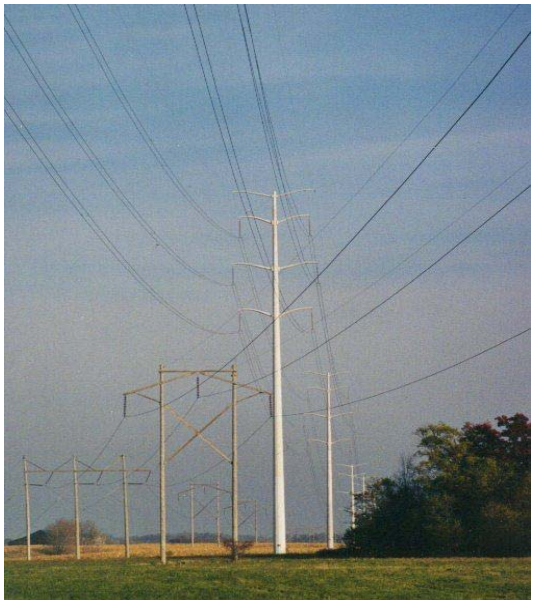
January 2012

Plan and Profile Guidance for Transmission Lines



Guidance for the development of Plan and Profile and route change request submittals to the Public Utilities Commission

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Minnesota Department of Commerce,

Energy Facilities Permitting

1/17/2012

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Plan and Profile Guidance for Transmission Lines

To foster consistency in Plan and Profile Compliance Filings, the Department of Commerce, Energy Facilities Permitting Unit, has developed this guidance for use by Permittees and their consultants in the preparation of Plan and Profile documents required by Public Utilities Commission energy facility route permits.

The purpose of this guidance is to explain the information that is needed in order for Energy Facility Permitting staff to be able to evaluate the plan for the transmission line that is going to be built and to compare the plan to the transmission line route, right-of-way and alignment and specific conditions that are described in the approved route permit, in both text and any attached aerial maps.

Energy Facility Permitting staff also need this information to evaluate requests for changes to the route, as described in the table below.

This guidance addresses these scenarios:

Section	Page	Scenario
PART ONE	4	Plan and Profile document
PART TWO	5	Change Request and Plan and Profile revision for right-of-way and alignment change; comparable overall impacts must be demonstrated
PART THREE	10	Plan and Profile revision for route width variation meeting four site-specific constraints; comparable overall impacts must be demonstrated

TIP: COMMUNICATING WITH THE DEPARTMENT OF COMMERCE ENERGY FACILITIES PERMITTING UNIT PERMIT MANAGER FOR YOUR PROJECT DURING THE PREPARATION OF THE PLAN AND PROFILE AND FOR ANY REQUESTS FOR CHANGES PRIOR TO E-FILING THE DOCUMENT IS AN IMPORTANT FIRST STEP. ALLOW TIME FOR THIS COMMUNICATION PRIOR TO E-FILING.

After the Plan and Profile has been prepared according to this guidance, complete a compliance filing on Public Utilities Commission (Commission) e-Dockets, by the date specified in the Minnesota Public Utilities Commission route permit for the project, at this web address: **https://www.edockets.state.mn.us/EFiling/** .

Address the cover letter to the Executive Secretary of the Public Utilities Commission for the submittal of the initial Plan and Profile, any revisions, and any route permit change requests.

Dr. Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
350 Metro Square Building
121 Seventh Place East
Saint Paul, MN 55101

Please note that if a specific route permit condition is inconsistent with this guidance, language in the Minnesota Public Utilities Commission route permit takes precedent.

PART ONE: Plan and Profile Document

The route permit describes the approved route in permit text and in aerial maps attached to the permit.

The route permit requires submittal of the Plan and Profile including:

- the location of the right-of-way in compliance with the route permit and
- the specifications and drawings for right-of-way preparation, construction, cleanup, and restoration for the transmission line.

If any changes are being requested, the documentation should include maps depicting the plan and profile in relation to the approved route and alignment that are described in the route permit (see Parts Two and Three of this guidance).

Communicating with the Department of Commerce Energy Facilities Permitting Unit Permit Manager for your project during the preparation of the Plan and Profile and for any requests for changes prior to e-filing the document is an important first step. Allow time for this communication prior to e-filing.

