the proposed IJs touch voltages along the track system are calculated to be below the 650 volt compliance limit.

The investigations performed in this study are based on the transmission line and railroad parameters and field measurement data as detailed in this report. Should system characteristics vary, the results may also vary. In particular, the induced voltage on the rails depends strongly on the maximum line currents under N-1 conditions and phasing configuration of the lines.

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

APPENDIX A: PROJECT CORRIDOR OVERVIEW MAPS

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

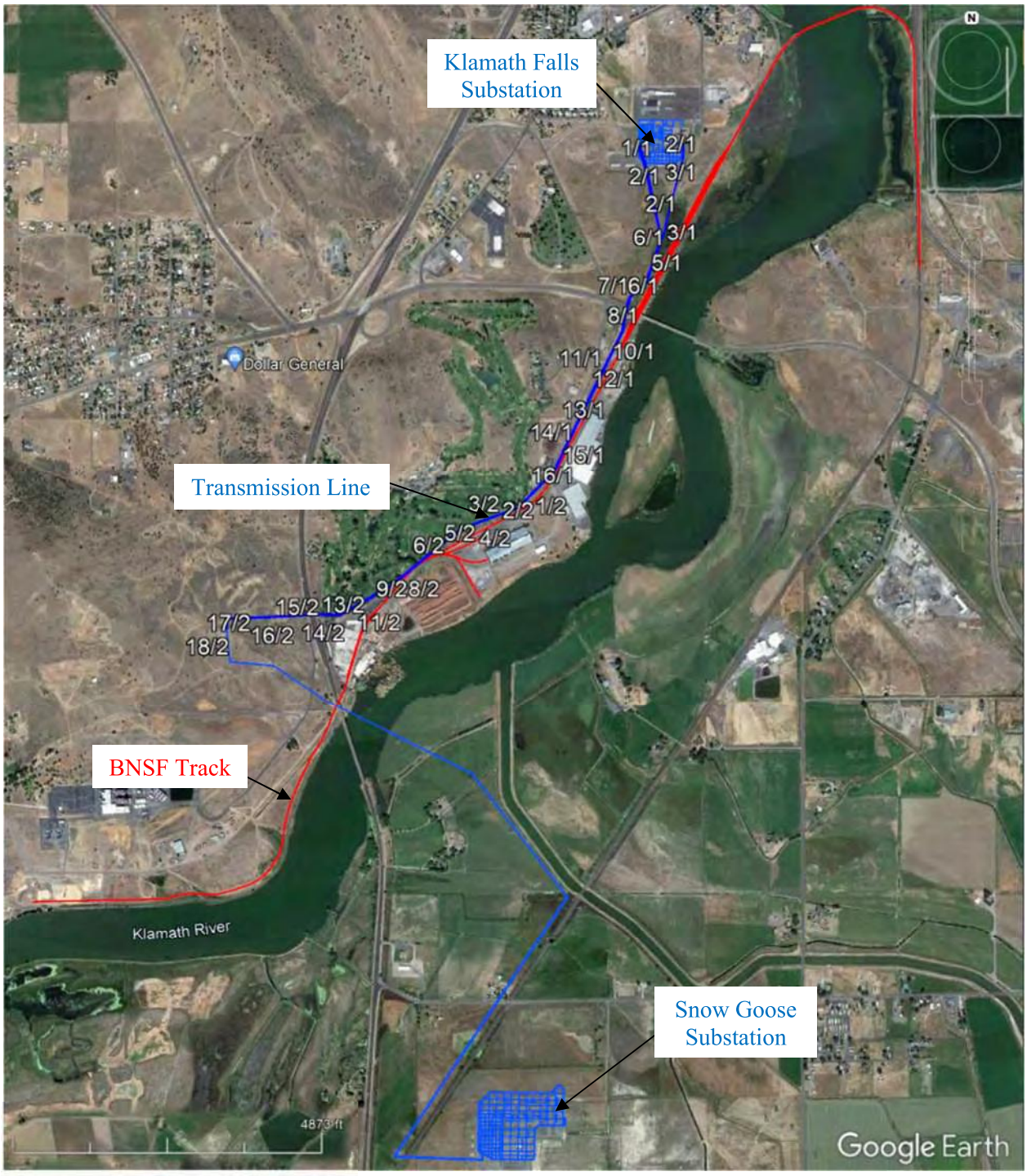


Figure 1: Klamath Falls – Snow Goose Transmission Line & BNSF Track System Overview

