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November 11, 2013

North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
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Attn: Mr. Patrick Fahn

**Post Construction Inspection Report
ND PSC Case No. PU-07-169
Basin Electric Power Cooperative- Belfield to Rhame Transmission Project**

In accordance with your request, Keitu Engineers & Consultants, Inc. (Keitu) is pleased to submit for your use two hardcopies and one electronic copy of the post construction report.

Keitu appreciates the opportunity to work with you on this project and I hope this plan meets with your complete approval. If you have questions or comments, please contact me at the phone number above or via email at ngaffrey@keitu.com.

Sincerely,

Nathan J. Gaffrey, PE
Project Engineer

Enclosure: Post Construction Report
CD-ROM copy of associated files

116 PU-07-169 Filed: 11/13/2013 Pages: 44
Post construction report

Belfield to Rhame Transmission Project
Basin Electric Power Cooperative
ND PSC Case No. PU-07-169

Post-Construction Inspection Report

November 2013



Prepared By:
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Basin Electric Power Cooperative 230 kV Transmission Line (Stark to Bowman Counties, ND)

Prepared by Keitu Engineers & Consultants, Inc.

Executive Summary

The State of North Dakota, acting through its North Dakota Public Service Commission (NDPSC), Division of Public Utilities, has contracted Keitu Engineers & Consultants, Inc. (Keitu) to perform consulting services for post-construction siting inspections. This report addresses the Orders established by the NDPSC and issues established in File No. PU-07-169. The Belfield to Rhame Transmission Line is located in Stark, Slope, and Bowman Counties, ND. The Transmission line is owned and operated by Basin Electric Power Cooperative (Basin Electric). Construction for the Project began in April 2009 and was completed in July 2010. The purpose of the construction inspection was to ensure the Project was constructed in compliance with the siting laws, rules, and the applicable PSC Order for the Project. Prior to the construction inspection, Keitu reviewed all Project documents to identify any and all aspects requiring site verification.

The site was visually inspected on October 24, 2013 by Keitu staff. Overall, the project was very well-maintained and in good condition. It appeared to be constructed as planned with numerous efforts to minimize impacts. However, there were several non-critical issues that may need to be resolved for the Project to be considered in full compliance. Keitu recommends that the PSC request the following from the company: 1) written documentation of revegetation and noxious weed surveys to fulfill requirements for Order #13, 2) report of Tree & Shrub replacement survival monitoring to fulfill Order #14, and 3) provision of the final as-built drawings for both substations and both microwave towers to complete Order #19. The PSC will need to decide whether these recommendations are necessary to fulfill Project obligations. Keitu expects that the follow-up action taken by Basin Electric to address these particular issues can be corroborated in writing.

Introduction

The construction of the Belfield to Rhame Transmission Project (Project) was completed in summer of 2010. The Project is operated by Basin Electric Power Cooperative (Basin Electric). The Project comprises approximately 74 miles of 230 kV electric transmission line beginning at an existing Belfield substation and extending to a newly constructed substation located near Rhame, North Dakota. The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC), which issued its Findings of Fact, Conclusions of Law, and Order on Case No. PU-07-169 on December 3, 2008, granting a Certificate of Corridor Compatibility No. 107 and Route Permit No. 117 for the Project.

Purpose and Scope of Inspection

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorizes the Public Service Commission to determine that the location, construction, and operation of jurisdictional energy conversion and transmission facilities will produce minimal adverse effects on the environment and welfare of the citizens of North Dakota. Construction inspections ensure the Project is constructed in compliance with siting laws, rules, and the applicable Commission Findings of Fact, Conclusions of Law, and Order (Order).

The North Dakota PSC retained Keitu Engineers & Consultants, Inc. (Keitu) to complete a post-construction inspection of the Project. The inspection process included a review of the Application for Corridor Compatibility and Route Permit, Order, and other applicable documents to determine Project-specific siting and construction requirements; a site visit and inspection of facilities; documentation of compliance; and a report summarizing findings. This report includes, but is not limited to, site visit observations, documentation of compliance deficiencies, and a summary of issues that should be addressed for the Project to be considered complete and in full compliance.

Methods

Keitu reviewed North Dakota siting laws and rules, the Application for Certificate of Corridor Compatibility and Route Permit (Application), and the Order for the Project to identify what Project-specific documentation was required for compliance. Keitu then reviewed Project documents in the PSC Online Case Search to identify those siting laws, rules, and Application and Order assertions that already had written verification, those that still required documentation, and those that required physical site verification.

Heather Patch, Staff Engineer, and Josh Swann, Staff Consultant, of Keitu visited the Project area on October 24, 2013. The site was visually inspected along portions of the transmission line route by accessing as many points as feasible where road access was available. Some features

were accessed by walking within the transmission line right-of-way (ROW). The inspection began at the new Rhame substation in Section 15 of Township 131N, Range 104W in Bowman County and followed the line to its northern end at the Belfield substation in Section 20 of Township 139N, Range 98W, Stark County. Digital photographs were taken showing typical Project infrastructure and documenting problem areas (Appendix A). Geographic coordinates were recorded at observation points or potential problem areas using a handheld Global Positioning System (GPS) (Trimble GeoExplorer 6000 series). A map showing the location of the observation points is attached as Figure 1 in Appendix B.