After the documentation has been e-filed, the Public Utilities Commission will advise the Permittee of its determination regarding the consistency of the planned construction with the route permit. If the Permittee intends to make any changes to the Plan and Profile or to the specifications and drawings after receiving the Public Utilities Commission's determination, the Permittee must notify the Public Utilities Commission within the timeframe specified in the route permit before implementing any change.

Plan and Profile Content Guidance

1. Plan sheets and maps provided for the Plan and Profile must be on 11 X 17 inch sheets, or must be set up to print to 11 X 17 sheets, in order to facilitate review of these documents.
2. Include an 11 X 17 sheet showing the overall route. The scale for this sheet will vary, depending on the area and distance of the project. Include structures that identify the beginning and end of the route.
3. Each segment of the route included on an 11 X 17 sheet must be shown at a scale ranging from 1:4,000 to 1:6,000 – identify on each sheet the scale that is used; also include a scale showing measured distance on map equal to actual distance; if a different scale is needed for some reason, discuss this with the Department of Commerce Energy Facilities Permitting Unit Permit Manager for the project.
4. Each sheet should depict the approved route, right-of-way and alignment for any segment shown:
    - ✓ aerial color photographic view showing right-of-way, alignment, any changes being requested if different than what was approved in the route permit, and the presence of other existing rights-of-way that are being occupied and utilized or that exist but are not being shared with the route
    - ✓ a corresponding vertical ground view, for the exact same segment using the same horizontal scale as the aerial view
    - ✓ include the vertical scale on the vertical ground view as well
    - ✓ location of any structures, poles or other features must align as closely as possible on the two views that are placed one above the other
    - ✓ show engineering specifications, details, and design including distances between structures in compliance with permit requirements
    - ✓ Example layout is attached in Appendix 1

5. Include on each segment sheet:
    - ✓ the project name
    - ✓ the sheet number (for example, sheet 3 of 15)
    - ✓ a map block showing the area covered by this sheet in relation to the overall route
    - ✓ date of preparation
    - ✓ engineering certification, dated and signed
    - ✓ scale (e.g., 1:6,000 and measured distance on map equal to actual distance)
    - ✓ north arrow
    - ✓ legend explaining use of color and feature identification
    - ✓ numbered or labeled transmission line structures including those that mark the beginning and end of any route or route segment
6. Include on the aerial photographic portion of each segment sheet:
    - ✓ counties, municipalities or named civil townships, labeled, and boundaries shown
    - ✓ Geographic Information:
        - Township Range designation and corresponding Township number
        - Geographic spatial data such as
            - UTM zone and latitude band plus UTM coordinates for the route segment endpoints and pole points OR
            - decimal latitude and longitude for the route segment endpoints and pole points
    - ✓ route number or name marked on state, county, municipal or township roads that are present
    - ✓ pole height, type and configuration
    - ✓ marked location of residential and non-residential structures (identify airports and airfields specifically)
    - ✓ location of easements
    - ✓ location of existing rights-of-way that are being occupied and utilized or that exist but are not being shared with the route
    - ✓ location of construction staging areas
    - ✓ location of center pivot irrigation structures and
    - ✓ natural features relevant to this project, labeled and marked, such as the location of lakes and streams, National Wetland Inventory wetlands, location of identified protected or endangered species, Waterfowl Production Area, Wildlife Management Area, native prairie, calcareous fen, karst topography; see also Minn. Rules 7850.4300 for a comprehensive list of resources
7. Attach additional aerial photographic map sheets that clearly show necessary detail; indicate which Plan and Profile sheet(s) they correspond to (see Table 1 and Appendix 1).
8. Include any specifications and drawings for right-of-way preparation, construction, cleanup, and restoration for the transmission line that are not described by the above sheets on separate pages. If this content has been submitted in a different document, such as the Environmental Control Plan, provide the title of the document, document number of the submittal on the Department of Commerce e-Docket web site, date of e-filing and date of acceptance or approval of the document.

PART TWO: Plan and Profile Alignment and Right-of-Way Change Requests

Circumstances occur during the progression of a project after permitting that may result in a request for changes in the alignment and right-of-way. The designated route identifies an alignment that minimizes the overall potential impacts evaluated during the environmental review and permitting process. The permitted route is the authorized route to be constructed unless there are rare circumstances or unforeseen conditions that are encountered. These change requests can be identified in the initial e-filing of the Plan and Profile if they are known at that time or can be e-filed as a separate request at an earlier or later date, as specified in the Commission route permit, prior to construction.

