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21 March 2012

Mr. Darrell Nitschke, Executive Director  
North Dakota Public Service Commission  
600 East Boulevard, Dept. 408  
Bismarck, ND 58505-0480

RE: Prairie Substation to Ramsey Substation 230 kV "GD" Transmission Line Clearance Issues

Dear Mr. Nitschke:

As you know from previous correspondence, Great River Energy intends to rebuild the approximately 80 miles of its existing 230 kV "GD" transmission line (between the Minnkota Power Cooperative Prairie Substation near Grand Forks, North Dakota and the Great River Energy Ramsey Substation near Devils Lake, North Dakota) in eight segments over the next eight years (PSC Case No. PU-11-640). On February 10, 2012, PSC staff acknowledged the Siting Exclusion Certification for Segment 3 of the rebuild project, and rebuild of that segment is now underway.

In a separate issue, Great River Energy has been conducting an analysis of the GD Line in response to a Recommendation to Industry (Consideration of Actual Field Conditions in Determination of Facility Ratings) issued in October of 2010 by the North American Electric Reliability Corporation (NERC). This NERC Recommendation was issued not only to Great River Energy, but to all electric utilities across North America. The Recommendation contained three basic elements: 1) Provide an Action Plan, 2) Conduct an Assessment, and 3) Remediate Identified Issues. A notice issued by NERC on January 7, 2011 regarding the 2010 Recommendation is attached.

As part of the Action Plan, which Great River Energy submitted to NERC in January 2011, utilities were asked to categorize their facilities as "high priority", "medium priority", or "low priority." Great River Energy's "high priority" lines, which consist of its 500 kV, 400 kV dc, and 345 kV lines, were assessed and analyzed in 2011 and in early January of 2012.

After completing the analysis of these lines, Great River Energy recently began the analysis of its "medium priority" lines, which consist of its entire 230 kV system. Great River Energy's 230 kV GD Line was the first of these lines to be analyzed.

### Upland Areas

The analysis revealed a number spans located in upland areas (blue areas, Figures 1 and 2 and attached aerials) of the GD Line that do not meet clearance requirements as specified by the 2007 National Electric Safety Code (NESC). The following structures need to be replaced:

Structure Number	NESC Clearance Requirement (ft) (including 1 foot buffer)	Existing Above Ground Clearance (ft) at 168°F	Clearance Discrepancy (ft) at 168 ° F (including 1 foot buffer)	Segment of GD Line
232	23.4	20.99	2.41	4
240	23.4	21.66	1.74	4
250	23.4	20.86	2.54	4
279	23.4	23.26	0.14	4
296	23.4	22.34	1.06	4
352	23.4	23.04	0.36	5
444	23.4	21.64	1.76	6
484	23.4	21.31	2.09	7
540	23.4	23.26	0.14	7
545	23.4	22.19	1.21	8
548	23.4	21.12	2.28	8
550	23.4	18.38	5.02	8

The GD Line is currently out of service for the rebuild of Segment 3. Although the maintenance required on these structures to address the clearance issues is unrelated to the rebuild of the line, Great River Energy is going to take advantage of the outage window to replace these upland structures with taller structures (within five feet of the existing locations) to achieve the necessary clearance requirements. The work will begin very soon and should be completed by April 9, when the outage ends. It is the intent of Great River Energy that these structure replacements will be permanent, and thus, will not have to be replaced again at a later date when these segments are rebuilt over the next seven years.

**Wetland Areas**

The analysis of the GD Line also showed a number of spans over wet areas that do not meet clearance requirements specified by the NESC. As part of the engineering analysis, Great River Energy contracted with an environmental engineering consultant to perform an assessment of a number of water bodies over which the line crosses. The basis of the assessment included the characterization of the water bodies for the purpose of analyzing the specified clearance requirements. Results of the analysis confirmed that all identified water bodies are classified as wetlands, per aerial photography and the National Wetlands Inventory (NWI). It should be noted that little to no water existed in the identified areas when the GD Line was originally built. These areas have become saturated over time, similar to other areas across the state of North Dakota, due to numerous years of increased precipitation and/or snow melt.

The following spans over wetlands (purple areas, Figures 1 and 2 and attached aerials) were found to have clearance discrepancies:

Structure Numbers	NESC Clearance Requirement (ft) (including 1 foot buffer)	Existing Above Ground Clearance (ft) at 168°F	Clearance Discrepancy (ft) at 168 ° F (including 1 foot buffer)	Segment of GD Line
382-383	21.9	19.7	2.20	6
452-453	21.9	13.78	8.12	7
453-454	21.9	20.82	1.08	7
456-457	21.9	15.35	6.55	7
457-458	21.9	20.33	1.57	7
552-553	21.9	14.28	7.62	8
553-554	21.9	13.97	7.93	8
554-555	21.9	14.30	7.60	8
555-556	21.9	14.54	7.36	8
556-557	21.9	15.58	6.32	8
558-559	21.9	19.36	2.54	8

To temporarily mitigate the clearance discrepancies in these areas, Great River Energy is proposing to install buoys and/or signage surrounding the identified clearance discrepancies until a more permanent solution can be constructed in winter of 2012/2013. The buoys that Great River Energy would like to install are standard nautical buoys used by both state and federal agencies. The buoys are 61 inches in height, 9 inches in diameter, and have a visibility of 36 inches above water. If necessary, Great River Energy will also string rope between the buoys to create a continuous barrier.

Great River Energy is supplying this notice to the PSC to inform them that we are performing maintenance and mitigation on a number of GD Line structures to resolve the immediate clearance issues on the line.

If you have any questions, I can be reached at 763-445-5214, or by email at [cschmidt@greenergy.com](mailto:cschmidt@greenergy.com).

Respectfully submitted,

GREAT RIVER ENERGY



Carole L. Schmidt  
Supervisor, Transmission Permitting and Compliance

Attachments

c: Jerry Lein, ND PSC  
Chuck Lukkarila, Jim McGuire, Kyle Oraskovich, Tony Ramunno, Donna Stephenson, GRE



## Compliance Application Notice

Compliance Application: FAC-008 and FAC-009

**Posted: January 7, 2011**

### Primary Interest Groups

Transmission Owners  
Generation Owners

### Issue: Constructed facilities not matching a registered entity's design specifications

NERC Compliance received a request for clarification regarding whether registered entities should self-report a violation of either FAC-008-1 R1 or FAC-009-1 R1 when constructed Facilities do not match a registered entity's design specifications.