Observations/Findings of Commission Orders

The following section includes discussion of a list of components of the Project that were asserted in the Application and Order which could be documented during the post-construction inspection to verify compliance with siting laws, rules and the Order for the Project, via either written documentation or physical site verification. Included are detailed findings and observations from Keitu personnel involved in the post-construction inspection for Basin Electric's Belfield to Rhame transmission project.

1. Basin Electric's application for a waiver of procedures and time schedules is granted.

In a June 19, 2007 motion (Docket #12), Jerry Lein and Annette Bendish moved the Commission to deem the applications complete conditioned on receiving proposed transmission line structure locations on or before July 22, 2008 and issue a Notice of Filing and Notice of Hearing in the applications of Basin Electric Power Cooperative, Inc. for a waiver of procedures and time schedules, a corridor certificate and a route permit to construct approximately 74 miles of 230 kV transmission line within a transmission facility corridor proposed in Bowman to Stark Counties, North Dakota, Case No. PU-07-169. Order #1 is complete.

2. Certificate of Corridor Compatibility for a Transmission Facility Corridor No. 107 is issued to Basin Electric, designating a Corridor for its proposed transmission facility as described in Basin Electric's Application and presented at the hearing.

On December 3, 2008 the Commission designated a transmission facility corridor for Basin Electric Power Cooperative's approximately 74 miles of 230 kV electric transmission line and associated facilities extending from an existing Belfield substation to a proposed new substation south of Rhame, North Dakota in Bowman County, North Dakota. The certificate (Docket #27) was issued in accordance with the Order of the Commission dated December 3, 2008 in Case No. PU-07-169 and was subject to the conditions and limitations noted in the order. Order #2 is complete.

- 3. Route Permit for Transmission Facility No. 117 is issued to Basin Electric granting authority to construct the proposed transmission line and associated substation and microwave facilities as described in the Application and presented at the hearing.**

On December 3, 2008 the Commission designated a transmission facility route for Basin Electric Power Cooperative's approximately 74 miles of 230 kV electric transmission line and associated facilities extending from an existing Belfield substation to a proposed new substation south of Rhame, North Dakota in Bowman County, North Dakota. The certificate (Docket #27) was issued in accordance with the Order of the Commission dated December 3, 2008 in Case No. PU-07-169 and is subject to the conditions and limitations noted in the order. Order #3 is complete.

- 4. Basin Electric shall conduct a preconstruction conference prior to commencement of any construction, which must include a Basin Electric representative, its construction supervisor, and a representative of Commission staff to ensure that Basin Electric fully understands the conditions set forth in this Order.**

A preconstruction meeting was held to ensure all contractors fully understand the conditions set forth in the Order.

The preconstruction conference (Docket #32) was held on April 2nd, 2009. In attendance was Jerry Lein, Staff Engineer, representing the ND PSC, as well as representatives from Basin Electric and Tessco (Basin Electric's contractor).

The conference included a review of the conditions in the Order in detail. The Tree and Shrub mitigation specifications were also addressed. In addition to the conditions of the order, Basin Electric must abide by the conditions of any other permits or approvals, including the Western Area Power Administration Environmental Assessment and Findings of No Significant Impact (FONSI). Basin Electric provided weekly reports detailing construction activities. Order #4 is complete.

- 5. Basin Electric shall comply with the rules and regulations of all other agencies having jurisdiction over any phase of the proposed transmission facility. Prior to commencing construction of any phase of the proposed project, Basin Electric shall obtain all other necessary approvals and permits for construction of such phase and provide copies to the Commission prior to the construction of each such phase.**

State and Federal agencies are entitled to notice of Basin Electric's Siting Application. According to the notification lists in the Application (Docket #8) and Environmental Assessment (EA) prepared by Western Area Power Administration (WAPA) (Docket #32), nine federal agencies, twelve state agencies, three counties, five city administrators, four organizations, and ten tribes were notified of the Project.

The application identified the following state and federal agencies with regulatory concerns or responses: US Army Corp of Engineers (USACE), US Fish and Wildlife Service (USFWS), National Resource Conservation Service (NRCS), North Dakota Department of Health, Federal Aviation Administration (FAA), North Dakota Game and Fish Department (NDGFD), and North Dakota State Historic Preservation Office (SHPO). The application had copies of the responses from these agencies.

The USACE recommended supporting structures for the overhead power lines be located as far from the banks of any drainage ways and streams as possible. This will minimize the potential for erosion hazards and flood flow obstruction. Aboveground construction subject to flood damage, such as electrical boxes, should be placed above, or be flood proofed to, a level above the 100-year flood elevation. If construction activities involve any work in waters of the US, a Section 404 permit may be required.

The USFWS expressed an interest in whooping cranes, bird collisions (migratory birds and raptors), native prairie and wetlands. Basin Electric performed additional studies and analysis before selecting a proposed route. The general study process included, but was not limited to: (1) selection and general evaluation of the study area, (2) a Class I Archeological/Cultural records search, (3) agency consultations, (4) collection and evaluation of criteria data, (5) Class III pedestrian survey, and (6) Wetland Surveys. Bird collisions are not a factor during construction but can be a problem with transmission lines. The substations were not a factor in the bird collision issue. Basin Electric addressed the US Fish and Wildlife issues. The USFWS also recommended construction in or near wetlands be deferred until after July 15 as not to disrupt waterfowl or other wildlife during nesting season. Basin Electric started construction on or about April 30th.