Content Guidance for Alignment and Right-of-Way Change Request

PROVIDE CONTEXT FOR AND DESCRIPTION OF THE REQUESTED CHANGE

1. Describe the request and any resulting alignment or right-of-way changes.
2. Explain the reasons for requested changes and any alternatives considered.
3. Use documentation from numbers 5-10 below to describe the analysis that supports the change request.
4. Provide a conclusion regarding impacts of the requested change(s).

PROVIDE DOCUMENTATION

5. Include a table detailing each change to the alignment or right-of-way, including the reason for each change, and the plan sheet where the change is marked; example Table 1 is below.

Table 1. Summary of Requested Alignment and Right-of-Way Changes

Structures or Numbered Poles Identifying Beginning and End of the Segment for the Change Requests	Page Number in Initial Plan and Profile Filing, if there was a prior filing	Page Number in [Revised] Plan and Profile for the Change Requests	Map Page Number in Initial Plan and Profile Filing, if additional map sheets were attached	Map Page Number in this Change Request	Distance Between Structures that Mark the End Points of the Segment	How Many Landowners Are Affected and the Parcels Affected	Describe the Requested Change and the Reason for the Change
Example: Change to Segment 1 Pole [#] to Pole [#]							
Example : Change to Segment 2 Pole [#] to Pole [#]							
Etc.							

Note: if pole numbers change as a result of the route change, this should be clearly addressed and reconciled with other numbering in the Plan and Profile.

6. Include a table that details criteria and data to be used to compare impacts of the change; example Table 2 is below.

Table 2. Criteria and Data to be Used to Assess Impacts of Requested Alignment and Right-of-Way Change (repeat these rows below for each segment in the Change Request)				
Indicate here the structures or numbered poles identifying the beginning and end of one route segment in this change request. For example, Change to Segment 1 Pole [#] to Pole [#]. The Department of Commerce Energy Facilities Permitting Unit Permit Manager has the option of requesting additional information.				
Criteria (add other criteria as appropriate)	**Units**	**For the Permitted Alignment and Right-of-Way Between these Structures or Poles**	**For the Alignment and Right-of-Way Segment Proposed to Be Changed**	**Other Information Important to this Request**
Length of the Transmission Line	Feet or Miles			
Length that is In or Parallel to Existing Right-of-Way	Feet or Miles			
Number of Roads Crossed	Number			
Number of Parcels Crossed	Number			**Include landowner names and the parcels**
Number of Residences Within the Right-of Way	Number			
Number of Non-Residential Buildings Within the Right-of-Way				
Area of Agricultural Land Crossed	Acres			
Area of Forested Land Crossed	Acres			
Area of Mineral or Metal Mining Resources within Right-of-Way	Acres			
Area of Wetlands Crossed	Acres			
Transmission Line Distance Across a Lake, Stream, Drainage or Other Waterway	Feet			**Identify any national wild, scenic and recreational rivers or trout streams crossed**
Area of Open Land Crossed	Acres			**Indicate type such as grassland, lowland shrub, etc.**
Area of Developed Land Crossed	Acres			
Area of Parks, Waterfowl Production Areas, Wildlife Management Areas, Wildlife Refuges, and Prairie within the Right-of-Way	Acres			**Identify those present in the right-of-way**
Number and Count of Known Protected or Endangered Species	Number of species, count within species			**Identify the species**
Number of Archeological and Historic Resources	Number			**Identify the resources**
REPEAT THIS TABLE AS NEEDED TO PROVIDE ADDITIONAL DATA FOR EACH REQUESTED CHANGE OF A SEGMENT OF THE ALIGNMENT OR RIGHT-OF-WAY				

7. Include a table that summarizes conclusions regarding impacts for each alignment or right-of-way change requested; example Table 3 is below.