### Reliability Objective

To ensure that a registered entity's Facility Ratings are based on actual field conditions and that a registered entity's Facilities are therefore operated in accordance with their actual capability.

### Background

On October 7, 2010, NERC issued the *Recommendation to Industry: Consideration of Actual Field Conditions in Determination of Facility Ratings* (Recommendation) that identified a reliability concern due to Facilities in the field not matching a registered entity's design specifications. This Recommendation contained a call to action for industry with key dates, which were revised on November 29 as follows:

- October 20, 2010 – acknowledge receipt of Recommendation
- October 28, 2010 – attend Webinar (optional)
- November 29, 2010 – attend second Webinar (optional)
- January 18, 2011– assess impact of the alert and provide an action plan, as required, to NERC, including any extension requests for completing assessments (originally December 15, 2010)
- Complete assessments - Identify all discrepancies between the design and actual field conditions that are outside the registered entity's design tolerances and report those discrepancies to NERC, applicable Reliability Coordinators, Transmission Operators, and Regional Entities by (originally April 7, 2011):
  1. **December 31, 2011 for High Priority Facilities**
  2. **December 31, 2012 for Medium Priority Facilities**
  3. **December 31, 2013 for Lowest Priority Facilities**

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## Compliance Application: FAC-008 and FAC-009

- Remediation to correct all issues identified during the assessment should occur as quickly as practical but within one year of identification OR obtain approval from NERC to extend deadline

In addressing this important reliability Recommendation, registered entities may discover operational Facilities with discrepancies between design specifications used for the development of ratings and actual field conditions that are outside the entity's design tolerances. While the importance of correcting these discrepancies within the above dates cannot be overstated, any such discrepancy is not necessarily a violation of the Reliability Standards.

Nevertheless, such a discrepancy may contribute to a possible violation of FAC-008-1 R1 or FAC-009-1 R1 or R2 based on the facts and circumstances specific to each instance, as described below. NERC encourages each registered entity to closely examine its Facilities Rating Methodology (FRM) required by FAC-008-1 R1 and the application of its FRM as required by FAC-009 R1 and R2 to determine if it is in compliance. Where the registered entity makes a determination that it is not compliant, the entity should self report to the appropriate Regional Entity.

### Compliance Application

#### FAC-008

FAC-008-1 requires a registered entity to have a documented FRM for developing Facility Ratings of its solely and jointly owned Facilities. The methodology is to include consideration of the following:

- R1.3.1. Ratings provided by equipment manufacturers.
- R1.3.2. Design criteria (*e.g.*, including applicable references to industry Rating practices such as manufacturer's warranty, IEEE, ANSI or other standards).
- R1.3.3. Ambient conditions.
- R1.3.4. Operating limitations.
- R1.3.5. Other assumptions.

## Compliance Application: FAC-008 and FAC-009

Where an entity's FRM considered equipment manufacturer's provided ratings (R1.3.1), design criteria (R1.3.2), ambient conditions (R1.3.3), operating limitations (R1.3.4) and other assumptions (R1.3.5), the registered entity would be in compliance with FAC-008-1 R1.

### FAC-009 R1

FAC-009-1 R1 requires each Transmission Owner and Generator Owner to establish Facility Ratings for its solely and jointly owned Facilities that are consistent with the associated FRM.

In order to be compliant with FAC-009-1 R1, a registered entity's Facility Ratings must be established pursuant to its FRM required by FAC-008-1 R1.

In order to determine whether a registered entity's Facility Ratings were established pursuant to its FRM, a registered entity should first evaluate whether its FRM addresses design criteria for Transmission Facilities, including clearances and, if so, whether the design criteria and clearances that are included are:

- 1) the actual physical application of the design criteria in the field for individual Facilities and/or actual clearances for individual Facilities; ***or***
- 2) stated broadly as general policy requirements.

***Where an entity's FRM requires the inclusion of the actual clearances or the physical applications of design criteria in the field for individual Facilities in the calculation of the Facility's Rating (#1):***

- If the entity's calculated Facility Ratings do not reflect the FRM requirement, then the registered entity would possibly be non-compliant with FAC-009 R1.
- Additionally, where an entity's Facility Ratings include the FRM requirement, the Facilities must be constructed to the actual clearances and/or design criteria specified in the entity's FRM. If the Facilities in the field are not constructed to design specifications and/or within acceptable tolerances for clearances, or the registered entity would possibly be non-compliant with FAC-009 R1.

## Compliance Application: FAC-008 and FAC-009

***Where clearances or design criteria are stated broadly as general policy requirements, actual field construction would not be considered in determining noncompliance with FAC-009 R1.***

### FAC-009 R2

FAC-009-1 R2 requires each Transmission Owner and Generator Owner to provide Facility Ratings for its solely and jointly owned Facilities that are existing Facilities, new Facilities, modifications to existing Facilities and re-ratings of existing Facilities to its associated Reliability Coordinator(s), Planning Authority(ies), Transmission Planner(s), and Transmission Operator(s) as scheduled by such requesting entities.

For compliance with FAC-009-1 R2, an entity that provides its current Facility Ratings as scheduled by the requesting entities would be in compliance with the requirement. As R2 includes “new Facilities, modifications to existing Facilities and re-ratings of existing Facilities,” the standard contemplates that transmission owners update their ratings to address changing field conditions and would thus be positioned for compliance with the standard.

### **Possible Compliance Actions**

The first order of business under FAC-009 is for registered entities to operate reliably within the requirements and or assumptions contained in the registered entity’s FRM.

In contrast, the Recommendation addresses whether Facilities were constructed pursuant to a registered entity’s design specifications and required clearances.