The NRCS had no comments.

The North Dakota Department of Health believed that the environmental impacts from the proposed construction would be minor and could be controlled with proper construction methods. With respect to construction they commented that all necessary measures must be taken to minimize fugitive dust emissions created during construction activities. Any complaints that may arise are to be dealt with in an efficient and effective matter. Noise from construction activities may have adverse effects on persons who live near the construction area. Noise levels can be minimized by ensuring that construction equipment is equipped with a recommended muffler in good working order. Noise effects can also be minimized by ensuring that construction activities are not conducted during early morning or late evening hours.

To act as a dust suppressant, the construction contractor removed the least amount of vegetation necessary to allow for construction as well as scarified and reseeded exposed areas after construction. During construction, water trucks applied water as another dust suppressant, particularly on unpaved access roads and the aprons where construction traffic meets a paved road. Temporary noise impacts resulted from construction activities, most likely consisting of

annoyances such as equipment back-up warning devices and diesel engine operations. Temporary construction noise was limited to no more than a few days at any particular location and was mitigated by scheduling work to daylight hours, particularly near sensitive receptors.

The FAA informed WAPA that a new county airport site is being evaluated for Bowman County. Three locations were being studied located near the proposed transmission line. The location of the proposed Bowman Airport was considered in the route selection. Although a site for the proposed new Bowman County Airport has not been identified, it would be located in the vicinity of the proposed project. The new airport would likely occupy approximately 1 square mile of cropland and/or pastureland.

The NDGFD was contacted for more information regarding special status species impacts and mitigation for the proposed transmission line project. Items discussed included: species evaluated as possibly occurring within the proposed project were gathered using the North Dakota Comprehensive Wildlife Conservation Strategy. North Dakota does not have state listed threatened and endangered species, only species of conservation priority; no species specific surveys will be required by the NDGFD; consultation with the USFWS resulted in concern for four federally listed species (i.e. black-footed ferret, gray wolf, whooping crane, and bald eagle); any species not associated with native prairie or wetland/riparian habitats were eliminated from further analysis; information regarding known sage grouse lek locations will be sent if found. No lek sites were identified along the proposed route.

Basin Electric initiated cultural resources investigations along the proposed project transmission line and substation facilities. Basin Electric's subcontractors completed both Class I files and record search, and also a Class III pedestrian survey of the entire proposed route and collection substation for archeological and cultural resources. The North Dakota State Historic Preservation Office (SHPO) provided a conditional approval to construct. North Dakota SHPO concur with the recommendation of "No Historic Properties Affected" and "No Significant Sites Affected" (Docket #23), provided that the project is of the nature specified and the work takes place in the mapped location provided. No obvious issues were identified during the surveys, WAPA Environmental Assessment, and during construction. Basin Electric addressed SHPO concerns.

Basin Electric gathered input from tribal representatives to help identify and avoid Traditional Cultural Properties potentially located along the project route and within the substation locations. Only the Northern Cheyenne Tribe and Rosebud Sioux Tribe responded to the request for comment and review of the project. Neither Tribal Historic Preservation Office provided any comments.

Bowman County Sheriff's Department approved the request for variance on June 17, 2008 to have structures set back 62.5 feet from edge of ROW. County ordinance requires transmission line structures to be set back 100 feet from county roads. (Docket #32).

Basin Electric's Application for Zoning Permit for the rezoning of agriculture land to industrial use for the Rhame substation was approved by Bowman County Planning and Zoning Commission June 18, 2008. (Docket #32).

Basin Electric's Application for a Special Use Permit for Overhead lines in Bowman County was approved June 18, 2008. (Docket #32).

Basin Electric's Application for Zoning Permit for the rezoning of agriculture land to industrial use for the Rhame microwave tower was approved by Bowman County Planning and Zoning Commission July 25, 2008. (Docket #32).

Basin Electric met with the Slope County Commissioners to discuss the Right of Way Zoning for the transmission line that will be built in Slope County. A motion was presented that the transmission poles be setback 115 feet from the centerline of all County and Township roads for this project. The motion passed. (Docket #32).

Basin Electric's Application for Highway Road Crossings of US 12, US 85, ND 67, and ND 21 was approved by the ND DOT on July 31, 2008. (Docket #32).

Other agencies had an opportunity to mandate any requirements to be followed by their agency but did not respond. None of the agencies had any objection to the Basin Electric Project.