Table 3. Assessment of Impacts of Requested Alignment or Right-of-Way Change. **Repeat these rows below for each requested change of a segment of the alignment or right-of-way.**		
Structures or Numbered Poles Identifying Beginning and End of the Segment for the Change Requests	**Routing Factor** **Minn. Rules 7850.1900 subp. 3. and Minn. Rules 7850.4100**	**Impact Regarding Alignment and Right-of-Way Change Requested**
Example: Change for Segment 1 Pole [#] to Pole [#]	Effects on human settlement, including, but not limited to displacement, noise, aesthetics, cultural values, recreation and public services	Indicate why there is no change in impact or quantify and describe the change for each item here and in the rows below
Example: Change for Segment 1 Pole [#] to Pole [#]	Effects on public health and safety	
Example: Change for Segment 1 Pole [#] to Pole [#]	Effects on land-based economies, including, but not limited to agriculture, forestry, tourism and mining	
Example: Change for Segment 1 Pole [#] to Pole [#]	Effects on archeological and historic resources	
Example: Change for Segment 1 Pole [#] to Pole [#]	Effects on the natural environment, including effects on air and water quality resources and flora and fauna	
Example: Change for Segment 1 Pole [#] to Pole [#]	Effects on rare and unique natural resources	
Example: Change for Segment 1 Pole [#] to Pole [#]	Application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity	
Example: Change for Segment 1 Pole [#] to Pole [#]	Use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries	
Example: Change for Segment 1 Pole [#] to Pole [#]	Use of existing large electric power generating plant sites	
Example: Change for Segment 1 Pole [#] to Pole [#]	Use of existing transportation, pipeline, and electrical transmission systems or rights-of-way	
Example: Change for Segment 1 Pole [#] to Pole [#]	Electrical system reliability	
Example: Change for Segment 1 Pole [#] to Pole [#]	Cost of constructing, operation and maintenance which are dependent on design and route	
Example: Change for Segment 1 Pole [#] to Pole [#]	Human and natural environmental effects that cannot be avoided	
Example: Change for Segment 1 Pole [#] to Pole [#]	Irreversible and irretrievable commitments of resources	
Example: Change for Segment 1 Pole [#] to Pole [#]	Measures that might be implemented to mitigate the potential human and environmental impacts identified above and the estimated costs of the mitigative measures	
Example: Change Segment 1 Pole [#] to Pole [#]	Wilderness Areas: No high voltage transmission line may be routed through state or national wilderness areas (Prohibition, Minn. Rules 7850.4300)	
Example: Change for Segment 1 Pole [#] to Pole [#]	Parks and Natural Areas: No high voltage transmission line may be routed through state or national parks or state scientific and natural areas unless the transmission line would not materially damage or impair the purpose for which the area was designated and no feasible and prudent alternative exists. Economic considerations alone do not justify use of these areas for a high voltage transmission line (Prohibition, Minn. Rules 7850.4300)	

PLAN AND PROFILE REVISIONS

8. Mark any changes on a revision to the relevant Plan and Profile sheet so that the permitted alignment and right-of-way and the Change Request alignment and right-of-way are readily distinguished.
9. Attach additional aerial photographic map sheets that clearly show this comparison and that clearly show the requested change in comparison to the permitted route width.
10. Follow content guidance for Plan and Profile on pages 4 and 5, which continues to apply.

PROVIDE HISTORY

11. Include a table that summarizes ongoing history for all prior change requests; see example below; this information may be provided on a website used for communication about the project if preferred.

Table 4. Sample Table Summarizing Plan and Profile Prior History

Document Type (Examples below)	Brief Description of Requested Change, if Any	Date of e-Filing	e-Docket Document Number
Plan and Profile Initial Filing for entire route or for portion of a route			
Change Request for Change in Alignment or Right-of-Way			
Change Request for Route Width Variation			
Correspondence Related to the Plan and Profile documents and any Change Requests, including acceptance and approval			

PART THREE: Plan and Profile Alignment and Right-of-Way Change Request for Route Width Variation, meeting constraints

Constraints that may result in a request for a route width variation include the following (please see the Commission route permit for the project for requirements specific to the project):

1. Unforeseen circumstances encountered during the detailed engineering and design process
2. Federal or state agency requirements
3. Existing infrastructure within the transmission line route, including but not limited to roadways, railroads, natural gas and liquid pipelines, high voltage electric transmission lines, or sewer and water lines
4. Planned infrastructure improvements identified by state agencies and local government units and made part of the evidentiary record during the proceeding for the permit

E-file the request, providing the information on the previous pages.
In the description of the change request, explain which of the four above constraints fit the circumstances and why.

APPENDIX 1
EXAMPLES OF PLAN AND PROFILE SUBMITTALS AND TRANSMISSION LINE CHANGE REQUESTS

The following pages include examples from actual submittals of Plan and Profile documents or requests for change from the permitted route. **While no one example includes all of the preferred features of the Plan and Profile or a request for change,** each example was selected for its strength on particular preferred features, as noted on the example.