Registered entities that included the actual physical application of its design criteria in the field for individual Facilities and/or actual clearances for individual Facilities in its FRM have exhibited an attention to detail and a concern for reliability. In the event a registered entity discovers a noncompliance as a result of this Recommendation, the a registered entity’s continuation of its robust FRM; timely and thorough evaluations of its system using accurate measurement methods and technologies; timely self-disclosure of any compliance gaps; prompt corrective actions and consistent completion of its Mitigation Plan milestones will be strong considerations in the determination of a zero-dollar penalty.

## Compliance Application: FAC-008 and FAC-009

Further, NERC and Regional Entity staff will exercise enforcement discretion to hold the processing of all possible violations reported as a result of the assessments until the entity's assessments are complete, as long as the registered entity reporting such possible violations is proceeding in good faith to complete the assessments.

Please note that in the unlikely circumstance that an actual event occurs in which NERC or the Regional Entity determines a discrepancy between actual conditions and facility ratings was a cause or contributing factor, then NERC or the Regional Entity would proceed to investigate that case directly and not wait. Similarly, any possible violations of FAC-003 should continue to be reported immediately and may be processed separately and immediately by the Regional Entity or NERC.

### **Prior Related Communications**

- \*FAC-008-1 RSAW November 2, 2009 – Facility Ratings Methodology
- \*FAC-009-1 RSAW November 2, 2009 – Establish and Communicate Facility Ratings
- \*Order 693, ¶ 736 - 771, March 16, 2007

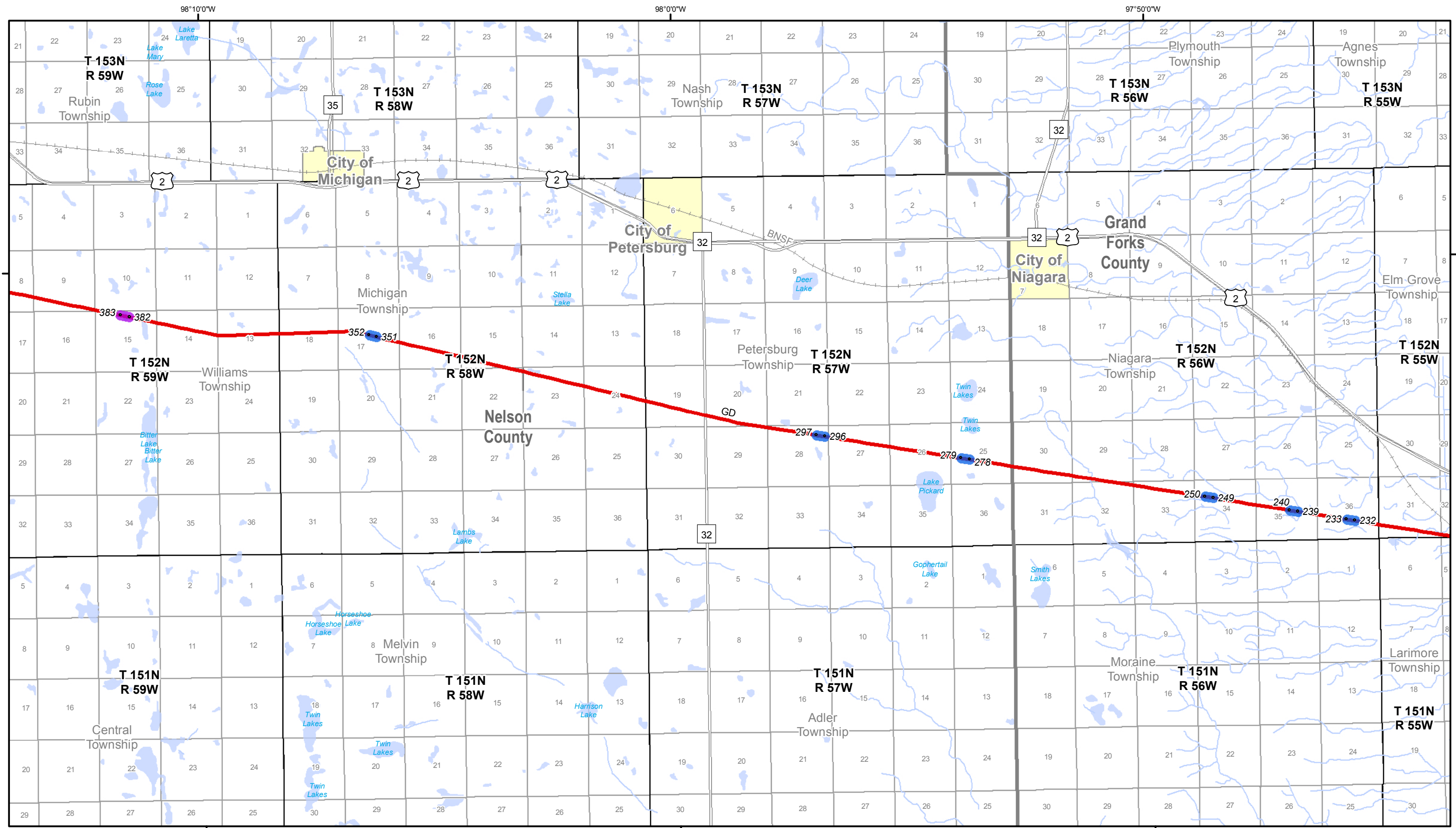
For more information please contact:

Michael Moon  
Director of Compliance Operations

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609-524-7028

Valerie Agnew  
Manager of Compliance Standards  
Interface and Outreach  
valerie.agnew@nerc.net  
609-524-7075

*This document is designed to convey compliance guidance from NERC's various activities, including basis for current ERO enforcement determinations. It does not establish new requirements under NERC's Reliability Standards or modify the requirements in any existing NERC Reliability Standard, but is intended to convey transparency for industry. Compliance will continue to be assessed based on language in the NERC Reliability Standards as they may be amended from time to time. Implementation of this compliance application notice is not a substitute for compliance with requirements in NERC's Reliability Standards.*



- Replace structures
- Install buoys and/or signage
- Clearance Structure
- Great River Energy "GD" Transmission Line

Geographic Data from  
ND State GIS Departments  
& Great River Energy  
Updated: 3/20/2012