Basin Electric, in the Application, provided a list of permits, consultations, and approvals required from various federal and state agencies, which include:

- North Dakota Public Service Commission – Certificate of Corridor Compatibility and Route Permit; - Docket #27
- Western – System Interconnection Authorization, compliance with the National Environmental Policy Act and Native American Consultation; - Docket #32
- USFWS – Compliance with the ESA (Section 7 consultation), compliance with the Migratory Bird Treaty Act;
- State of North Dakota Historic Preservation Office – Compliance with the National Historic Preservation Act (Section 106 consultation); - Docket #23
- Federal Highway Administration – Permit to construct and operate a transmission line across or within ROWs; - Docket #32
- Federal Aviation Administration – Aeronautical study with a determination of hazards and requirements for painting and/or lighting;
- Federal Communications Commission – Agency may require registration and lighting of tower less than 200 feet tall;
- North Dakota Department of Transportation – Permit to construct and operate a transmission line across or within ROWs; - Docket #32
- Burlington Northern–Santa Fe Railroad – Authorization to construct and operate a transmission line across railroad ROWs;

- NDGFD – Consultation to identify any state-listed species of concern that could potentially be affected by the proposed project; - Docket #8
- North Dakota Department of Health – Acquire SWPPP Permit, if required, for construction of the proposed Rhame Substation; and - Docket #38
- Bowman County – Acquire Zoning Permit. -Docket #32
- Transmission Line Zoning from approval from Slope County – Docket #32

Basin Electric contacted all affected road authorities and the railroad to be crossed. The ND Department of Transportation issued a road crossing for Highways US 85, US 12, ND 67, and ND 21. The ND Department of Health issued a Storm Water Discharge Permit, and WAPA issued a Finding of No significant Impact (FONSI). Order #5 is complete.

6. Basin Electric shall inform the Commission of their intent to start construction on the transmission facility prior to the commencement of construction, and, once construction has started, Basin Electric shall keep the Commission updated of construction activities on a weekly basis.

Basin Electric informed the Commission of their intent to start on April 24, 2009 (Docket #32) prior to the commencement of construction. Once construction started, Basin Electric submitted Weekly Progress reports of construction to the Commission. Three weekly progress reports are missing. Progress reports for weeks ending 12-06-2009 and 6-26-2010 are explained but weekly progress report for week ending 6-20-2009 is missing with no explanation. Construction progress for the week ending 6-20-2009 can be inferred by comparing progress reports before and after. It is at the discretion of the Commission to decide whether or not to request this additional documentation. In Keitu's opinion, Order #6 is complete.

7. Basin Electric shall construct and operate the transmission facility in the manner described in its Application and at the hearing, and in accordance with all applicable safety requirements.

Basin Electric constructed the transmission line in accordance with the application and NESC standards. The proposed Plan & Profile Drawings for the Burleigh Wind 230 kV Transmission matched as built drawings with the exception of the changes approved by Commission staff during the construction phase of the project. Based on transmission drawings, plan and profile drawings, and site inspection the transmission line was constructed as proposed to the Commission.

The substation was to be constructed to NESC. The transmission line and substation were energized in spring 2009. Based on WAPA allowing the connection of the transmission line and collection substation to their system, the construction and operation of the facilities are in accordance with all safety requirements. Order #7 is complete.

- 8. Basin Electric shall promptly report to the Commission the presence in the permit area of any critical habitat of threatened or endangered species, or of bald or golden eagles that Basin Electric becomes aware of and were not previously reported to the Commission.**

Due to the interconnection application required for this project, it triggered a National Environmental Policy Act (NEPA) review process of the project (Docket #32). WAPA was the lead agency for consultations.

During construction the power lines are not energized. Therefore, electrocution of birds is not an issue during construction. Electrocution of birds by power lines is a concern mostly for raptor species, such as golden eagles and red-tailed hawks. Birds are electrocuted when they come in contact with more than one conductor wire at once. This can occur on smaller lines that have short distances between conductors (Olendorff et al. 1981 and Avian Power Line Interaction Committee 1996). The proposed facility has sufficient distance between conductors to make electrocution very unlikely once they are energized.

Impacts from construction included the displacement of wildlife near the project site and direct mortality of some individuals. Larger or more mobile wildlife, such as birds and large mammals, if in the area likely left the project area during construction and relocate to similar habitats nearby. Some smaller, less mobile wildlife, such as small mammals, reptiles, and amphibians could have been crushed by construction equipment or trapped in construction areas. These effects, however, would be minimal and wildlife could return to the adjacent, undisturbed habitats after construction is completed.

A review of the weekly construction progress reports (Docket #'s 34-35, 37-45, 49-50, 52-53, 55-56, 60, 62-77, 80-82, 84-107) did not note any critical habitat in the area during construction. No report of any critical habitat of threatened or endangered species, or of bald or golden eagle's notification to the Commission was found in Case File No. PU-07-169. Order #8 is complete.

- 9. If any cultural resource, paleontological site, archeological site, historical site, or grave site is discovered during construction, earth disturbing activities in the immediate vicinity of the discovery must be halted. The resource must be marked, preserved and protected from further disturbances until a professional examination can be made and consultation with the State Historical Preservation Office. A report of such examination must be filed with the Commission, and clearance to proceed must be given by the Commission.**

A Class I files and records search, and also a Class III pedestrian survey of the entire proposed route, substation, and microwave tower locations for archeological and cultural resources was done by Metcalf Archeological Consultants, Inc (Metcalf). These surveys supported a finding of "no historic properties effected" and was recommended by Metcalf (Docket #22). The North

Dakota State Historical Society issued a concurrence on September 22, 2008 (Docket #23). The WAPA Environmental Assessment (Docket #32) supported a finding of no significance.

No cultural resource, paleontological site, archeological site, historical site, or grave site was discovered during construction. This is based on review of weekly construction progress reports and verification that no correspondence was identified in the Commission's file. Order #9 is complete.