Example 1:	**Text for a request for change in route width for a transmission line**	page 11
Example 2:	**Plan and Profile and Map Sheet**	page 18
Example 3:	**Plan and Profile and Map Sheet**	page 20
Example 4:	**Plan and Profile and Map Sheet**	page 22
Example 5:	**Plan and Profile and Map Sheet**	page 24

EXAMPLE 1: TEXT FOR A REQUEST FOR CHANGE IN ROUTE WIDTH FOR A TRANSMISSION LINE

This example has an excellent text description of the request including a thorough analysis and conclusions regarding impacts.

Great River Energy

Potato Lake Project
115 kV Transmission Line and Substation

Route Width Deviation Request: Highway 71

MPUC Docket No. ET2/TL-10-86

February 17, 2011

Great River Energy
Route Width Deviation Request
Docket No. ET2/TL-10-86 February 17, 2011

Highway 71 Route Width Deviation

Great River Energy requests permission to deviate from the permitted route in Sections 27 and 28 of Arago Township in Hubbard County, Minnesota. This request is made under Section 3.1 (Route Width and Alignment) of the Route Permit issued to Great River Energy on November 17, 2010 under Docket No. ET2/TL-10-86, specifically items 1) Unforeseen circumstances encountered during the detailed engineering and design process and 3) Existing infrastructure within the transmission line route. Due to unforeseen circumstances encountered during the detailed design process and the location of the existing distribution facilities that must remain energized during the construction of the 115 kV Potato Lake transmission line, the transmission line alignment needs to be moved outside the permitted route in some areas on a one-mile segment of the 7.25 mile transmission line project along U.S. Highway 71.

A. Description of Proposed Route Deviation

Great River Energy is requesting that a portion of the required right-of-way (ROW) needed for the Potato Lake 115 kV transmission line be located outside the permitted route. The ROW deviates from the permitted route between Structures 11 and 13 and also between Structures 16 and 22 for an approximate cumulative 3,391 feet (covering an area of 2.33 acres of wetlands and lowland shrubs) and then fully rejoins the permitted route when the transmission line turns easterly and crosses Highway 71 to the alignment along 230th Street (Figure 1). The portion of the ROW area outside of the permitted route is shown in purple and the current permitted route is shown in blue.

B. Purpose and Justification as Preferred Route

The need for the deviation arises from the conclusion that the new transmission line alignment would need to be offset westerly of the existing Itasca-Mantrap Cooperative Electric Association (Itasca-Mantrap) distribution line by at least 15 to 20 feet.

The evolution of the change in alignment is described below.

- The route permit application was submitted with the intent to underbuild the distribution line and utilize the distribution line right-of-way to the maximum extent possible.
- Since the route permit application was submitted, it was determined that the distribution line would need to stay energized during construction.
- Leaning the distribution poles was explored and discussed as a construction technique that would enable the transmission line to be located within the distribution line ROW, but it was determined that it was not possible given the wet conditions and unstable soils. Leaning the distribution poles would increase the potential for outages.
- Undergrounding the distribution line on the opposite side of Highway 71 to open up the ROW for construction of the transmission line was considered. However, due to frozen conditions, the Itasca-Mantrap distribution line could not be removed until either late

spring or summer of 2011. Because the new transmission line structures need to be in the ground this winter to minimize impact on the wetland areas and to comply with the Avian Mitigation Plan, this timing precludes using the distribution line ROW for construction of the transmission line.

- Great River Energy discussed the removal of the distribution lines and the use of generators; however, this was impractical due to the following reasons: 1) the distribution line would be out of service for 5 to 6 months and 2) the distribution system in the area would not be as reliable with the section of line removed along Highway 71.

- Placement of the transmission line east of the distribution line was considered. However, that alignment would have placed it well into the ROW and possibly in the safety clear zones of Highway 71 and, as noted below with respect to Structures 9 and 10, would result in impacts to a building. While room does exist in some limited locations for the line to be placed on the east, crossing the distribution line would require taller transmission poles and would present safety concerns for the crews and equipment when working in the vicinity of the energized Itasca-Mantrap distribution line.

Thus, it was determined that the new transmission line would need to be on the west side of the distribution line.

Itasca-Mantrap is expected to remove its distribution line in summer of 2011 and place it underground on the east side of Highway 71, thereby abandoning the distribution ROW on the east, leaving only the new transmission ROW.

A description of the specific circumstances in two areas of the line along Highway 71 is provided below.