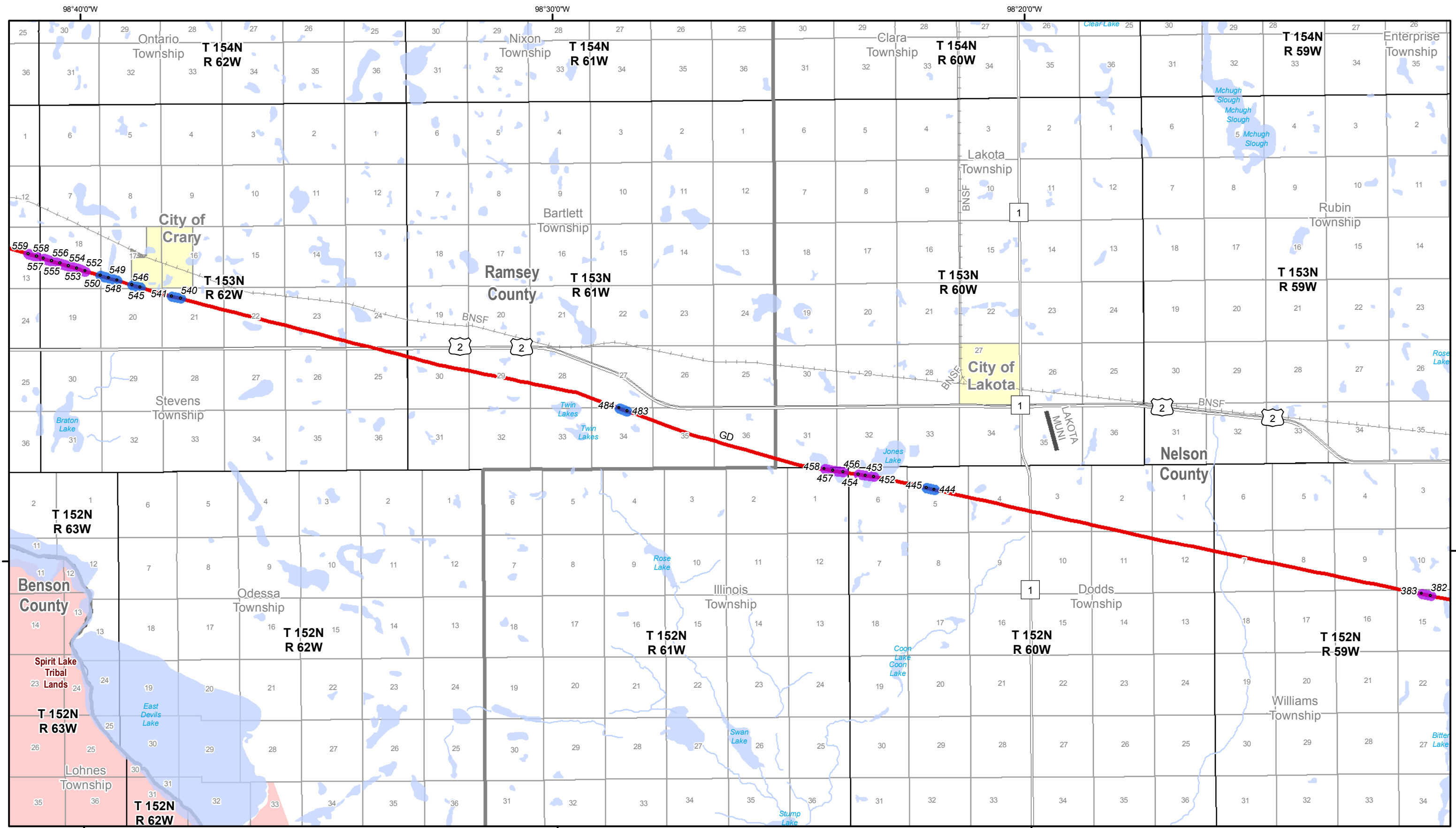


**Great River Energy 230-KV "GD" Line  
Clearance Discrepancy Locations  
Figure 1**

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■ Replace structures      • Clearance Structure  
■ Install buoys and/or signage      — Great River Energy "GD" Transmission Line

Geographic Data from ND State GIS Departments & Great River Energy  
 Updated: 3/20/2012

N  
 0 1 2 3 Miles

**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Figure 2**

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- █ Replace structures
- █ Install buoys and/or signage
- Clearance Structure
- █ Great River Energy "GD" Transmission Line

Geographic Data from  
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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 232-233**

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- █ Replace structures
- █ Install buoys and/or signage
- Clearance Structure
- Great River Energy "GD" Transmission Line

Geographic Data from  
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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 239-240**

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- █ Replace structures
- █ Install buoys and/or signage
- Clearance Structure
- Great River Energy "GD" Transmission Line

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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 249-250**

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- █ Replace structures
- █ Install buoys and/or signage
- Clearance Structure
- Great River Energy "GD" Transmission Line

Geographic Data from  
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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 278-279**



- █ Replace structures
- █ Install buoys and/or signage
- Clearance Structure
- Great River Energy "GD" Transmission Line

Geographic Data from  
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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 296-297**

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- Replace structures
- Install buoys and/or signage
- Clearance Structure
- Great River Energy "GD" Transmission Line

Geographic Data from  
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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 351-352**

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- █ Replace structures
- █ Install buoys and/or signage
- Clearance Structure
- Great River Energy "GD" Transmission Line

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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 382-383**