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

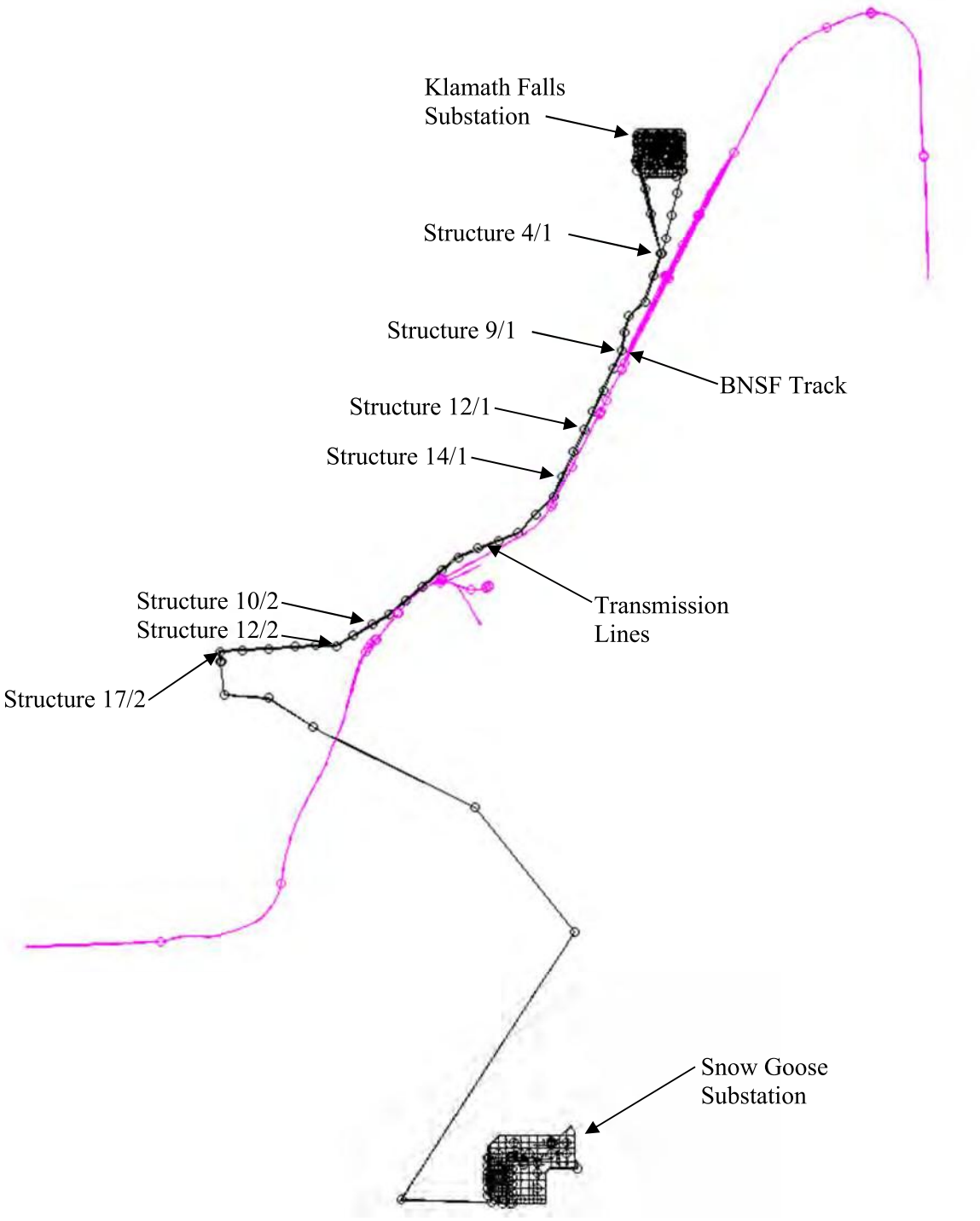


Figure 2: Study Domain

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

APPENDIX B: BNSF DRAWINGS AND DATA

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

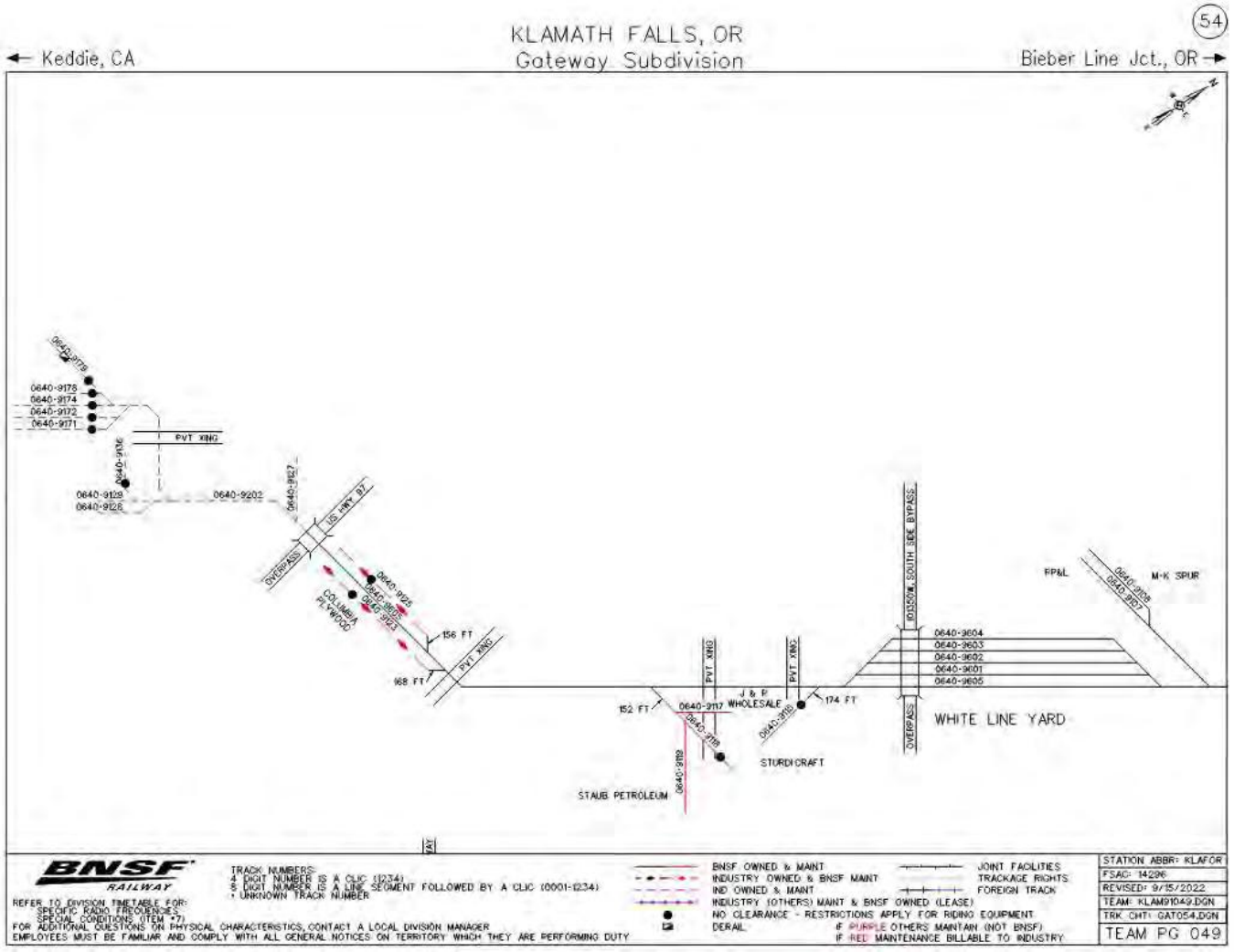


Figure 3: Track Plan Klamath Falls

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

APPENDIX C: TRANSMISSION LINE DATA

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

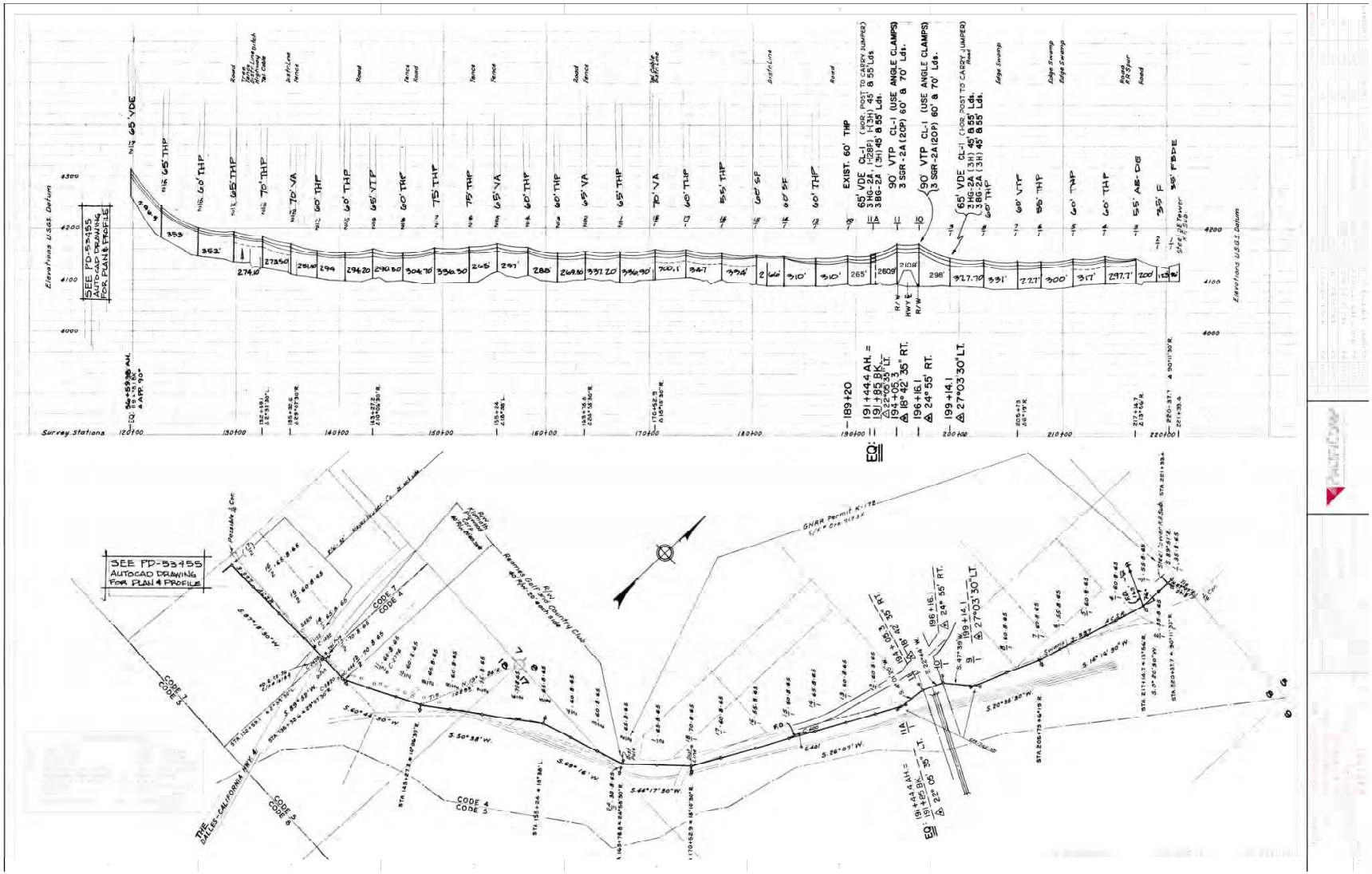


Figure 4: Drawing 068068: Existing Plan and Profile Klamath – Weyerhaeuser #68

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

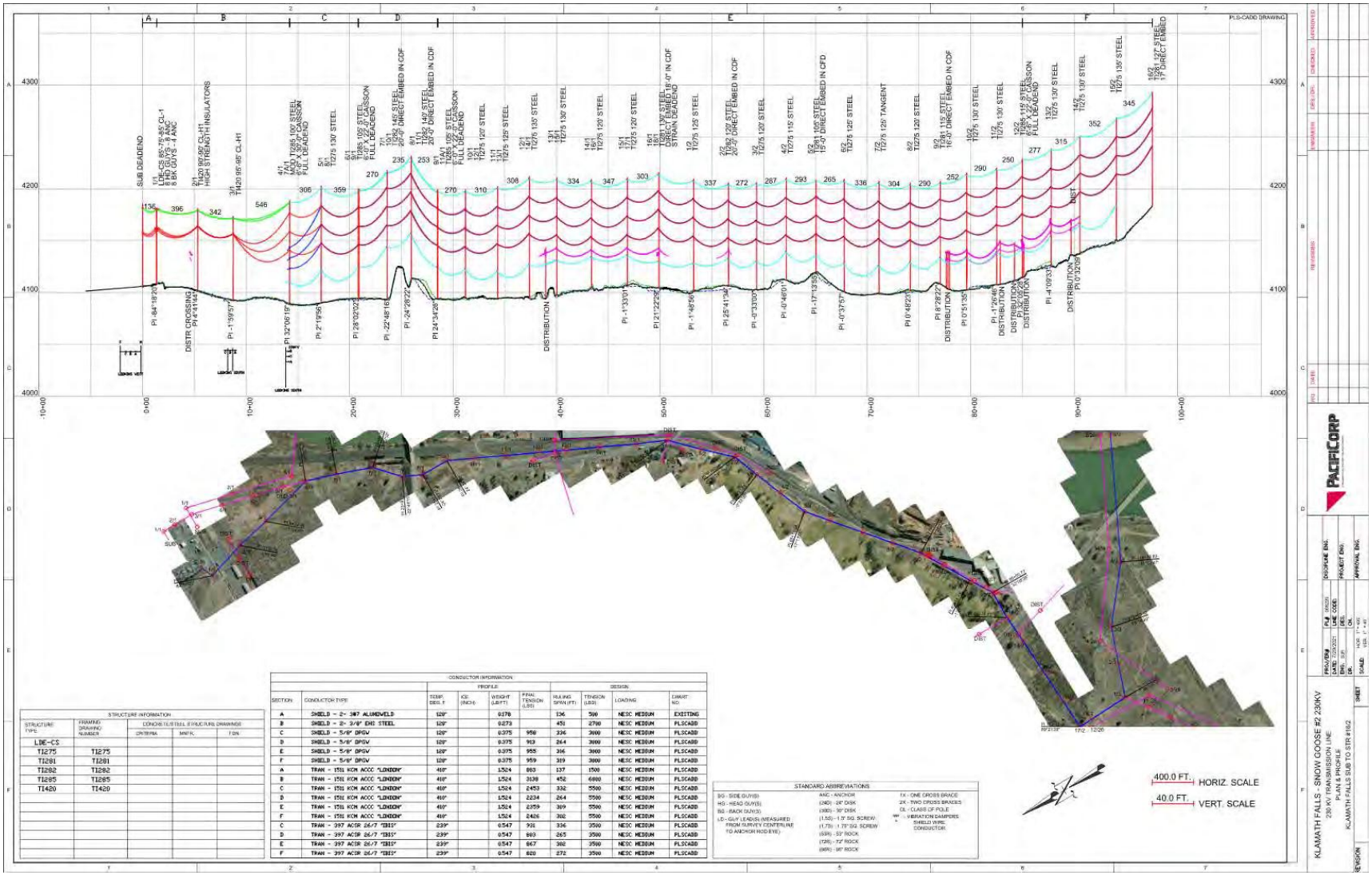


Figure 5: Drawing 068220: Future Plan and Profile Klamath – Snow Goose #2 230 kV

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

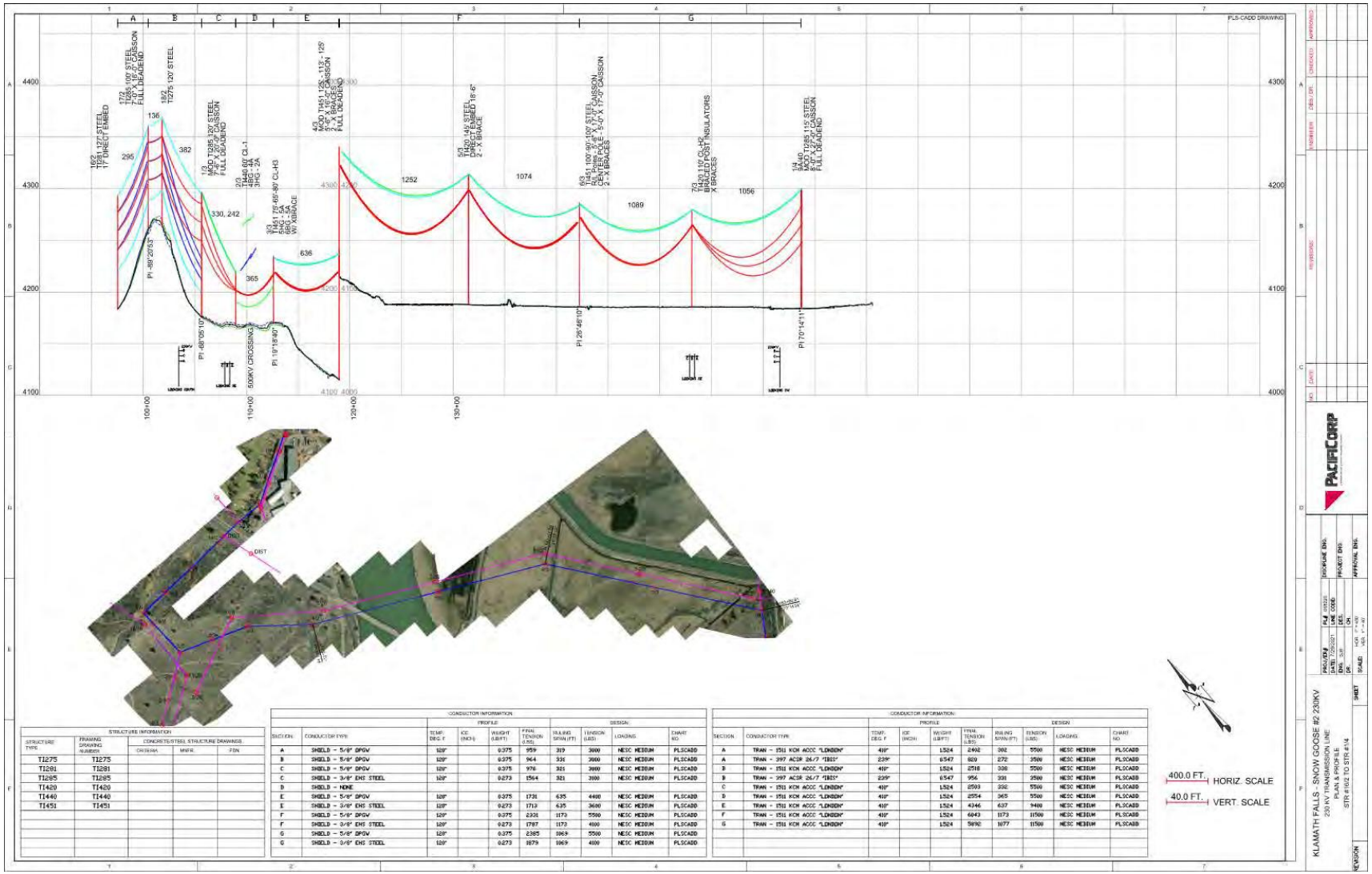


Figure 6: Drawing 068220: Future Plan and Profile Klamath – Snow Goose #2 230 kV (Continued)

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

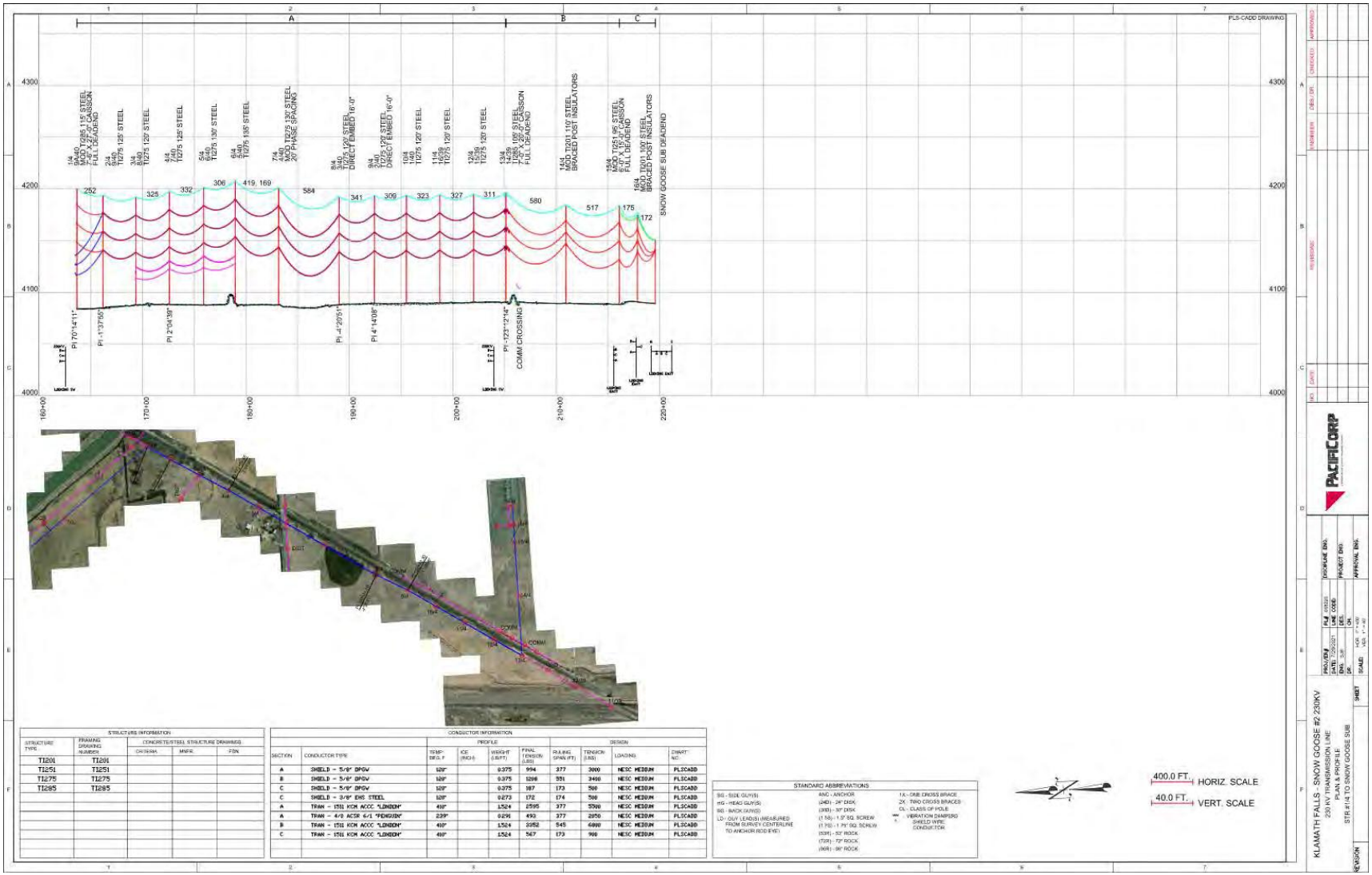


Figure 7: Drawing 068220: Future Plan and Profile Klamath – Snow Goose #2 230 kV (Continued)