10. All pre-existing roads and lanes used during construction must be restored to a condition that will accommodate their previous use and areas used as temporary roads during construction must be restored to their original condition.

Existing roads and trails were to be left in a comparable or better condition than what existed before construction.

During the site visit on October 24, 2013, no access roads to transmission line poles were noted. Access roads to Rhame substation and microwave tower appeared to be well maintained. No existing roads were noted to be in unfavorable condition.

The transmission line crossed US 12, US 85, ND 67 and ND 21. Crossing permits were obtained for these crossings (Docket #32). Order #10 is complete.

11. Construction must be suspended when weather conditions are such that construction activities will cause irreparable damage, unless adequate protection measures approved by the Commission are taken.

According to the weekly progress report for week ending 1-23-2010 (Docket #84), little progress was made due to weather conditions and loss of power in the Rhame area. Based on review of the progress reports, construction was suspended or delayed when weather conditions were such that construction should not occur. Order #11 was followed.

12. Reclamation along the right-of-way shall be continuous and coordinated with construction.

Debris associated with the transmission line construction can be packaging material, insulator crates, conductor reels, and wrapping. It may also include excess excavated soil and removed vegetation. Excess soil and vegetation was distributed along the transmission right-of-way. The application stated that it would not be placed in wetlands or other aquatic resources. During construction solid wastes were temporarily stored within the right-of-way or within the temporary construction easements, and then hauled away to appropriate disposal facilities by the private construction contractors.

Transmission structure site clearing was accomplished using mowers, to the extent feasible. The project area and locations along the proposed route are relatively flat; the need for structure site leveling was minimal. It was anticipated that at some structure locations, blading of small areas (up to 12 by 25 feet for crane and manlift landings) may be required to level the ground surface to allow the safe operation of the equipment. Blading was confined to the ROW and accomplished using bulldozers or front-end loaders. Soil removed during leveling was stockpiled and replaced following construction; special emphasis would be placed on salvaging topsoil to be used for reclamation.

According to the Application, during construction three temporary material staging and equipment laydown areas, each averaging approximately 2 to 5 acres, were used. Two of the three areas were located within the construction ROW. The third area is an abandoned railroad siding in Griffin, North Dakota. Available lands at the Belfield Substation site and the proposed Rhame Substation site also were used. Appropriate biological and cultural resource surveys were conducted before grading any temporary material staging and equipment laydown areas. Staging areas were re-graded and re-vegetated when work in the area was complete and the staging area is no longer needed.

Limited ground disturbance at the structure sites occurred during construction. Disturbed areas were restored to their original condition to the maximum extent practicable.

In the weekly progress report for week ending December 19, 2009 (Docket #77), it is noted that transmission line construction is complete (including cleanup of ROW) with the exception of punch list items and a foundation repair. Restoration was scheduled for the following spring. In the weekly progress report for the week ending June 19, 2010 (Docket #105) it appears ROW restoration was completed for the transmission line.

Clean up of the transmission line and substation construction sites, including removing and disposing of debris occurred. All temporary facilities were removed, and the staging and laydown areas were cleaned up. Reclamation along the right-of-way was continuous and coordinated with construction. Order #12 is complete.

13. Reclamation, fertilization and reseeding is to be done by Basin Electric according to the Natural Resource Conservation Service or United States Fish & Wildlife Service (USFWS) recommendations for CRP, native prairie and other non-cropped lands unless otherwise specified by the landowner and approved by the Commission.

Construction activities disturbed soils and vegetation to an extent that would require some reseeding following completion of operations. The ground was re-graded to the approximate original contour and re-vegetated (rangeland) or tilled (cropland) when the work was completed. Soils were smoothed to the natural contours of the surrounding areas. Reseeding with native perennial species compatible with the surrounding vegetation occurred. If surface disturbance did

not significantly impact nearby vegetation, plants regenerated or sprouted from onsite existing propagates.

According to the Application, monitoring of re-vegetated areas would be completed for 2 years following construction to evaluate revegetation success and 3 years to identify any noxious weed populations. No documentation in the project folders was found supporting this.

Documentation of re-vegetation surveys and noxious weed surveys will be required for Order #13 to be complete.

14. Basin Electric will comply with the Commission's Tree and Shrub Mitigation Specifications attached to this Order except that the width of clear cuts through windbreaks, shelterbelts and all other wooded areas shall be limited to 125 feet.

No trees were removed at the Rhame substation or existing Belfield substation. According to the Tree and Shrub Mitigation Plan (Docket #109), approximately 160 trees and 290 shrubs were removed during the construction of the transmission line. Both trees and shrubs were required to be replaced on a two for one basis. This required 320 trees and 580 shrubs be planted and that those have a 75% survival rate for a total of 240 trees and 435 shrubs. Impacted landowners were contacted by mail and given the choice of having replacement trees or shrubs planted off the right-of-way on their property or waiving the replanting in writing and allowing those replacement trees or shrubs to be planted in an alternate location. Of the eleven affected landowners, seven accepted the option to replant, representing 292 trees. Three landowners signed waivers declining the replanting, representing 580 shrubs and 20 trees. One landowner did not respond, representing 6 trees; these trees were assumed to be declined by the landowner.