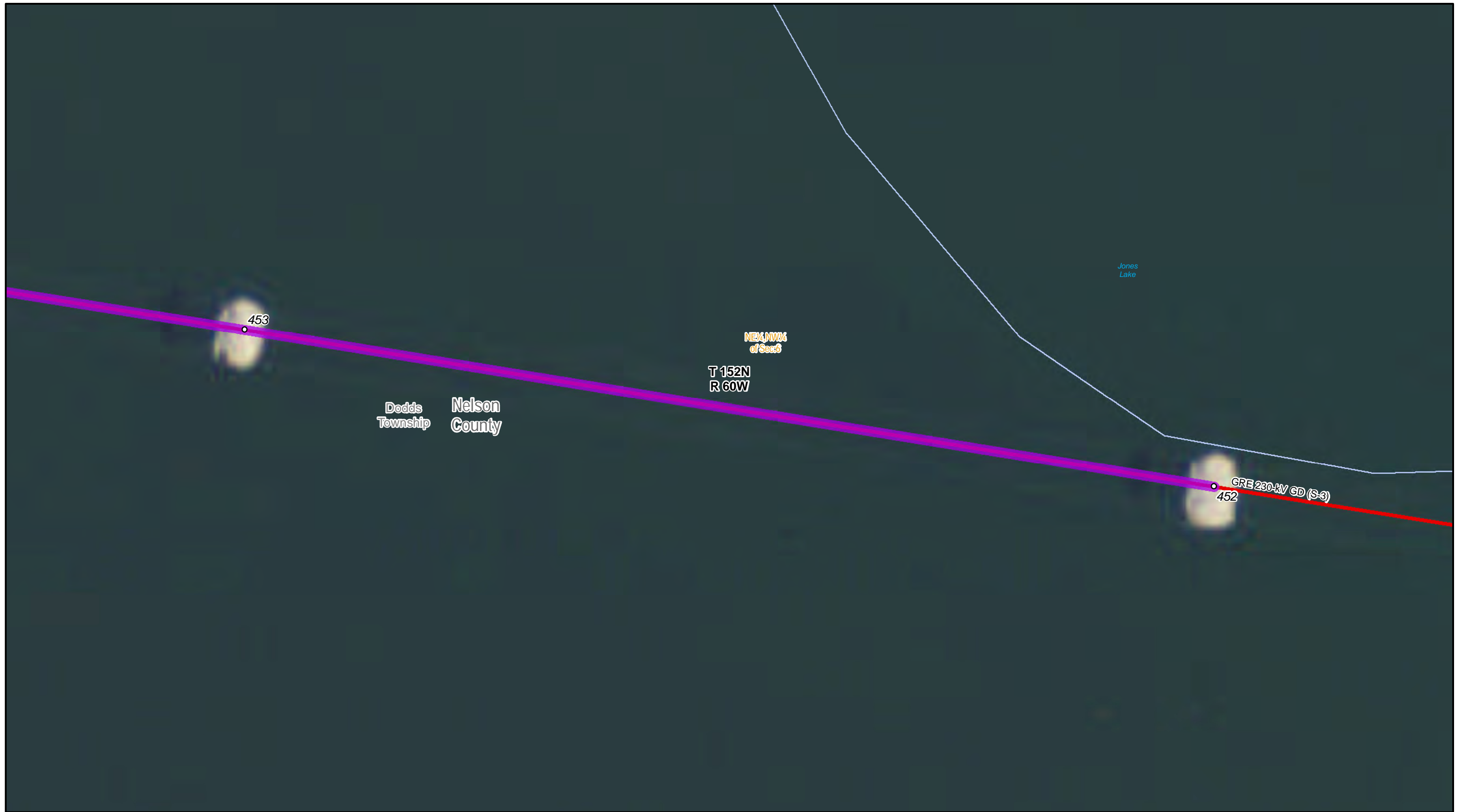
- █ Replace structures
- █ Install buoys and/or signage
- Clearance Structure
- Great River Energy "GD" Transmission Line

Geographic Data from  
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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 444-445**

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- █ Replace structures
- █ Install buoys and/or signage
- Clearance Structure
- █ Great River Energy "GD" Transmission Line

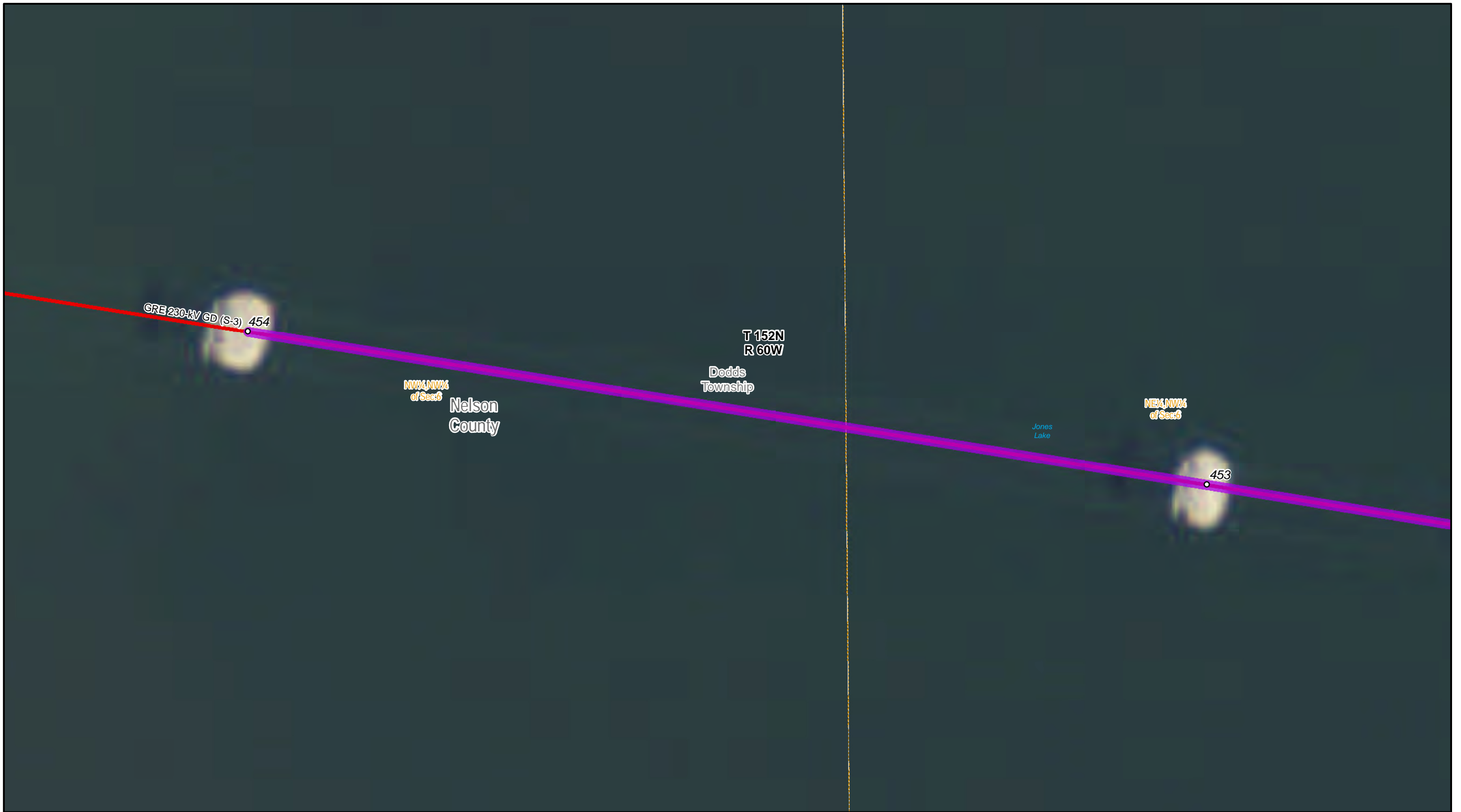
Geographic Data from  
 ND State GIS Departments  
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 Updated: 3/20/2012