Structures 9 thru 12

At Structures 9 and 10, the shift of the transmission line to the west is necessary primarily because of the physical circumstances at the Summerhill Farm property. There are buildings on this property located on each side of the existing distribution line that are used commercially on a seasonal basis. The shift of the new line westerly to center the new transmission line between the existing buildings would maximize required National Electrical Safety Code clearances through the property.

The distribution centerline is currently 64 feet from the west building and eight feet from the east building at Summerhill Farm, making placement to the east impossible without taller transmission line structures to span over the building and significant tree removal. Great River Energy's policy is to not span over buildings when reasonable alternatives exist and without the concurrence of the landowner. The transmission line alignment will now be approximately centered with the centerline located 36 feet from the west building and 36 feet from the east building.

Structures 11 and 12 are inside the permitted route, but the conductor between them and part of the easement area is outside the permitted route. If it were required to move Structure 11 east to keep the conductor and ROW within the permitted route, it would require two crossings of the distribution line, the addition of a transmission line structure, and additional anchors on multiple structures.

Structures 16 through 22

A portion of the ROW area only is outside of the permitted route between Structures 16 and 22. All the structures are within the permitted route. The alignment location was based on staying west of the distribution line and avoiding crossings of the distribution line.

Angle Structures 14, 19 and 22 dictate the location of the adjacent tangent structures. They are located as near as possible to the distribution line. Structure 19 is an angle structure with longer guy wires, which needs a slightly wider setback from the distribution line than the 15 to 20 feet required in other areas. Structure 19 is located 25 feet west of the existing distribution line.

The greatest deviation from the permitted route is 53 feet west (the transmission ROW between Structures 17 and 18).

C. Analysis of the potential impacts on the human and natural environment

Tables 1 and 2 below demonstrate that the environmental impacts of the requested route deviation are very similar to those of the permitted route. The requested route deviation will be subject to the same protections, construction procedures, mitigation strategies, and terms of the Route Permit issued to Great River Energy and under the Avian Mitigation Plan. The land will be returned to as near its pre-construction condition as practical after the construction of the Potato Lake transmission line.

Moving and burying the distribution line allows for greater transmission line structure spacing (therefore fewer structures and impacts), increases reliability due to the physical separation of the distribution and transmission lines, provides enhanced safety and maintenance of both the transmission and distribution facilities, and decreases the number of wires that will impact birds in the area.

The shift in the alignment will only impact properties of landowners who are already impacted by the permitted route. The shift has been discussed and agreed to by the affected landowners.

Great River Energy
Route Width Deviation Request
Docket No. ET2/TL-10-86 February 17, 2011

Table 1
Analysis of the Deviation along Highway 71 for the Potato Lake Transmission Line Project Between Structures 11 and 22

	Units	Permitted Route (Centerline is 50' inside permitted route western boundary)	100 Wide Easement Area (Yellow and Purple Route Sections on Figure 1)	Requested Deviation Outside Permitted Route (Purple Sections on Figure 1)
Total Length	Feet	N/A	N/A	3,391
Length Parallel to Existing Rights-of-Way	Feet	N/A	N/A	3,391
Roads Crossed	Number	0	0	0
Parcels Crossed	Number	4	4	4
Residences within 150 feet of the Transmission Line	Number	0	0	0
Wetlands Crossed	Number	4	4	4
Land Use[a]				
Forested Land Crossed	Acres	0.67	0.01	0.00
Agricultural Land Crossed	Acres	1.46	1.87	0.01
Developed Land Crossed	Acres	0.00	0.00	0.00
Wetlands Crossed	Acres	7.36	6.25	1.95
Open Land Crossed (Lowland Shrub)	Acres	1.83	1.58	0.38

[a] Data based on http://deli.dnr.state.mn.us/metadata.html?id=L390000102101
Wetland boundaries based on National Wetland Inventory Maps.