While 900 trees and shrubs were required for replanting, Basin Electric chose to plant more than 1,100 trees and shrubs in order to help insure the 75% survival rate. The trees and shrubs were planted on seven landowner parcels in spring of 2011.

On November 29, 2012 Kevin Solie sent a letter (Docket #115) with a tree and shrub mitigation update. Basin Electric Lands and Right-of-Way personnel inspected the plantings during the fall of 2011 and estimated the survival rate to be approximately 95%. A subsequent inspection during the fall of 2012 found that survival rates were similar to those observed during the 2011 inspection, with an estimated additional loss of one or two percent. Given the high survival rate observed and the replacement rate of about 122% of the required number, it appears the target survival rate of 75% in the third year after planting should be attainable.

No 2013 report is documented. The Order specified that Basin Electric shall inspect tree replacement once a year for three years and send a report to the Commission. The Commission only has two years of reports. A third year report is required before for completion of Order #14 can occur.

15. Basin Electric's obligation for reclamation and maintenance of the right-of-way shall continue throughout the life of the transmission facilities.

Regular maintenance and inspections are performed during the life of the facility to ensure its continued integrity. Inspections are limited to the right-of-way. When problems are found, repairs will be scheduled. If damages to crops occurred during maintenance and repairs, reimbursement is to be made to the landowner, consistent with the terms of the easement. The collection substation is graveled and fenced. Basin Electric conducts substation inspections and service orders are established if maintenance is required.

Based on a post construction inspection, Basin Electric has performed reclamation and maintenance of the right-of-way has continued since the facilities have been energized. Order #15 has been followed to date.

16. Basin Electric shall work with landowners and residents to mitigate any increase in television and residential radio interference that results from the transmission system.

According to the Application, mitigation measures also would be implemented to reduce potential television and radio interference caused by transmission line operations. Care would be taken to avoid damage to conductors and ensure that conductor hardware is properly installed and secure to reduce the possibility of corona effect. Mitigation measures to address television and radio interference would be addressed on an as-needed basis; those associated with reducing potential corona effect would be part of transmission line construction.

There are no occupied residences within 500 feet of the route. No record of television or residential radio interference was found in the Commission's file. Order #16 is complete.

17. Basin Electric shall repair or replace all fences and gates removed or damaged during all phases of construction and operation of the proposed transmission facilities.

Gates were installed where fences cross the ROW. Locks were installed at the landowner's request. Gates not in use were closed but not locked, unless requested by the landowner.

Initially, Basin Electric sent out a land agent (landman) to discuss the proposed project and obtain permission to obtain access to a landowner's property for preliminary surveys of the proposed route and corridor. Once a proposed route is identified the land agent obtains an easement to construct a facility. After the easement is signed along with other proper paperwork and resources are in place, construction can begin. Part of the proper paperwork and resources are mitigation measures to reduce adverse impact. Once construction is complete, the land agent meets with the landowners to identify any damages or concerns that they may have and for Basin Electric to repair the damages or compensate for these damages to maintain good landowner relationships. Most easements have a damage clause for damage mitigation measures.

General mitigation measures of Basin Electric were part of the Application for the Route Permit. This is also an item that help reduce damage measures.

Based on the fact that no landowner complaint documentation was found in Case File No. PU-07-169, Order #17 is complete.

18. Basin Electric shall obtain approval from the Commission or from Commission staff prior to any changes in structure locations.

On April 20, 2009 Duey Marthaller of Basin Electric sent an email to Jerry Lein of the Commission requesting the relocating of seven structure locations. On April 24, 2009 the Commission staff approved the request to move 7 structures (Docket #33). While structures were being staked in the field, a pipeline was discovered close to the structure. Structure 7 was moved 55 feet west. Since this is an angle structure, Structure 8 was also moved to the west about 25 feet. Structures 151 and 152 were offset from the centerline 18 feet and 9.5 feet, respectively, to avoid a creek bed. While structures were being staked in the field, the landowner noticed that the line location would interfere with the cleaning of a small stock water dugout. The centerline was relocated about 100 feet west to avoid the dugout. Structures 497 and 498 were moved. Structure 513 was moved 40 feet south on centerline to avoid being in cropland.

On July 6, 2009 Kevin Solie of Basin Electric sent an email to Jerry Lein of the Commission requesting the relocating of two structure locations. On July 20, 2009 the Commission staff approved the request to move 2 structures (Docket #48). Metcalf performed the archeological survey on the route and a cultural site was found about 30 feet from the proposed location for structure 159. To provide additional clearance, Basin Electric proposed to move the structure location 70 feet to the southwest along the approved centerline. This move required the adjacent structure 160 to be moved 30 feet in the same direction.

On August 20, 2009 Kevin Solie of Basin Electric sent an email to Jerry Lein of the Commission requesting the relocating of one structure locations. On August 24, 2009 the Commission staff approved the request to move the structure (Docket #58). Structure 106 was moved approximately 35' to the NE and stayed on the permitted route centerline. The purpose of the move was to put more distance between the structure and a wet area (which was unusually large that year).

Basin Electric obtained approval from the Commission or Commission staff prior to any changes in structure locations. Order #18 is completed.

19. Basin Electric shall provide the Commission with a copy of the facility alignment plan and profile drawings showing the facility as built (hard copy and electronic versions), and an electronic version of the as-built facility that can be imported into ESRI GIS mapping software, within three months of the completion of the construction.