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 0  100  
 Feet

**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 452-453**


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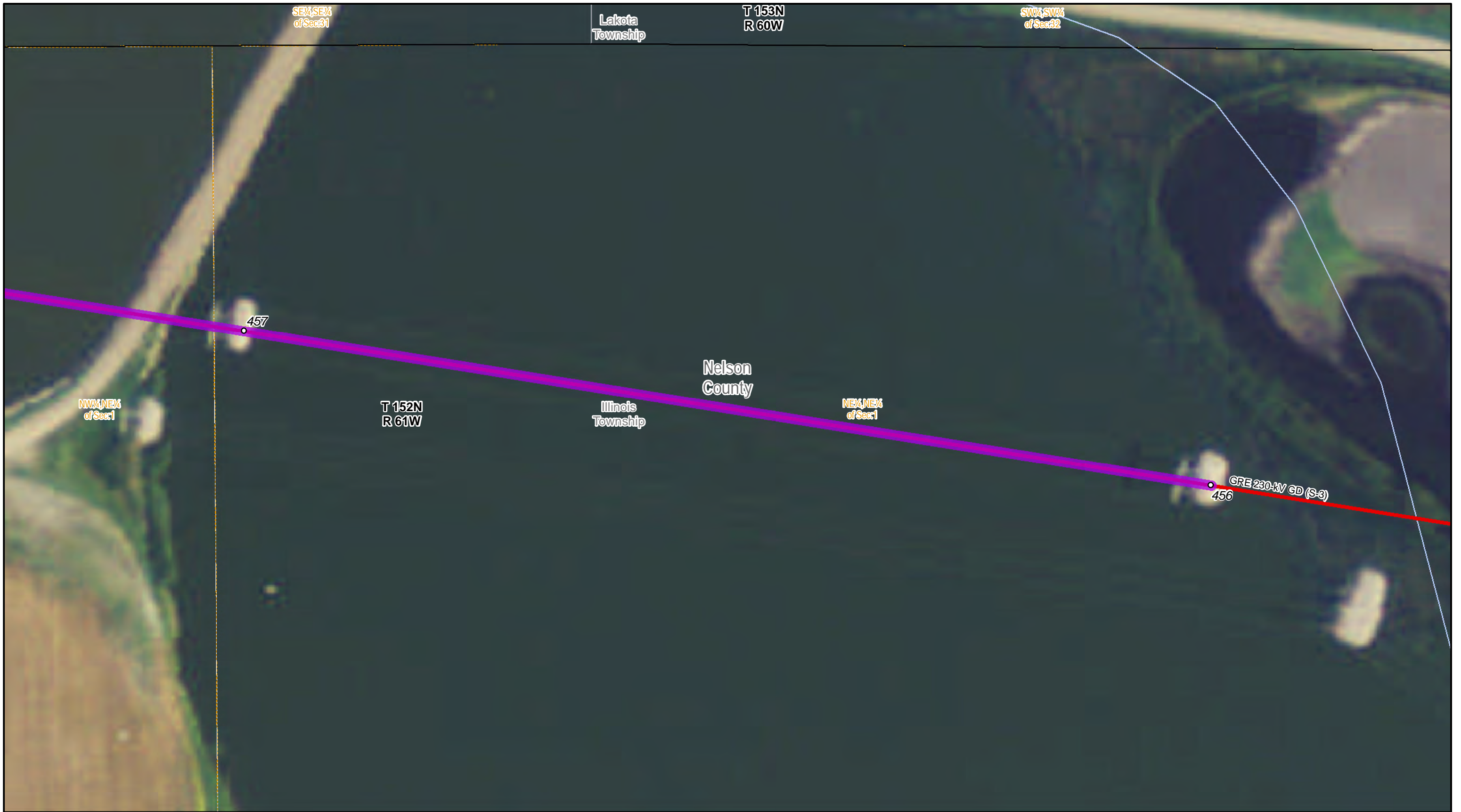


- Replace structures
- Install buoys and/or signage
- Clearance Structure
- Great River Energy "GD" Transmission Line

Geographic Data from  
 ND State GIS Departments  
 & Great River Energy  
 Updated: 3/20/2012

N  
  
 0 100  
 Feet

**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 453-454**



- █ Replace structures
- █ Install buoys and/or signage
- Clearance Structure
- █ Great River Energy "GD" Transmission Line

Geographic Data from  
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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 456-457**

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N  
  
 0 100  
 Feet

**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 457-458**

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- █ Replace structures
- █ Install buoys and/or signage
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- Great River Energy "GD" Transmission Line

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 Updated: 3/20/2012

N  
 0  100  
 Feet

**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 483-484**

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- Replace structures
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- Great River Energy "GD" Transmission Line

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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 540-541**

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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 545-546**

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- █ Great River Energy "GD" Transmission Line