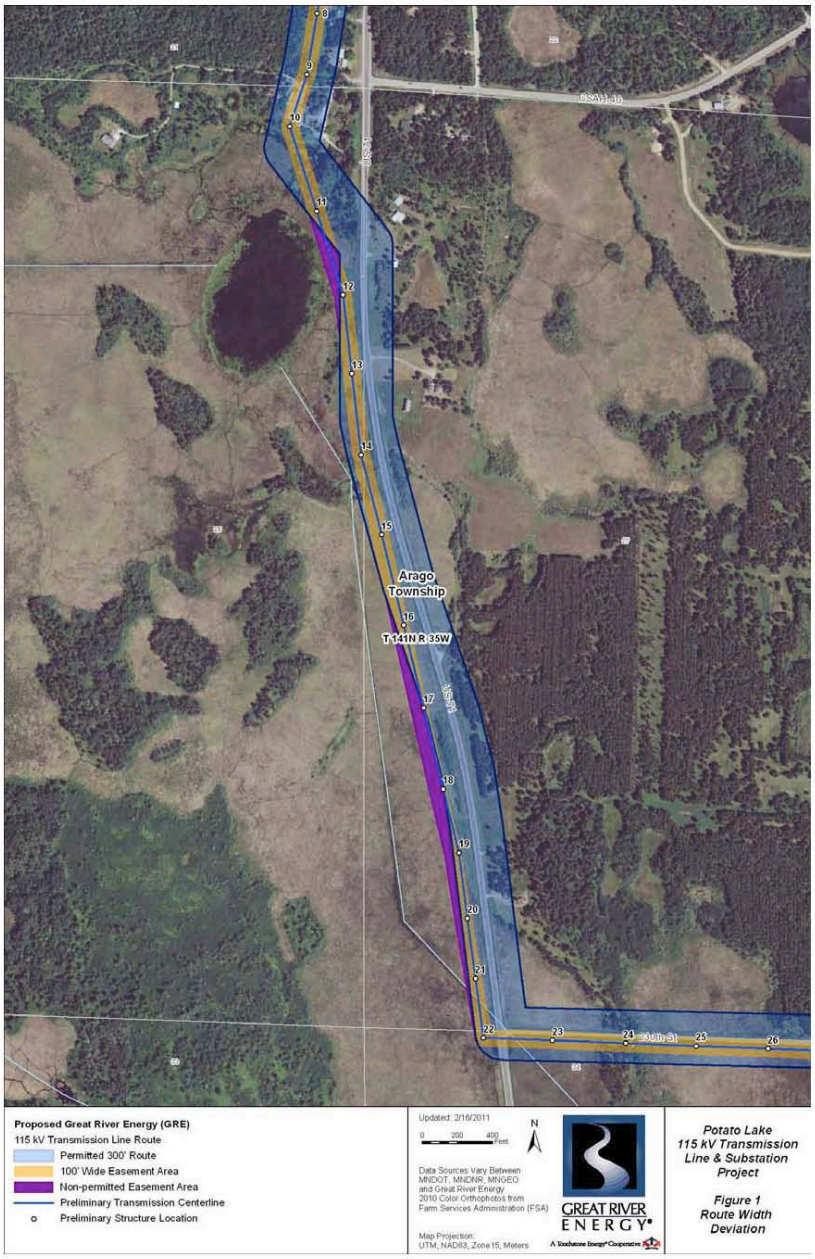
Great River Energy
Route Width Deviation Request
Docket No. ET2/TL-10-86 February 17, 2011

Table 2 Route Comparison of the Highway 71 Deviation	
Human settlement	The requested deviation will not have any greater impact on human settlement than the permitted route.
Existence and density of populated areas	The requested deviation will not impact any additional populated areas.
Existing and planned future land use	The requested deviation will only change the location of the wetland crossed and it will be returned as near to its preconstruction condition as practical. Affected land will be restored or compensation provided to the landowners.
Management plans	The same management plans will apply to this route deviation request as to the permitted route.
Natural environment	The requested deviation will impact 2.33 acres of wetland areas outside of the permitted route, although the overall easement area will not change.
Public and designated Lands (including but not limited to natural areas, wildlife habitat, water, recreational lands),	The requested deviation will not have any additional impact on these categories of land.
Lands of historical archeological, and cultural significance	The requested deviation will not impact any of these lands.
Economies within the alternative, such as agricultural, commercial or industrial, forestry, recreational, and mining operations	The requested deviation will not have any additional impact on these lands.
Transmission line cost and accessibility	Transmission line cost and accessibility will not be changed by this deviation request.
Use of existing rights-of-way and rights-of-way sharing or paralleling	The transmission line, once installed, will continue to parallel close to the right-of-way of Highway 71. The existing Itasca-Mantrap distribution line will be placed underground on the east side of Highway 71.
Natural resources and features	The requested deviation will not impact any additional natural resources or features.
Extent to which impacts are subject to mitigation through regulatory control and permit conditions	The same regulatory controls, mitigation measures and permit conditions will apply to the requested deviation and the permitted route.
Cumulative potential effect of related or anticipated future transmission line construction	No change.