Basin Electric provided sufficient design specifications in the Application and exhibits to understand and verify the proposed transmission line. Basin Electric also provided final plan & profile drawings (Docket #108) of the as built transmission line.

No as built drawings of the Rhame substation, microwave towers, or adjustments made to the Belfield substation were found in the Commission's file. Basin Electric should provide as built site diagrams for the microwave towers and substations in order to complete Order #19.

20. The authorizations granted by the Corridor Certificate and Route Permit are subject to modification by order of the Commission if deemed necessary to further protect the public or the environment.

Should the Commission deem necessary in the future to modify the corridor certificate and route permit it can do so if deemed necessary to further protect the public or the environment. No other information was found in the case file to deem that the Commission should modify the Certificate of Corridor Compatibility (Number 107) and Route Permit (Number 117). Order #20 is complete.

Conclusions

Overall, the Project appeared to be constructed as designed with minimal impacts to the surrounding natural and human environment. The Project site was in good condition and well maintained. Keitu recommends that the PSC request the following from the company: 1) written documentation of revegetation and noxious weed surveys to fulfill requirements for Order #13, 2) report of Tree & Shrub replacement survival monitoring to fulfill Order #14, and 3) provision of the final as-built drawings for both substations and both microwave towers to complete Order #19. The PSC will need to decide whether these recommendations are necessary to fulfill Project obligations. Keitu expects follow-up action taken by Basin Electric to address these particular issues can be corroborated in writing.



Appendix A: Site Photos



Photo 1 – Direction: Northeast – Rhame Substation



Photo 2 – Direction: East – Rhame Substation.



Photo 3 – Direction: Northeast – Showing shield fence to the north/northwest of the Rhame substation. Also showing takeoff structure and beginning of the transmission line from the Rhame Substation.



Photo 4 – Direction: North – Showing shield fence to the north/northwest of Rhame Substation.



Photo 5 – Direction: Southwest – Rhame Microwave Tower.



Photo 6 – Direction: West – Utility Building associated with the Rhame Microwave Tower.



Photo 7 – Direction: East – Access road to Rhame Microwave Tower from Rhame Substation.



Photo 8 – Direction: North – Rhame Substation



Photo 9 – Direction: Northeast – Rhame Substation and access road to the south.



Photo 10 – Direction: East – Taken directly south of Rhame substation showing vegetative cover and drainage pathway.



Photo 11 – Direction: North – Taken at Rhame Substation south access gate. Showing gap of approximately 12-14 inches at the bottom of the fence. Large enough for small wildlife to enter substation.



Photo 12 – Direction: North – Taken at southeast corner of Rhame substation. Showing well maintained gravel perimeter around fence. Also notice problem with vegetative cover on the right side of the photo, directly east of the Rhame Substation.



Photo 13 – Direction: Southeast – Closer photo showing vegetative die-off noted in Photo 12.



Photo 14 – Direction: East – Transmission line at road crossing directly north of Rhame Substation.



Photo 15 – Showing base of standard structure.



Photo 16 – Direction: East – Showing standard structures directly east of Rhame Road crossing north of Rhame Substation. Notice line turns north after hill in the distance.



Photo 17 – Showing foundation and base of angle structure.



Photo 18 – Direction: East – Showing complete reclamation along the transmission line.



Photo 19 – Typical angle structure.



Photo 20 – Standard transmission line structure used for the Project.



Photo 21 – Direction: East – From west side of US 85. Showing road crossing and angle structure where line moves northeast.



Photo 22 – Direction: West – From same location as Photo 21 near US 85. Showing transmission line to the west, back towards Rhame Substation.



Photo 23 – Direction: South – Looking back on transmission line towards Rhame Substation. Notice integrity of fence and gate and the completed reclamation.



Photo 23 – Direction: Northeast – Transmission line moving northeast. Notice the completed reclamation and fence and gates in good condition.



Photo 24 – Notice angle structure appears leaning at the top of the structure.



Photo 25 – Direction: North – Showing transmission line moving north along a county road.



Photo 26 – Direction: North – Showing transmission line crossing county road directly north of ND 21 to avoid a farmyard.



Photo 27 – Direction: North – Transmission line parallel to county road on edge of cropland. Notice complete reclamation.



Photo 28 – Direction: South – Transmission line from same location as Photo 27.



Photo 29 – Direction: North – Transmission line moving north. Notice minimal loss of cropland at the base of structures.



Photo 30 – Direction: North – Same location at Photo 29. Showing minimal loss of cropland around base of structure.



Photo 31 – Direction: West – Showing base of structure from Photo 30. Notice presence of weeds, controlled by continued farming around base of structure.



Photo 32 – Direction: East – Bird flight diverters in place on transmission line approximately 16 miles southeast of Belfield, ND.



Photo 33 – Direction: North – Looking at span of transmission line across a drainage pathway.
No adverse impacts to drainage pathway observed.



Photo 34 – Direction: South – Belfield Substation.



Photo 35 – Direction: West – Basin Electric transmission line (left side of picture) paralleling another transmission line coming in to Belfield Substation.



Photo 36 – Direction: East – Take-off structure (right side of picture) located inside Belfield Substation fence. Notice construction supplies from ongoing construction of a different project at the Belfield Substation.