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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 548-549**

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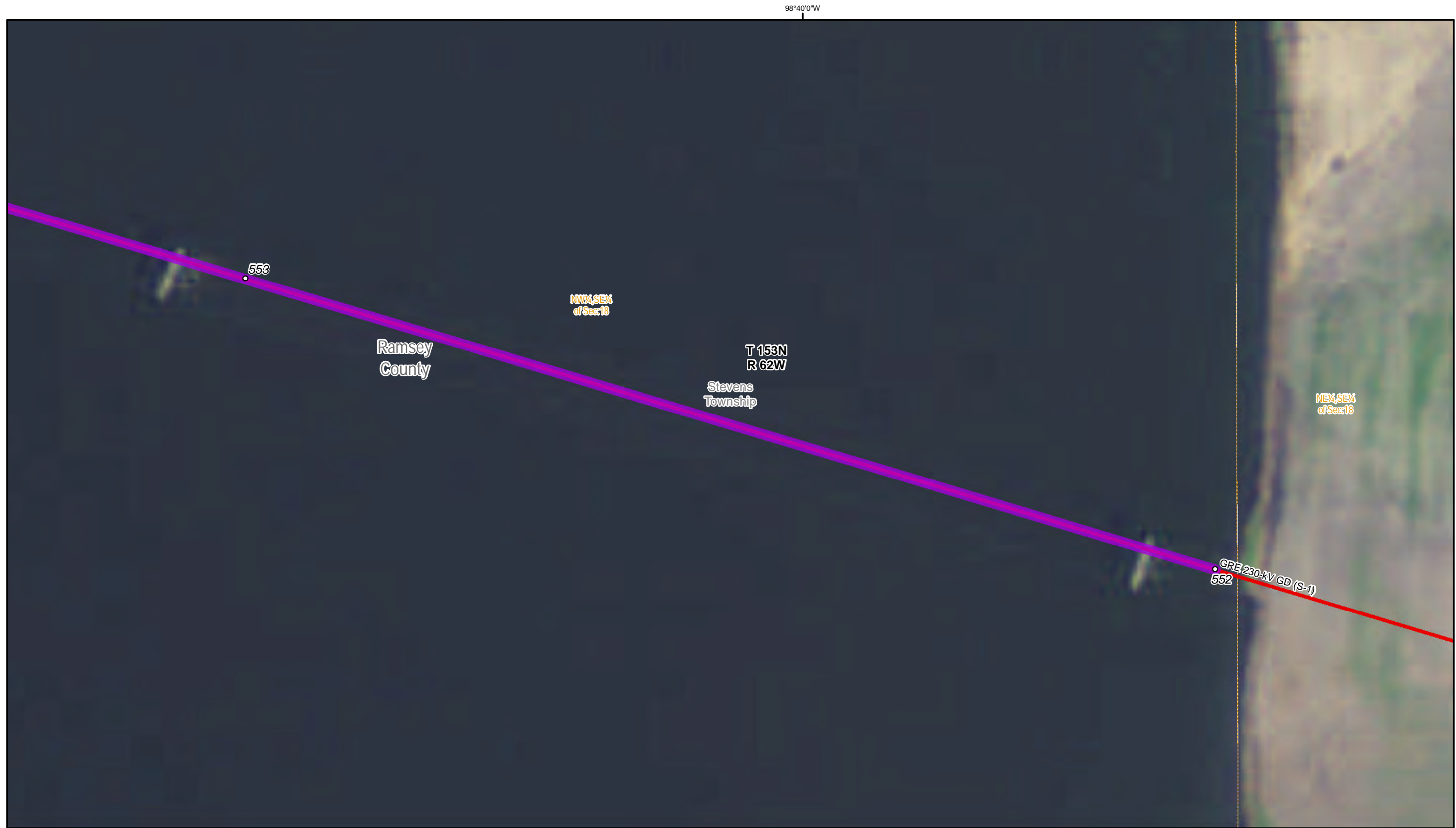


**Great River Energy 230-KV "GD" Line  
Clearance Discrepancy Locations  
Span: 549-550**

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- █ Great River Energy "GD" Transmission Line

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**Great River Energy 230-KV "GD" Line  
Clearance Discrepancy Locations  
Span: 552-553**

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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 553-554**