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

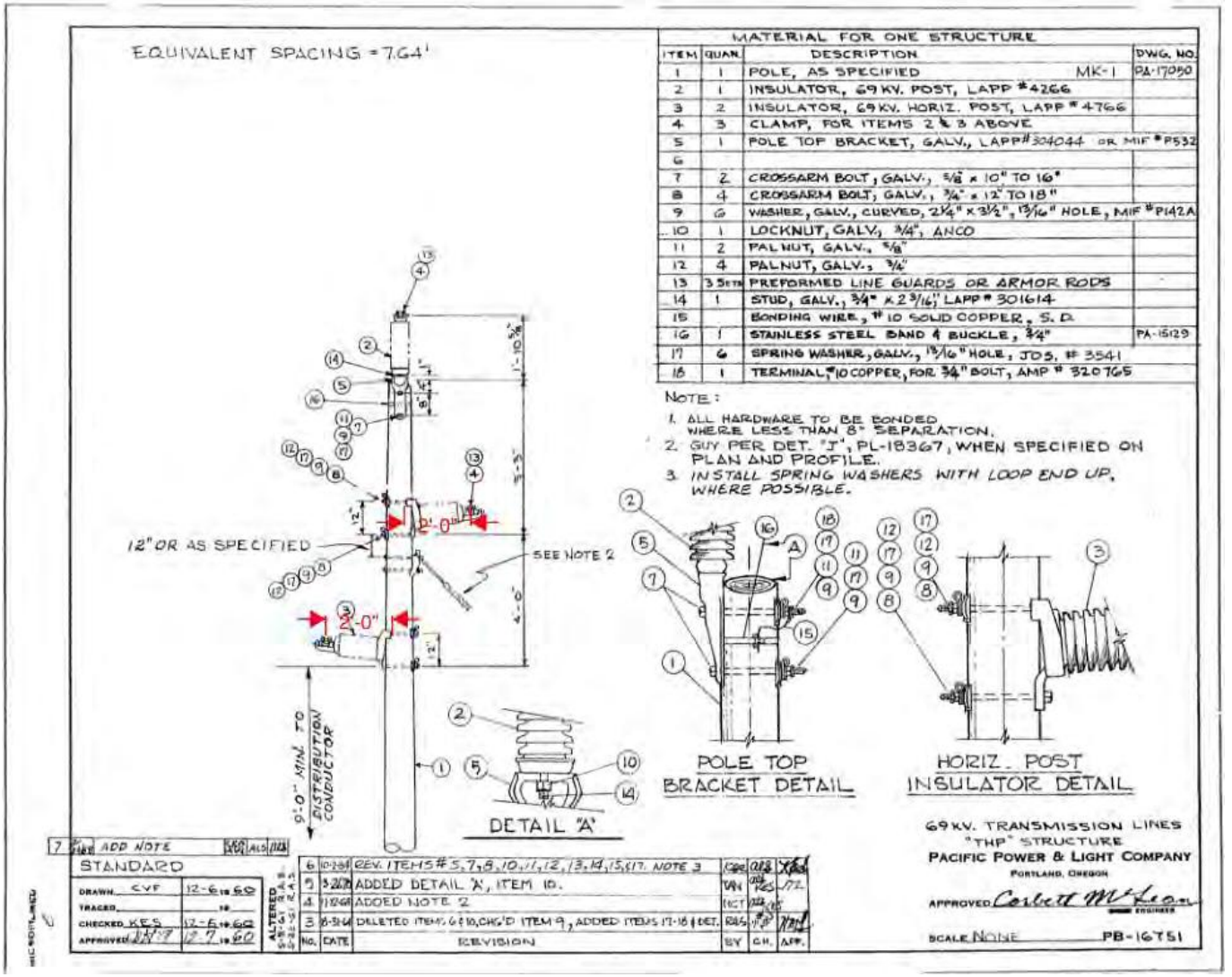


Figure 8: Existing 69 kV Cross Section

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

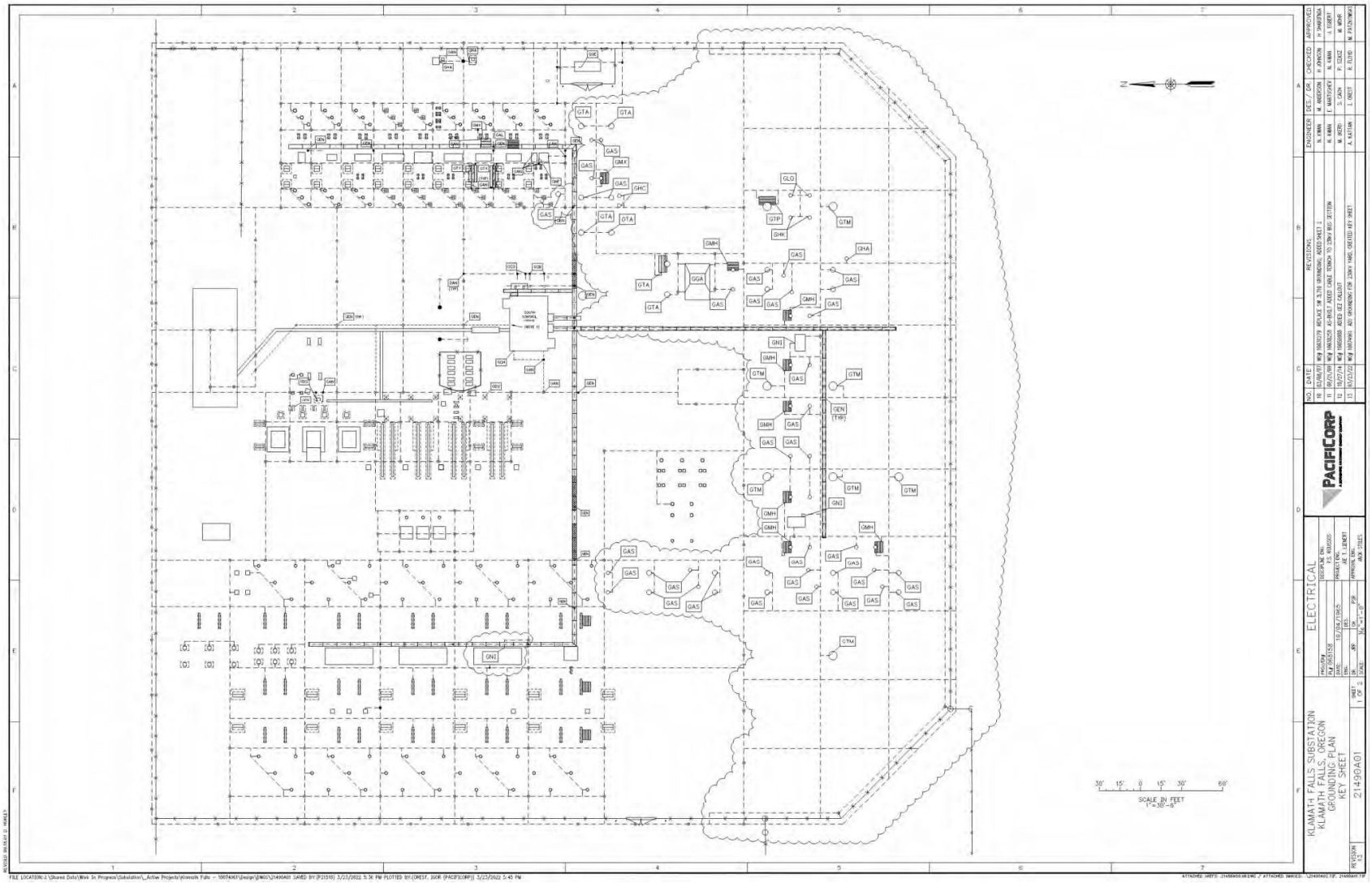


Figure 9: Klamath Falls Grounding Detail

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

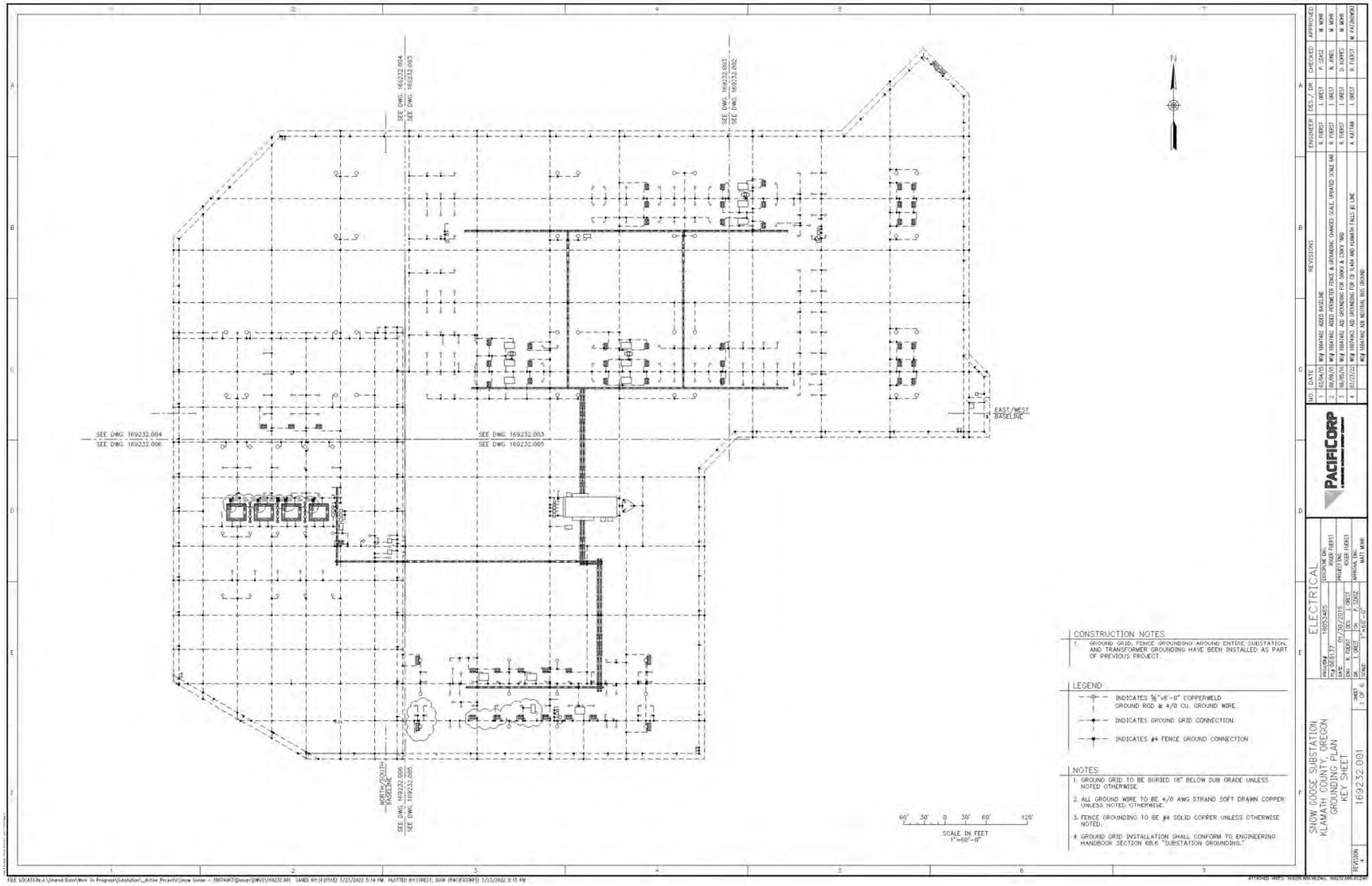


Figure 10: Snow Goose Grounding Detail

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

TI 275 230 kV Structure—Shielded, Double-Circuit, 0° to 2°, Steel Pole, Supported Post Insulators

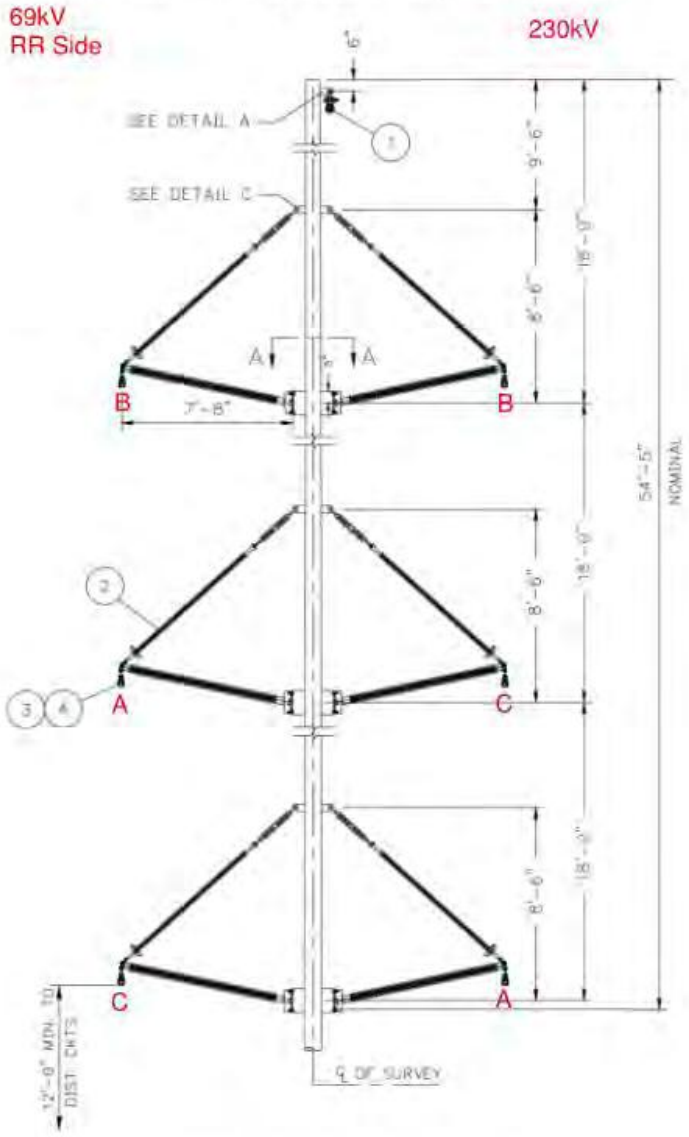


Figure 1—Structure Layout

ROCKY MOUNTAIN POWER

PACIFIC POWER

Deviation from this standard requires prior approval. Contact the standards engineering manager for approval processes and forms.
Printed versions of this standard may be out of date. Please consult the online standards for the most recent version. This standard shall be used and duplicated only in support of PacifiCorp projects. ©2019 by PacifiCorp.