Photo 37 – Direction: East – Well maintained gravel perimeter and fence at Belfield Substation.



Photo 38 – Direction: Northeast – Takeoff structure inside the Belfield Substation.



Photo 39 – Warning signs posted on Belfield Substation perimeter fence.

Appendix B: Figures

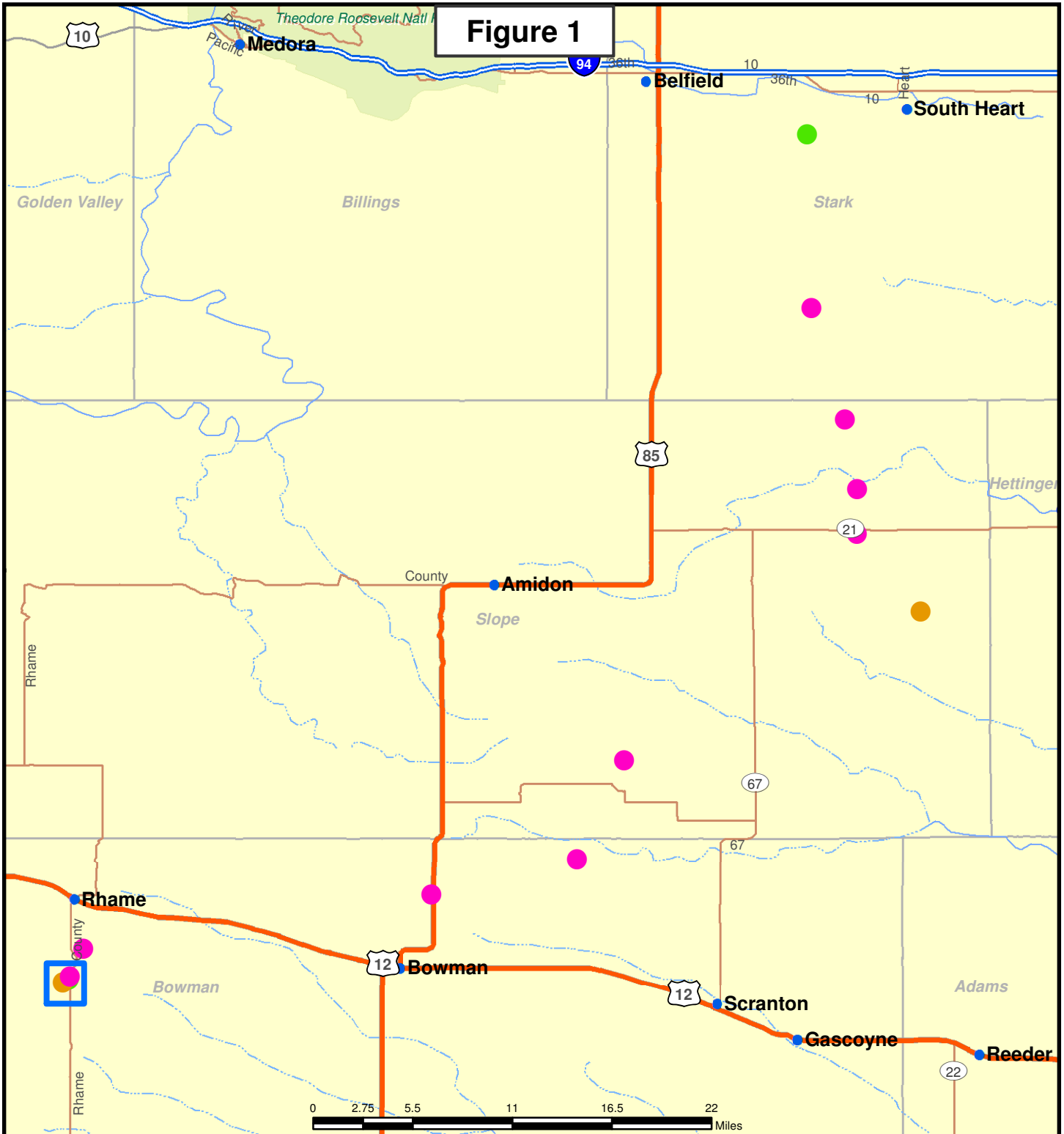
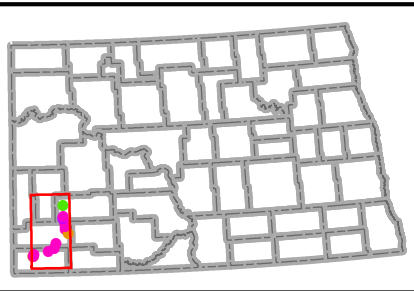
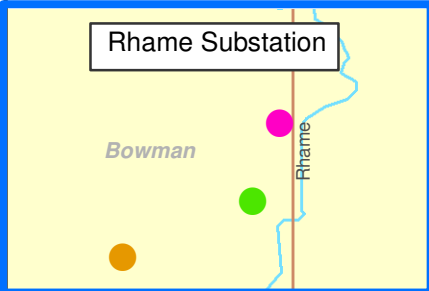


Figure 1

North Dakota Public Service Commission



**Site Overview and Field Observation Map
November 2013**

Legend

- Microwave Tower
- Observation Point
- Substation