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0 100 Feet

**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 554-555**

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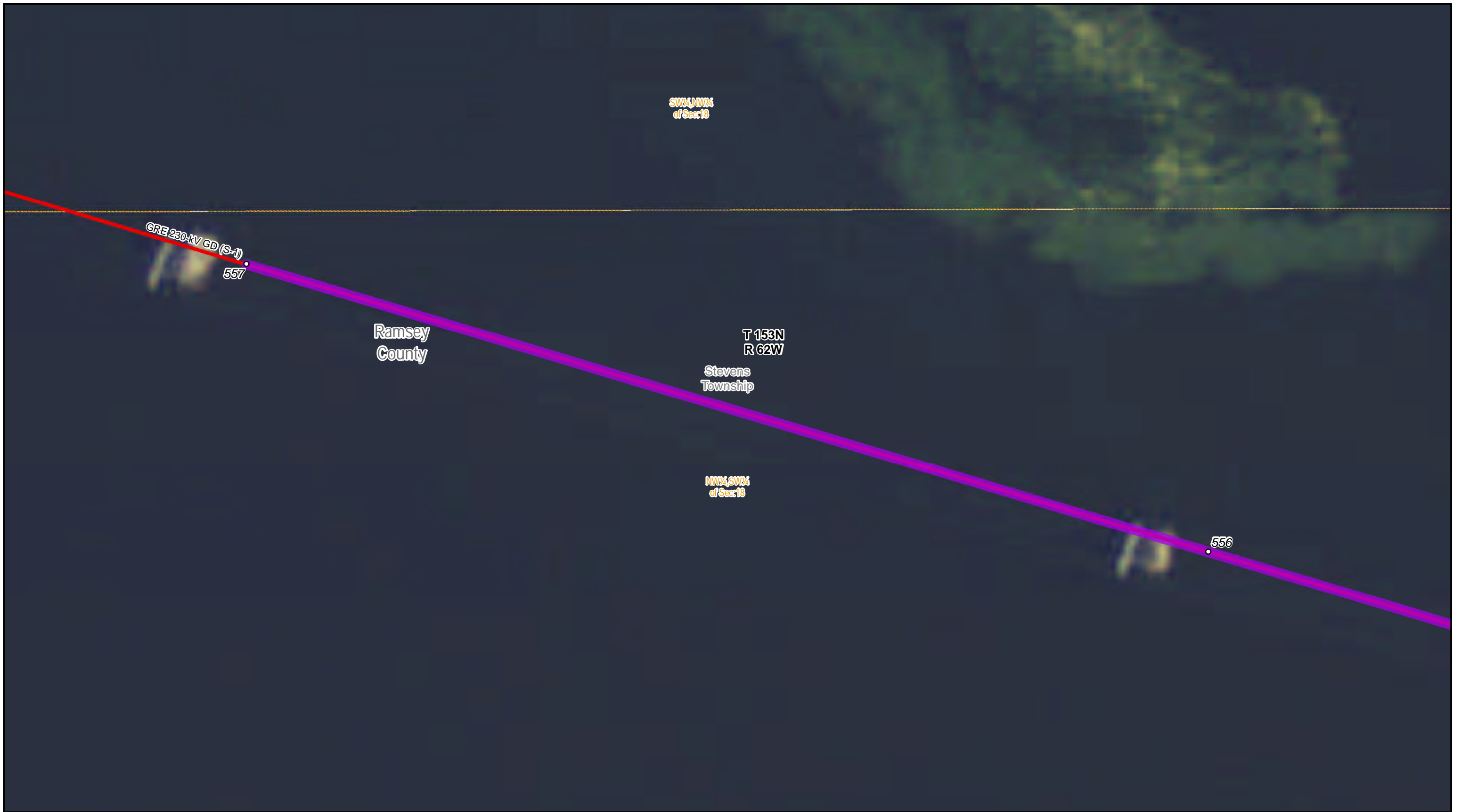
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**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 555-556**

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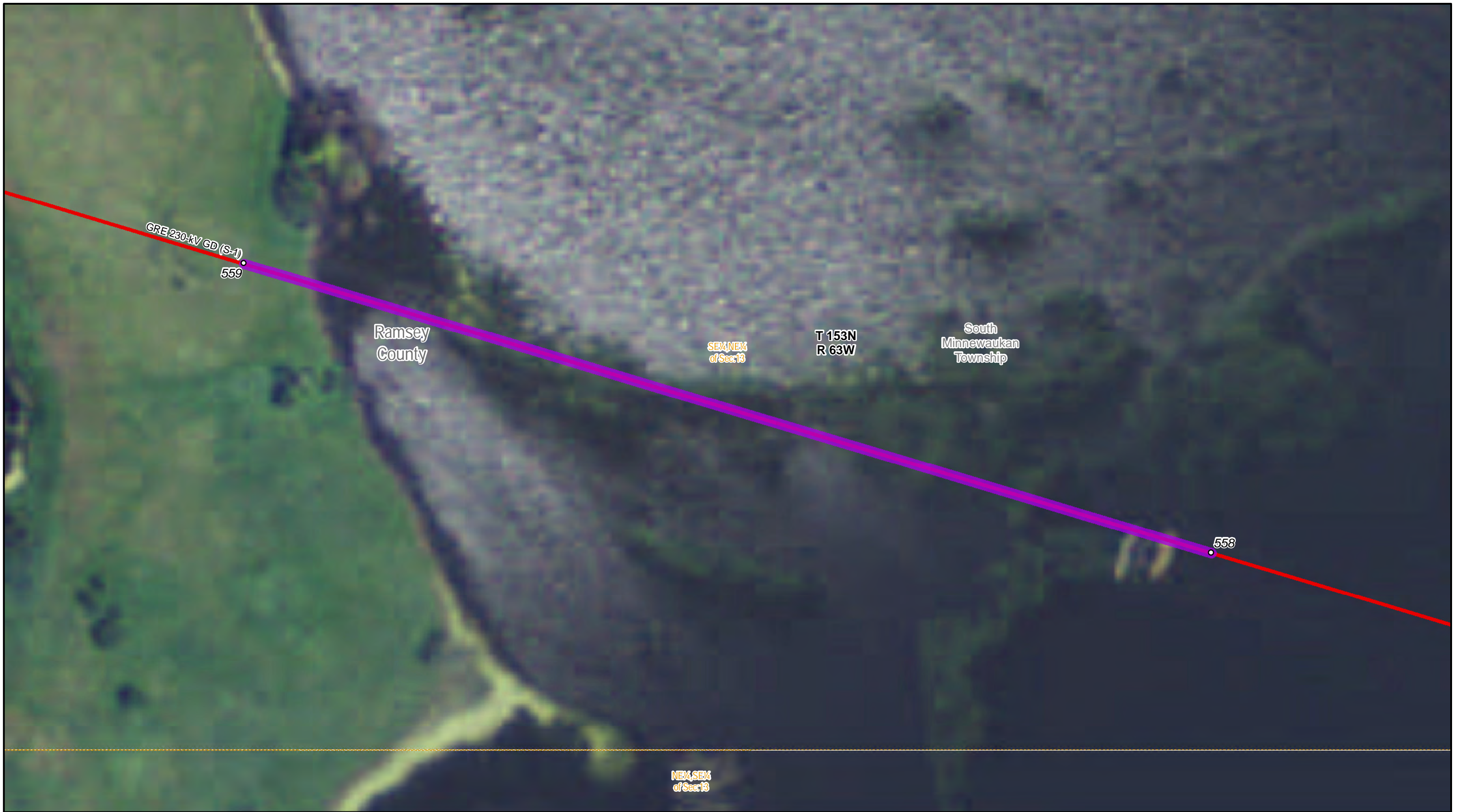


**Great River Energy 230-KV "GD" Line  
 Clearance Discrepancy Locations  
 Span: 556-557**

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**Great River Energy 230-KV "GD" Line  
Clearance Discrepancy Locations  
Span: 558-559**

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