Figure 11: Future 230 kV Phasing and Structure Cross Section

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

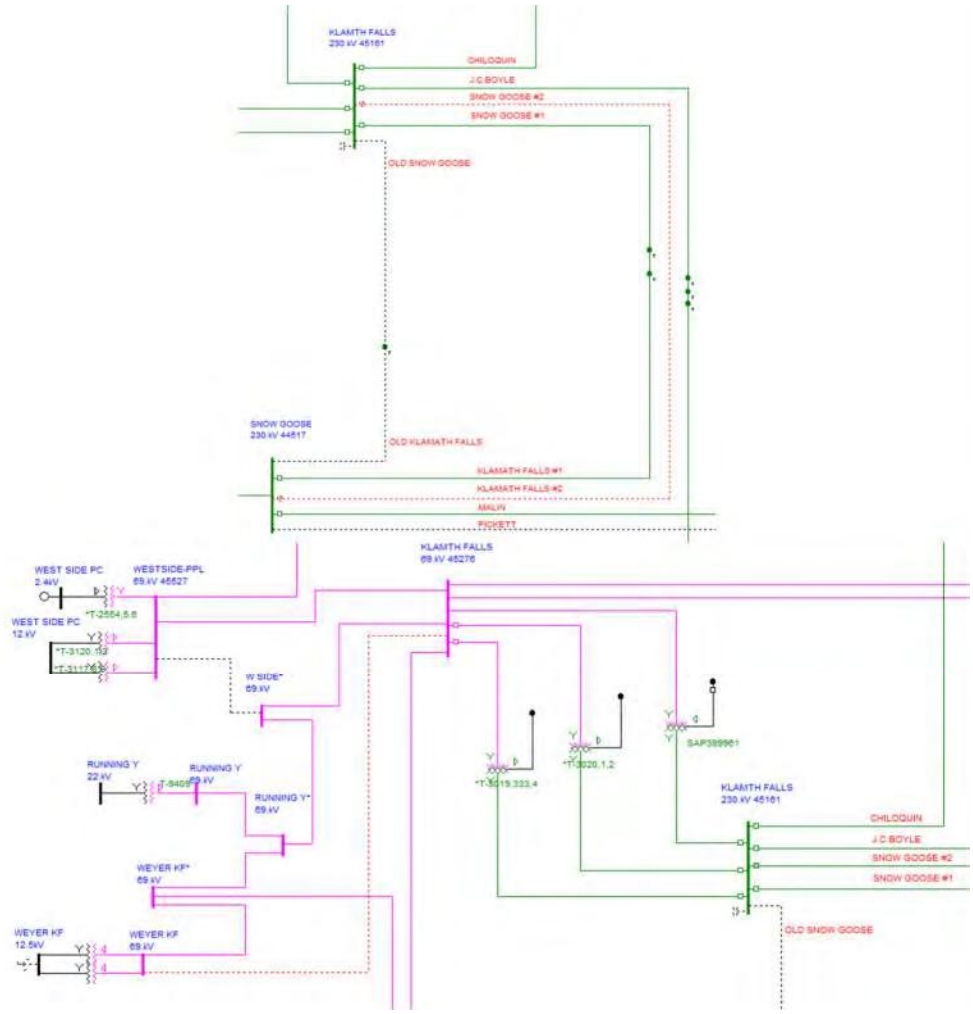


Figure 12: Existing "PACIFICORP WORKING FILE 2022 07-27 Klamath Falls - Snow Goose Update.OLR" Aspen Model Screen Shots

TABLE 9: EXISTING CONDIDTION 69 KV MODEL SINGLE LINE-TO-GROUND FAULT CURRENT DATA

FAULT LOCATION (STRUCTURE #)	FROM KLAMATH FALLS SUBSTATION (AMPS)	FROM WEYERHAUSER SUBSTATION (AMPS)
4/1	4,544	137
6/1	4,424	203
9/1	4,270	289
11/1	4,195	331
12/1	4,122	372
16/1	3,909	494
2/2	3,806	552
8/2	3,547	704
10/2	3,485	742
12/2	3,394	796

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

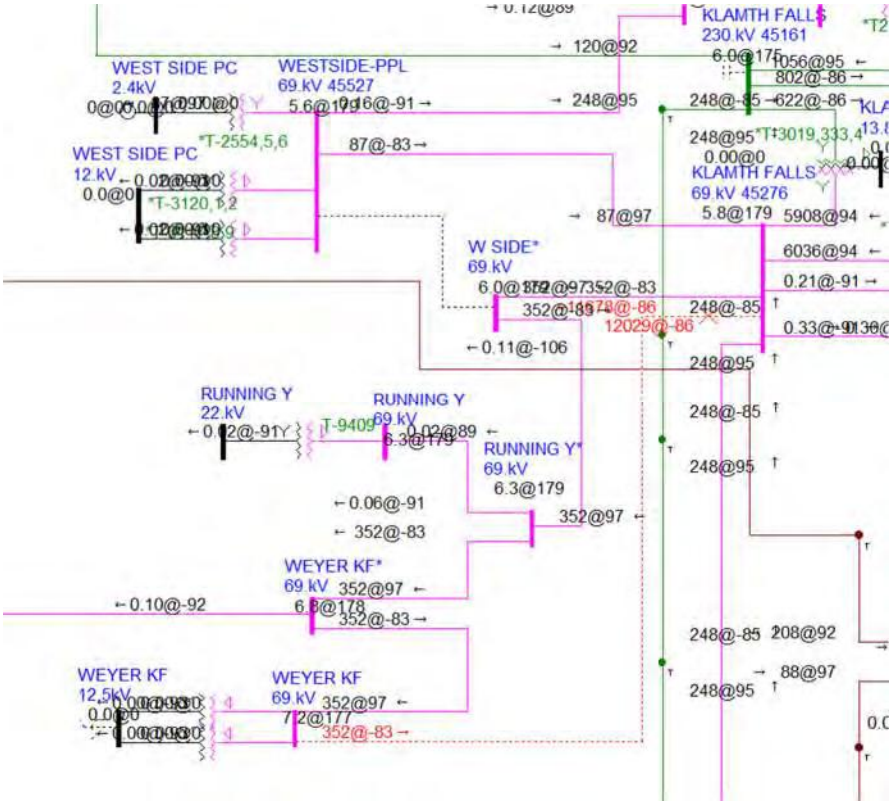


Figure 13: Future "PACIFICORP 2021_03_01.OLR" Aspen Model Screen Shot

TABLE 10: FUTURE CONDITION WITH 230 KV MODEL SINGLE LINE-TO-GROUND FAULT CURRENT DATA

FAULT LOCATION (STRUCTURE #)	FROM 69 KV KLAMATH FALLS SUBSTATION (AMPS)	FROM 69 KV WEYERHAUSER SUBSTATION (69 KV AMPS)	FROM 230 KV KLAMATH FALLS SUBSTATION (230 KV AMPS)	FROM 230 KV SNOW GOOSE SUBSTATION (230 KV AMPS)
4/1	17,504	527	10,110	5,228
6/1	16,100	739	9,810	5,466
9/1	14,533	983	9,422	5,784
16/1	11,653	1,471	8,589	6,512
2/2	10,990	1,595	8,322	6,759
8/2	9,524	1,892	7,633	7,435
10/2	9,213	1,960	7,382	7,695
12/2	8,780	2,060	7,216	7,871
14/2	8,511	2,125	6,971	8,139
15/2	8,257	2,189	6,808	8,320

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

APPENDIX D: SOIL RESISTIVITY MEASUREMENTS AND MODELS

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

FIELD ELECTRICAL RESISTIVITY TEST DATA

Klamath-Snow Goose T-Line Field Electrical Resistivity • Klamath Falls, OR

May 11, 2021 • Terracon Project No. 82215036

Terracon GeoReport

Array Loc.	Approximate center coordinates: 42.1958°, -121.7858°		
Instrument	MiniRes	**Weather**	Sunny, 75F
Serial #	SN-303	**Ground Cond.**	Grassy field, gradual slopes to south and east
Cal. Check	5/11/2021; L&R Calibration belt	**Tested By**	Abe Knierim / Heath Ulrich
Test Date	May 11, 2021	**Method**	Wenner 4-pin (ASTM G57-06 (2012); IEEE 81-2012)
Notes & Conflicts	Not enough linear distance to conduct 600 ft a-spacing reading for NW-SE Array		

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		NW-SE		N-S	
[feet]	[centimeters]	[inches]	[centimeters]	Measured Resistance *R*	Apparent Resistivity ρ	Measured Resistance *R*	Apparent Resistivity ρ
				Ω	[Ω-ft]	Ω	[Ω-ft]
0.5	15	3	8	69.00	287	24.60	102
1	30	3	8	21.20	146	11.27	77
2	61	3	8	7.01	91	6.09	79
3	91	3	8	5.10	97	4.80	91
5	152	3	8	3.06	96	2.31	73
7.5	229	6	15	1.93	92	1.48	71
10	305	6	15	1.46	92	1.23	77
12.5	381	12	30	1.16	93	1.07	85
15	457	12	30	0.94	90	1.05	100
20	610	12	30	0.75	94	0.73	93
40	1219	18	46	0.32	81	0.30	75
50	1524	18	46	0.24	75	0.23	72
60	1829	18	46	0.19	70	0.19	73
75	2286	18	46	0.15	73	0.16	76
100	3048	18	46	0.12	74	0.13	79
125	3810	18	46	0.10	76	0.10	77
150	4572	18	46	0.08	78	0.08	77
200	6096	18	46	0.06	74	0.06	73
300	9144	18	46	0.03	58	0.03	60
450	13716	18	46	0.02	52	0.02	53
600	18288	18	46			0.01	40

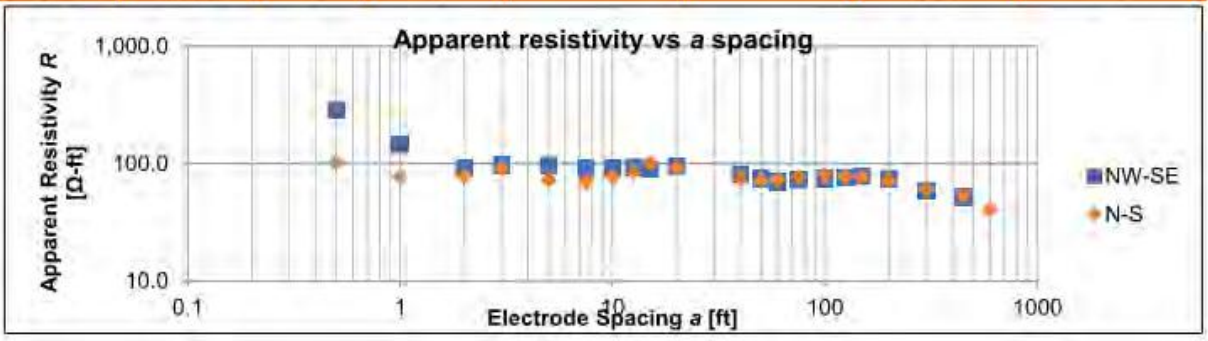


Figure 14: Soil Resistivity Measurement Klamath Falls Substation

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Table 2. Summary of measured data for Res-1 Wenner Sounding.

Wenner A spacing (ft)	Wenner A spacing (meter)	Electrode insertion depth (in)	Measured Resistance (Ω)	Apparent Resistivity (Ω-ft)	Apparent Resistivity (Ω-meter)
0.5	0.15	0.5	14.6	45.86	13.98
1	0.30	1	3.829	24.06	7.33
2	0.61	1	1.699	21.35	6.51
3	0.91	2	1.237	23.32	7.11
5	1.52	2	0.9239	29.03	8.85
7.5	2.29	4	0.7807	36.78	11.21
10	3.05	4	0.7008	44.03	13.42
12.5	3.81	5	0.6297	49.46	15.08
15	4.57	5	0.571	53.82	16.40
20	6.10	5	0.462	58.06	17.70
40	12.19	5	0.2473	62.15	18.94
60	18.29	5	0.16	60.30	18.38
100	30.48	8	0.07982	50.15	15.29
150	45.72	8	0.05044	47.54	14.49
200	60.96	8	0.0392	49.26	15.01
400	121.92	8	0.02422	60.87	18.55
800	243.84	8	0.01287	64.70	19.72
1200	365.76	10	0.00908	68.46	20.87

Figure 15: Soil Resistivity Measurement Snow Goose Res 1

Table 3. Summary of measured data for Res-2 Wenner Sounding.

Wenner A spacing (ft)	Wenner A spacing (meter)	Electrode insertion depth (in)	Measured Resistance (Ω)	Apparent Resistivity (Ω-ft)	Apparent Resistivity (Ω-meter)
0.5	0.15	0.5	172.6	542.1	165.23
1	0.30	1	48.9	307.2	93.63
2	0.61	1	12.91	162.3	49.47
3	0.91	2	5.58	104.8	31.94
5	1.52	2	2.855	89.69	27.34
7.5	2.29	4	1.794	84.54	25.77
10	3.05	4	1.462	91.87	28.00
12.5	3.81	4	1.205	94.62	28.84
15	4.57	4	1.041	98.16	29.92
20	6.10	5	0.797	100.1	30.51
40	12.19	5	0.3626	91.12	27.77
60	18.29	6	194.2	73.23	22.32
100	30.48	8	0.08758	55.03	16.77
150	45.72	8	0.06047	56.99	17.37
200	60.96	8	0.04613	57.97	17.67
400	121.92	8	0.02344	58.92	17.96
800	243.84	8	0.013	65.37	19.92

Figure 16: Soil Resistivity Measurement Snow Goose Res 2

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

FIELD ELECTRICAL RESISTIVITY TEST DATA
Klamath and Snow Goose Resistivity Testing ■ Klamath Falls, Oregon
October 31,2022 ■ Terracon Project No. 82225158

Terracon GeoReport

Array Loc.	Location 1: 42.18252°, -121.7961°; Location 2: 42.1846°, -121.7910°		
Instrument	MiniRes	**Weather**	Sunny, 62°F
Serial #	201	**Ground Cond.**	Dry seed grass
Cal. Check	10/31/2022	**Tested By**	EM/TF
Test Date	October 31, 2022	**Method**	Venner 4-pin (ASTM G57-06 (2020); IEEE 81-2012
Notes & Conflicts	Construction equipment near Location 2; transmission line running east-west south of the testing locations.		

Apparent resistivity ρ is calculated as : $\rho = \dfrac{4\pi aR}{1 + \dfrac{2a}{\sqrt{a^2+4b^2}} - \dfrac{a}{\sqrt{a^2+b^2}}}$

Electrode Spacing *a*		Electrode Depth *b*		Location 1; E-W Test			Location 2; E-W Test		
(feet)	(centimeters)	(inches)	(centimeters)	Measured Resistance *R*	Apparent Resistivity ρ		Measured Resistance *R*	Apparent Resistivity ρ	
				Ω	Ω-m	Ω-ft	Ω	Ω-m	Ω-ft
1.25	38	6	15	43.30	126	414	69.80	203	667
2.5	76	6	15	10.55	54	176	16.30	83	272
5	152	6	15	2.94	29	94	8.50	83	271
7.5	229	6	15	1.30	19	62	2.33	34	111
10	305	6	15	1.13	22	71	1.80	35	114
15	457	12	30	0.76	22	72	1.22	35	116
20	610	12	30	0.61	23	76	0.99	38	125
25	762	12	30	0.47	23	74	0.75	36	117
30	914	12	30	0.41	24	77	0.58	33	109
40	1219	12	30	0.34	26	85	0.41	31	102
50	1524	12	30	0.28	27	88	0.31	29	96
60	1829	12	30	0.21	24	79	0.24	28	92
80	2438	12	30	0.17	26	85	0.19	28	93
100	3048	12	30	0.13	26	84	0.14	26	85

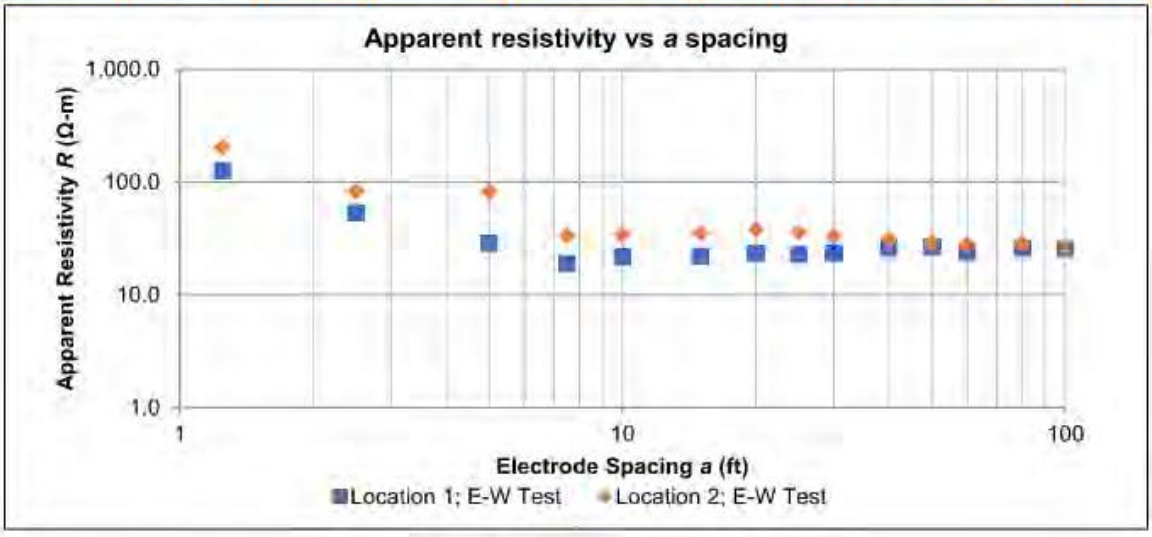


Figure 17: Soil Resistivity Measurement Along Shared Corridor

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Figure 18: Soil Resistivity Measurement Locations Along Shared Corridor

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

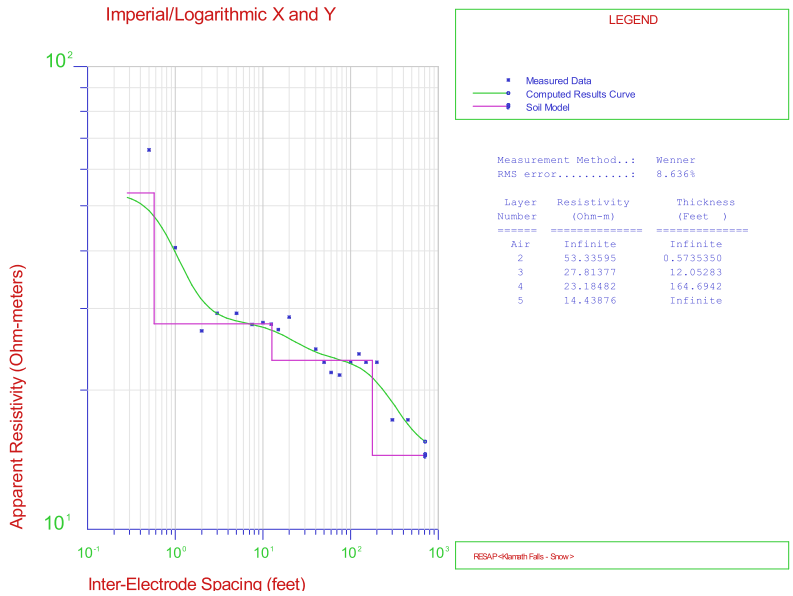


Figure 19: Klamath Falls Sub Native Soil Resistivity (Northeast-Southwest Traverse)

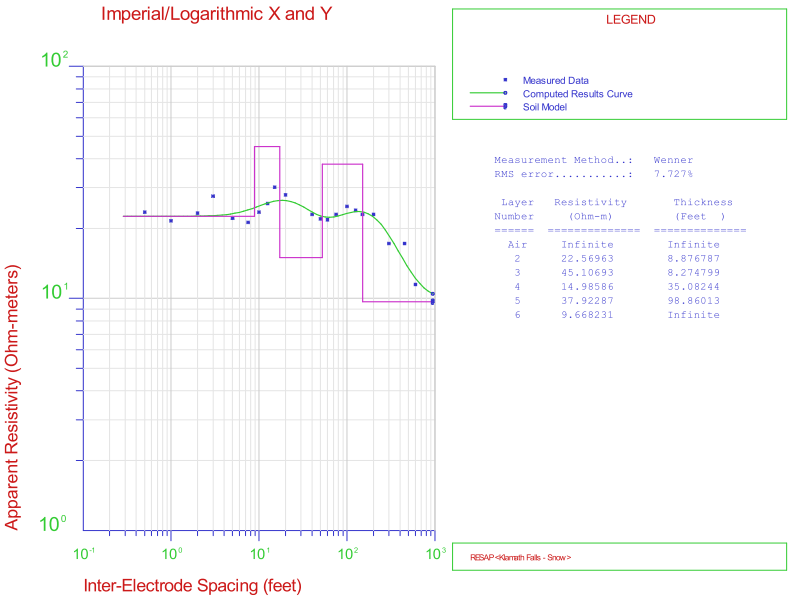


Figure 20: Klamath Falls Sub Native Soil Resistivity (North-South Traverse)

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

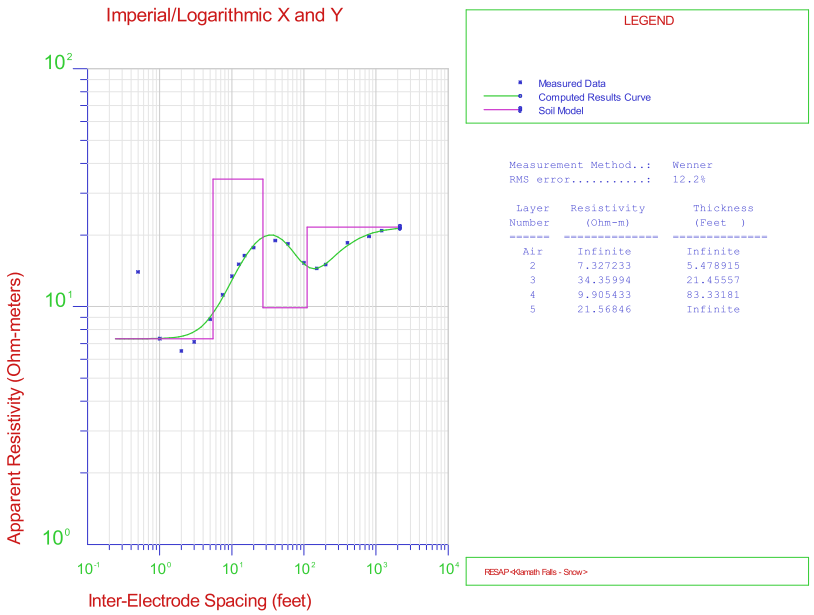


Figure 21: Snow Goose Sub Res-1 Native Soil Resistivity

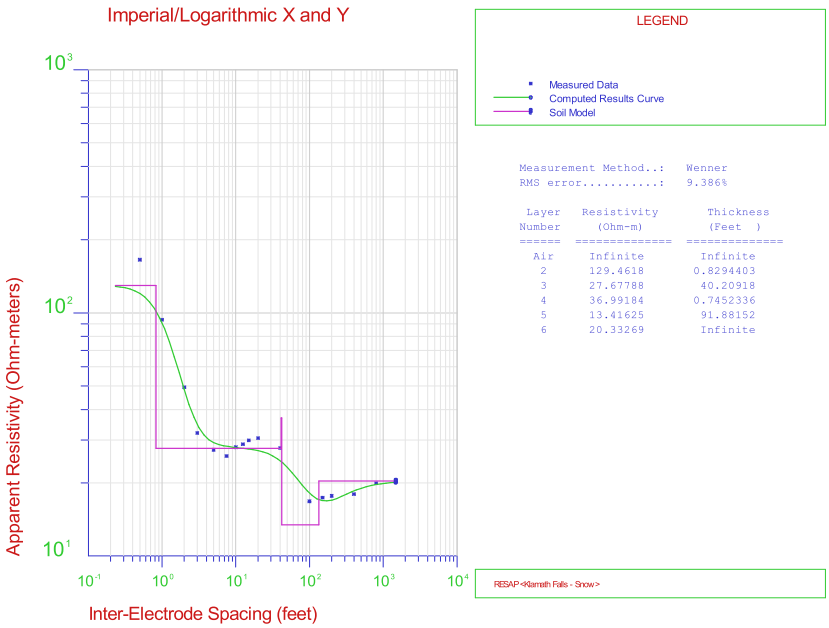


Figure 22: Snow Goose Sub Res-2 Native Soil Resistivity

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

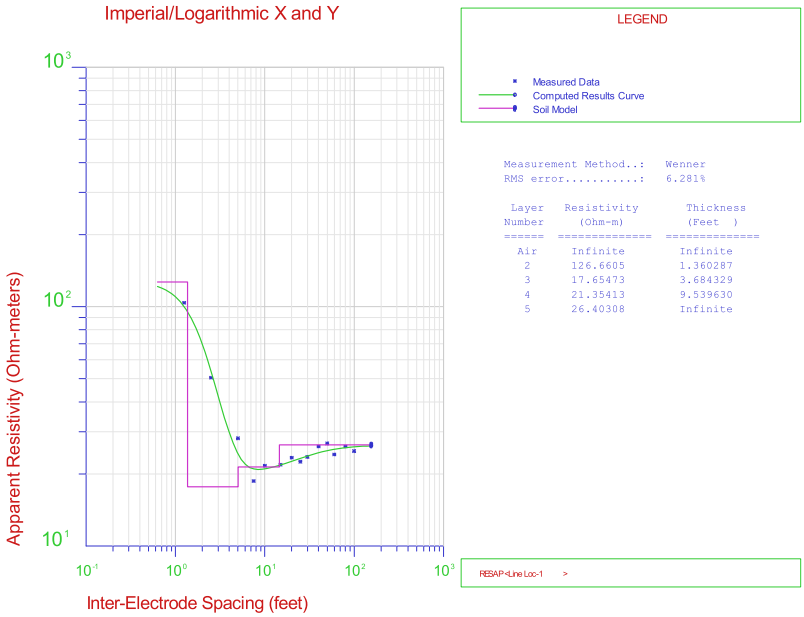


Figure 23: Corridor Location-1 Native Soil Resistivity

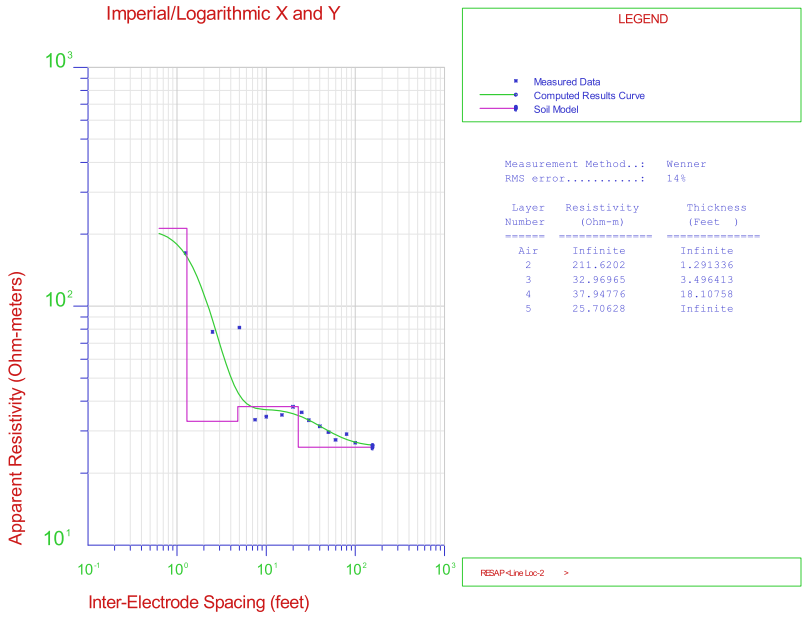


Figure 24: Corridor Location-2 Native Soil Resistivity

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

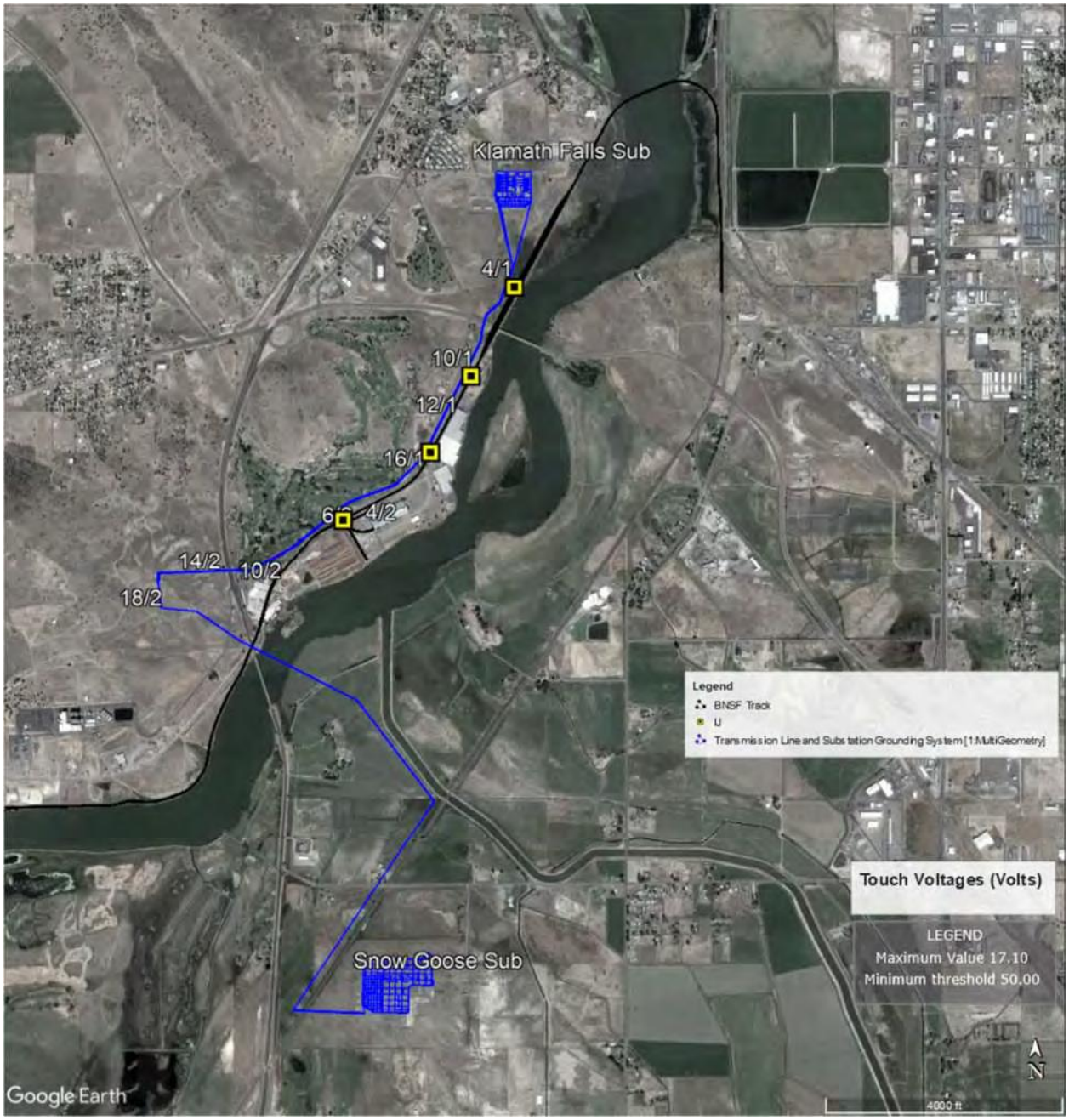
APPENDIX E: BASELINE RESULTS

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 25: Rail Touch Voltages - Steady State - Existing 69 kV Configuration

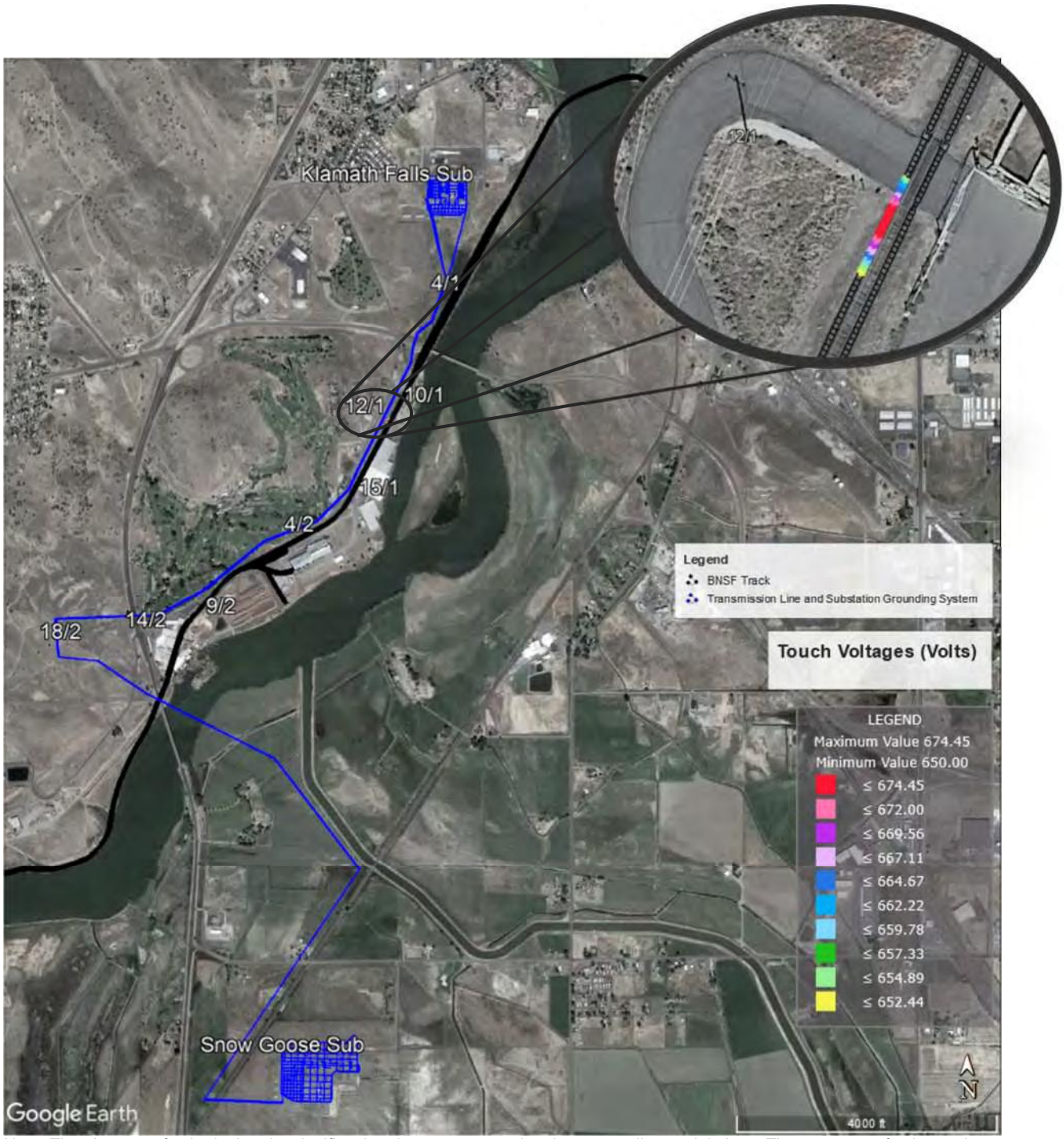
DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 26: Rail Touch Voltages - Steady State - Future with 230 kV Configuration

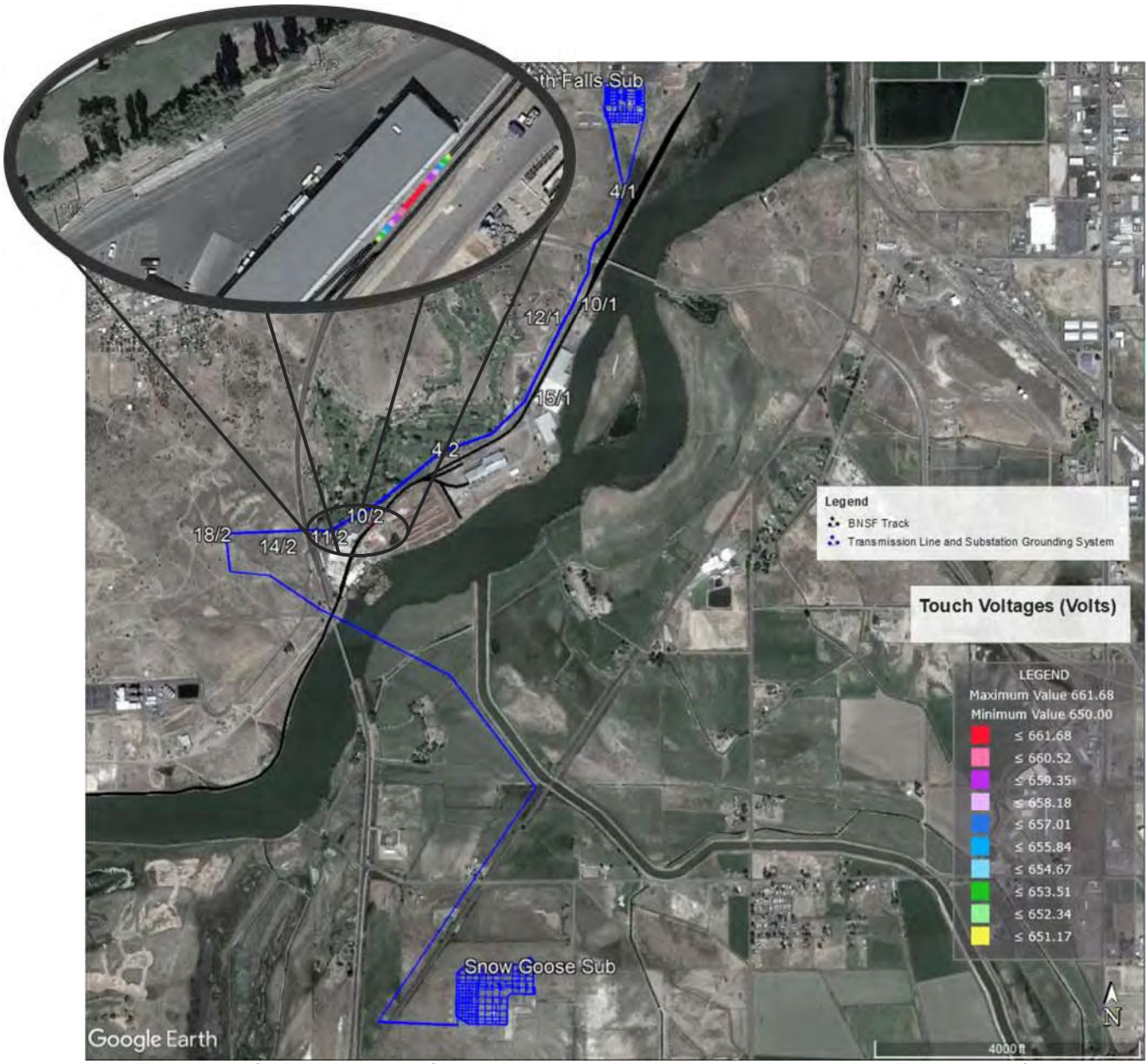
DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 27: Rail Touch Voltages - Faulted 69 kV Structure 12/1 - Existing 69 kV Configuration

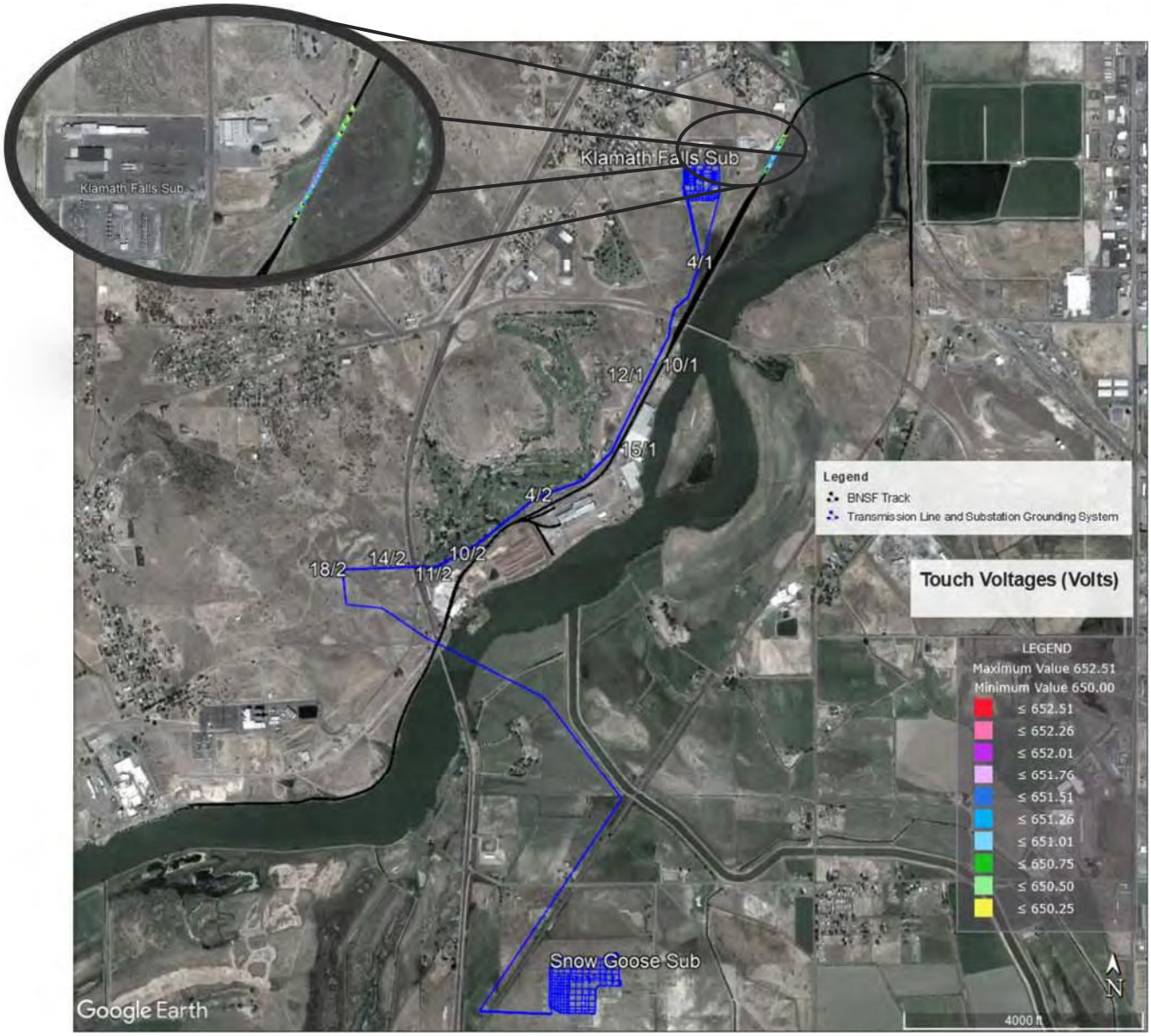
DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 28: Rail Touch Voltages - Faulted 69kV Structure 10/2 - Existing 69 kV Configuration

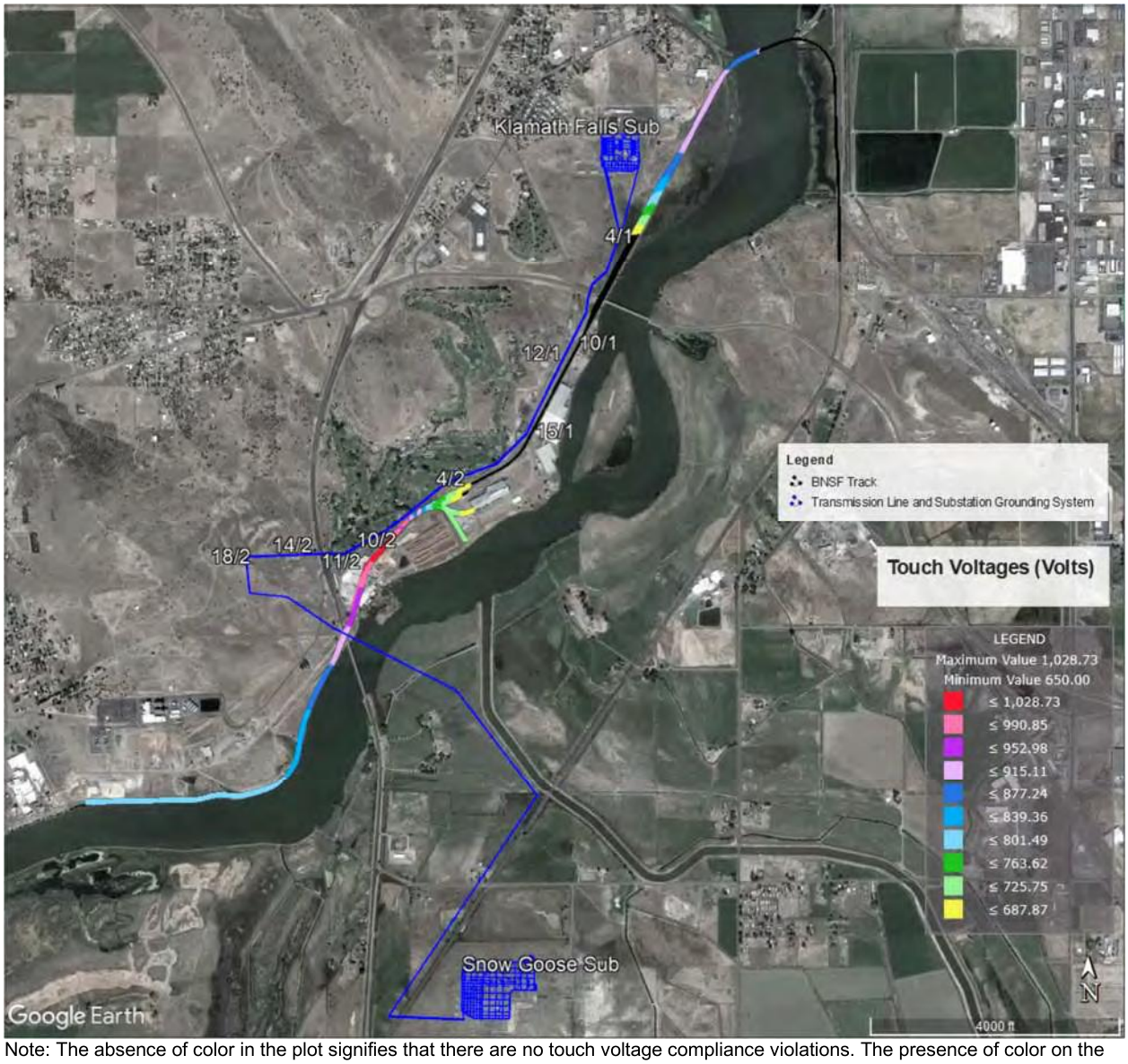
DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 29: Rail Touch Voltages - Faulted 69 kV Structure 9/1 - Future with 230 kV Configuration

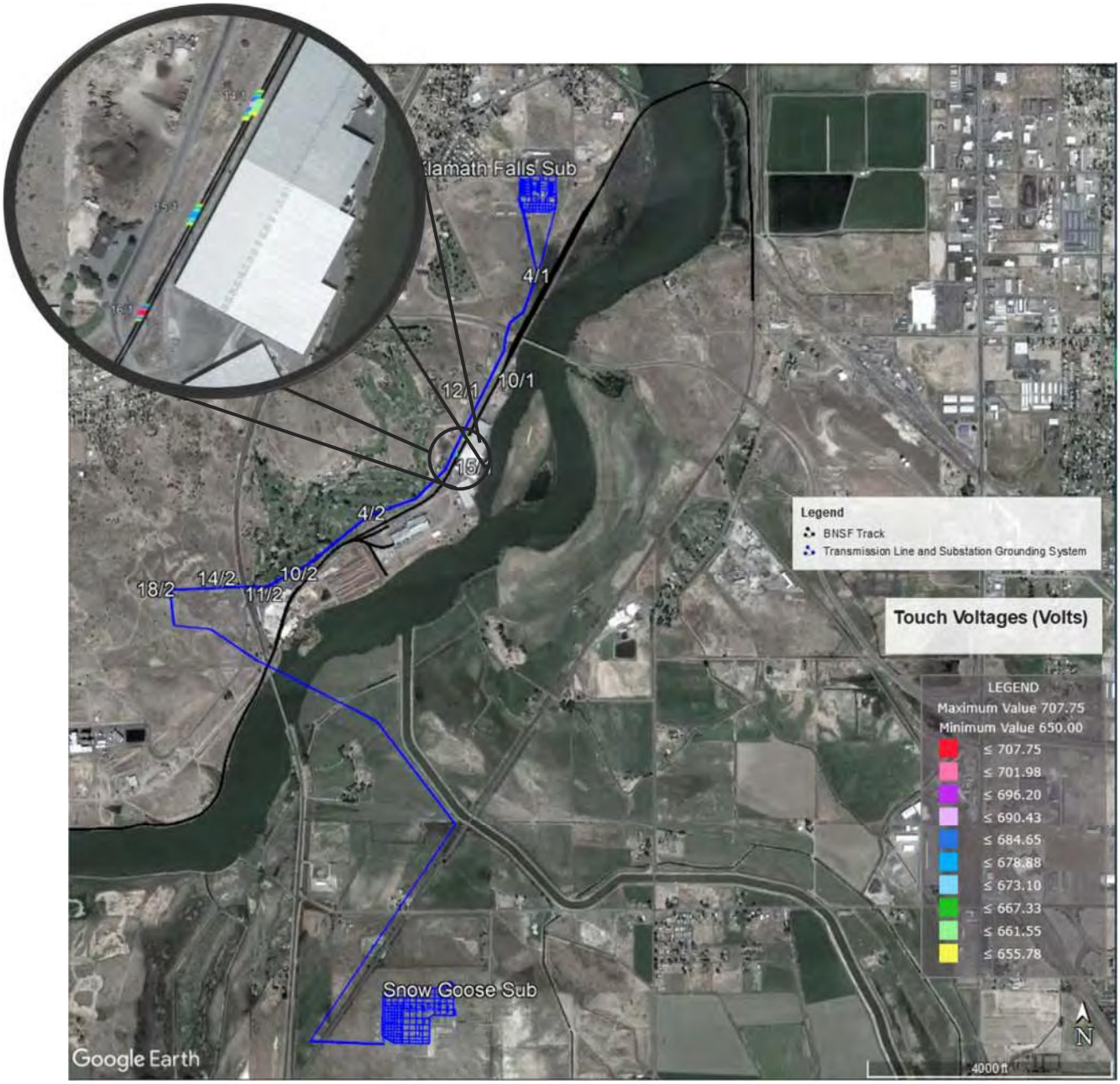
DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 30: Rail Touch Voltages - Faulted 69 kV Structure 12/2 - Future with 230 kV Configuration

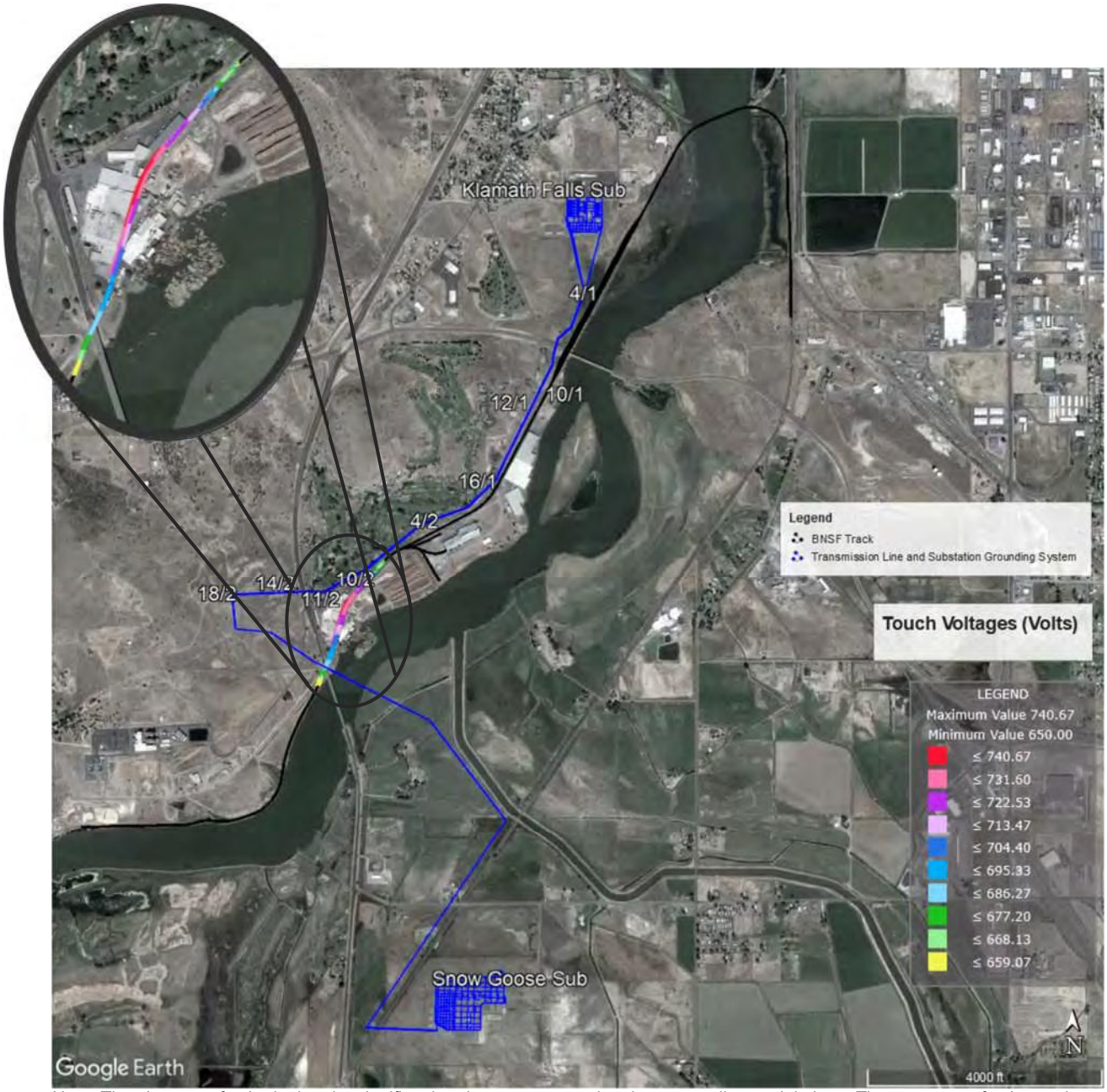
DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 31: Rail Touch Voltages - Faulted 230 kV Structure 14/1 - Future with 230 kV Condition

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 32: Rail Touch Voltages - Faulted 230 kV Structure 17/2 - Future with 230 kV Condition

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

APPENDIX F: MITIGATION RECOMMENDATIONS AND RESULTS

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Figure 33: Location of Proposed Mitigation Insulting Joints

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 34: Mitigated Rail Touch Voltages – Steady State – Future with 230 kV Configuration

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

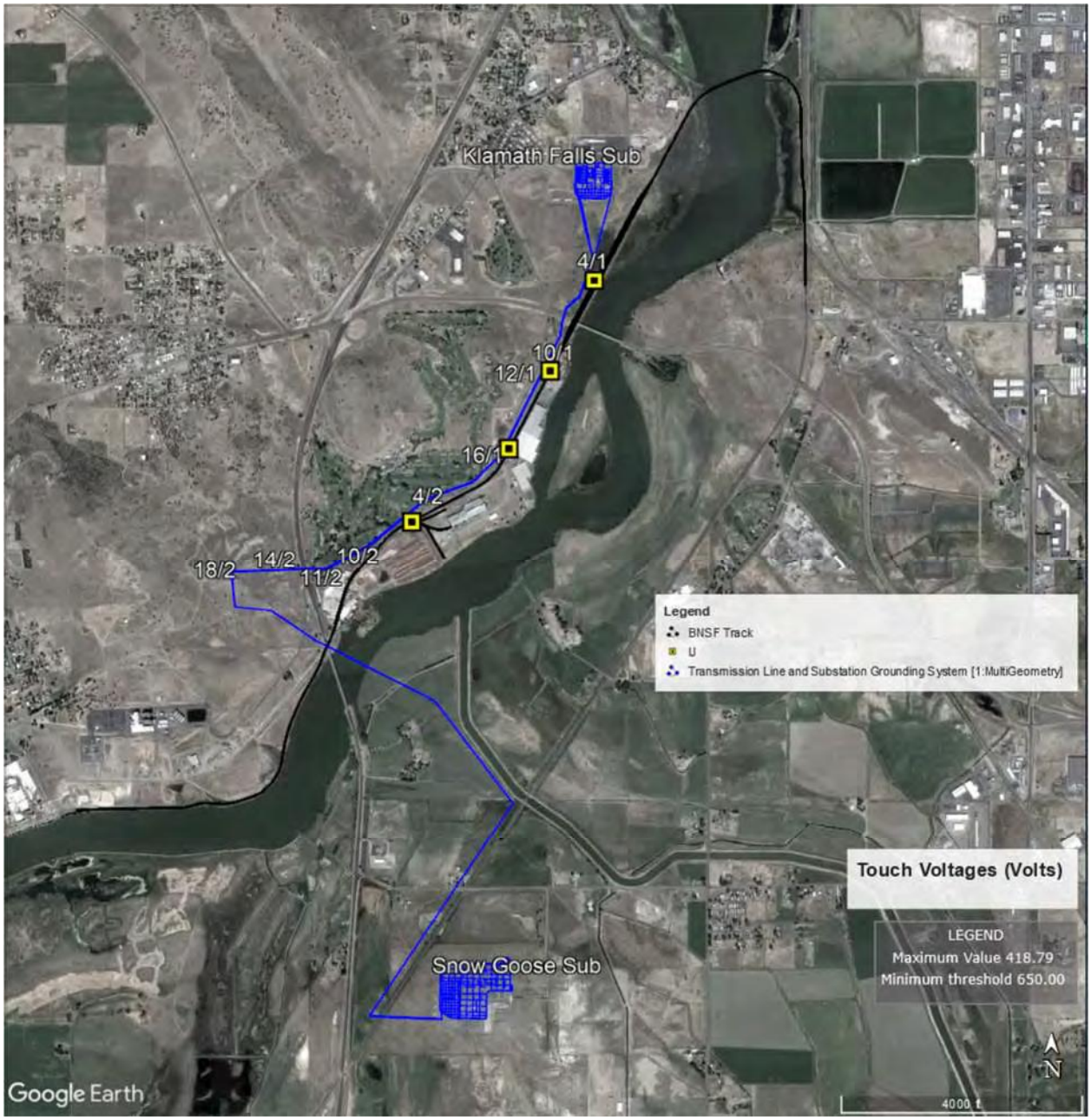
Figure 35: Mitigated Rail Touch Voltages - Faulted 69 kV Structure 4/1 - Future with 230 kV Configuration

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 36: Mitigated Rail Touch Voltages - Faulted 69 kV Structure 6/1 - Future with 230 kV Configuration

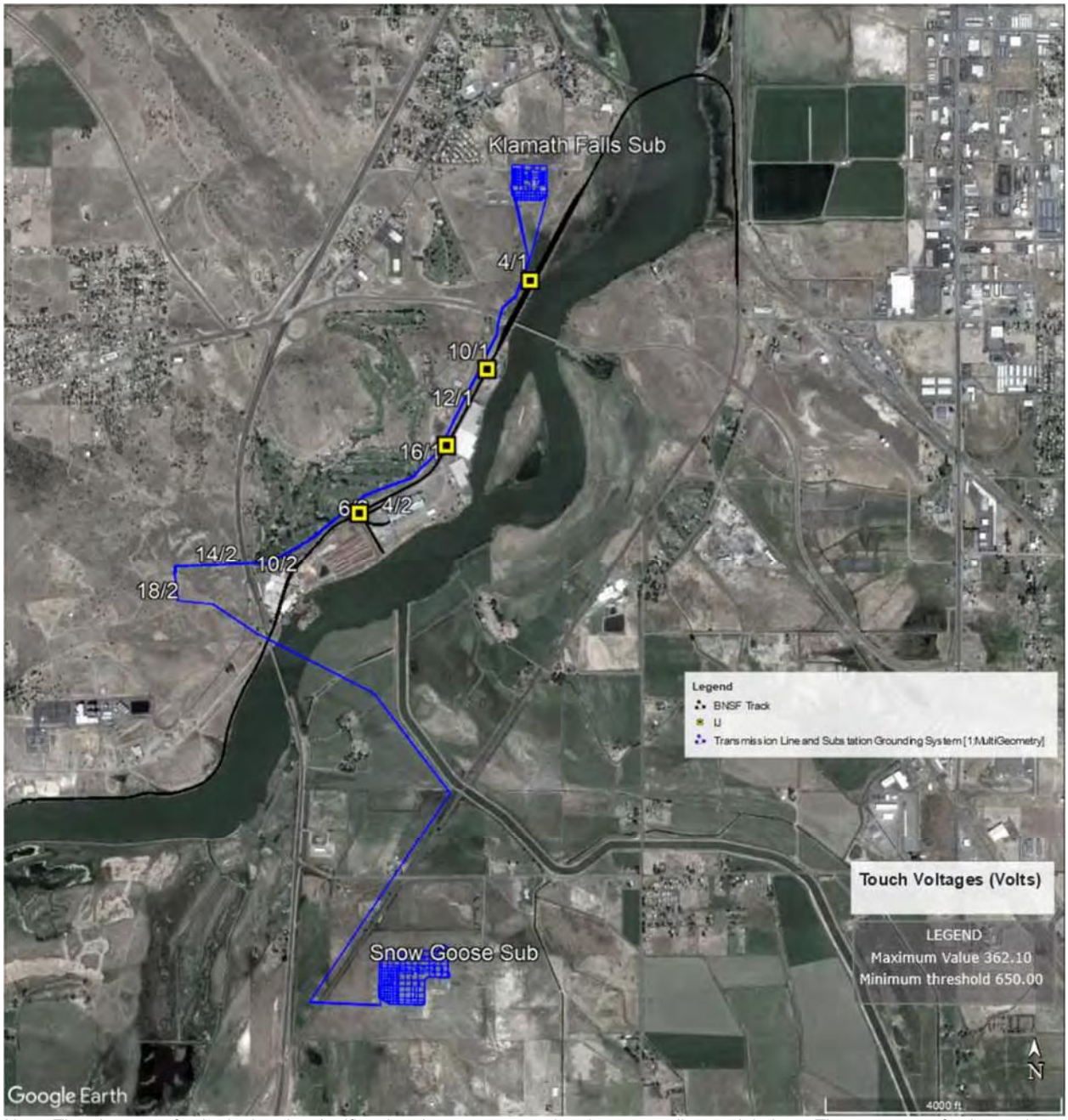
DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 37: Mitigated Rail Touch Voltages - Faulted 69 kV Structure 9/1 - Future with 230 kV Configuration

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

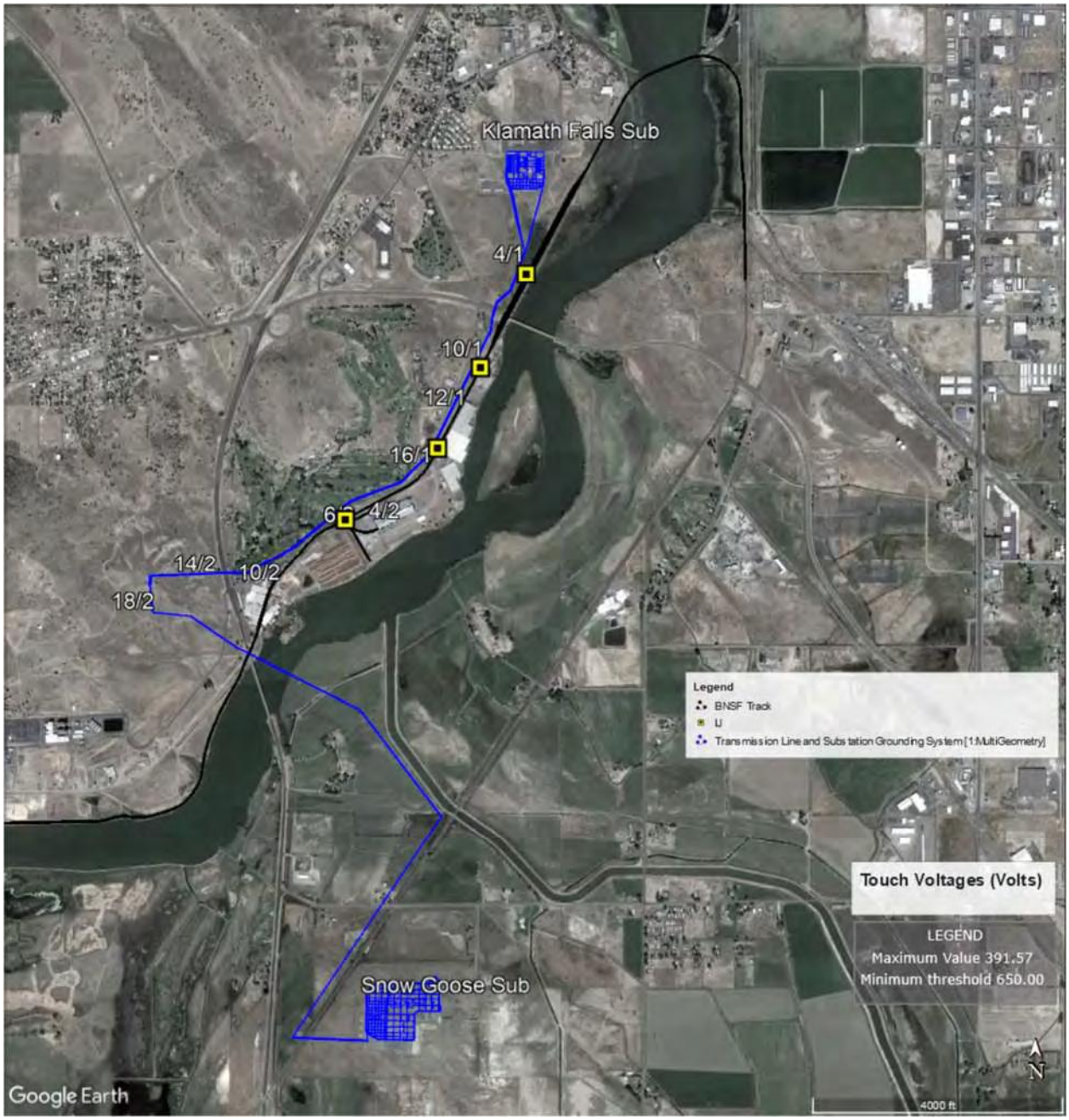
Figure 38: Mitigated Rail Touch Voltages - Faulted 230 kV Structure 4/1 - Future with 230 kV Configuration

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C

Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 39: Mitigated Rail Touch Voltages - Faulted 230 kV Structure 6/1 - Future with 230 kV Configuration

DocuSign Envelope ID: 6810C7B9-C56C-484F-B415-4CDC9D1E094C



Note: The absence of color in the plot signifies that there are no touch voltage compliance violations. The presence of color on the plot signifies that touch voltage compliance violation is present along the colored sections of the corridor.

Figure 40: Mitigated Rail Touch Voltages - Faulted 230 kV Structure 9/1 - Future with 230 kV Configuration