This page in Example 1 clearly shows the requested route width expansion, shaded in bright pink, in comparison to the permitted route. It also has a clear legend on the map sheet. The scale allows clear resolution and the ability to clearly see natural and developed features on the map.

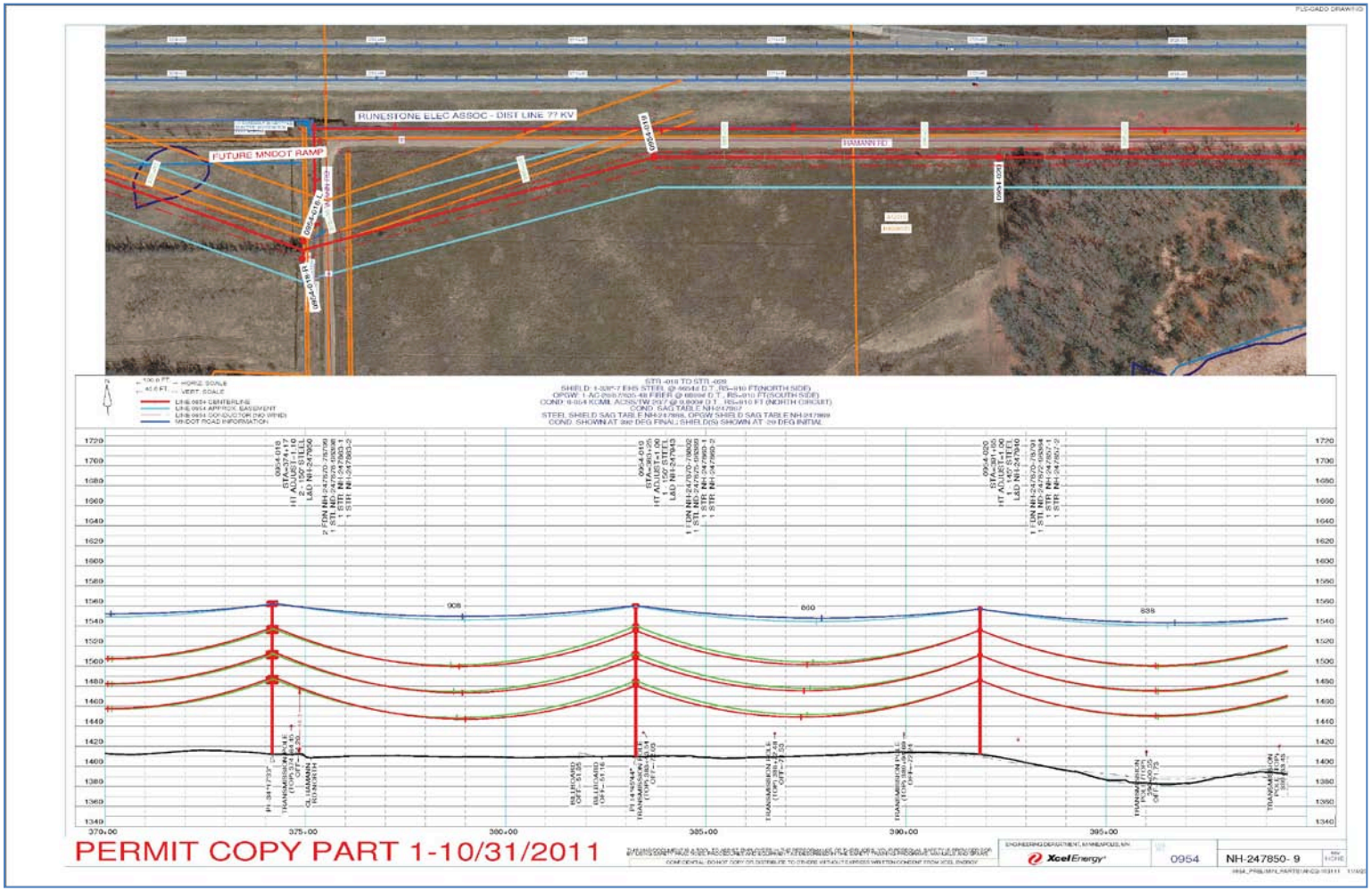
Great River Energy
Route Width Deviation Request
Docket No. ET2/TL-10-86

February 17, 2011

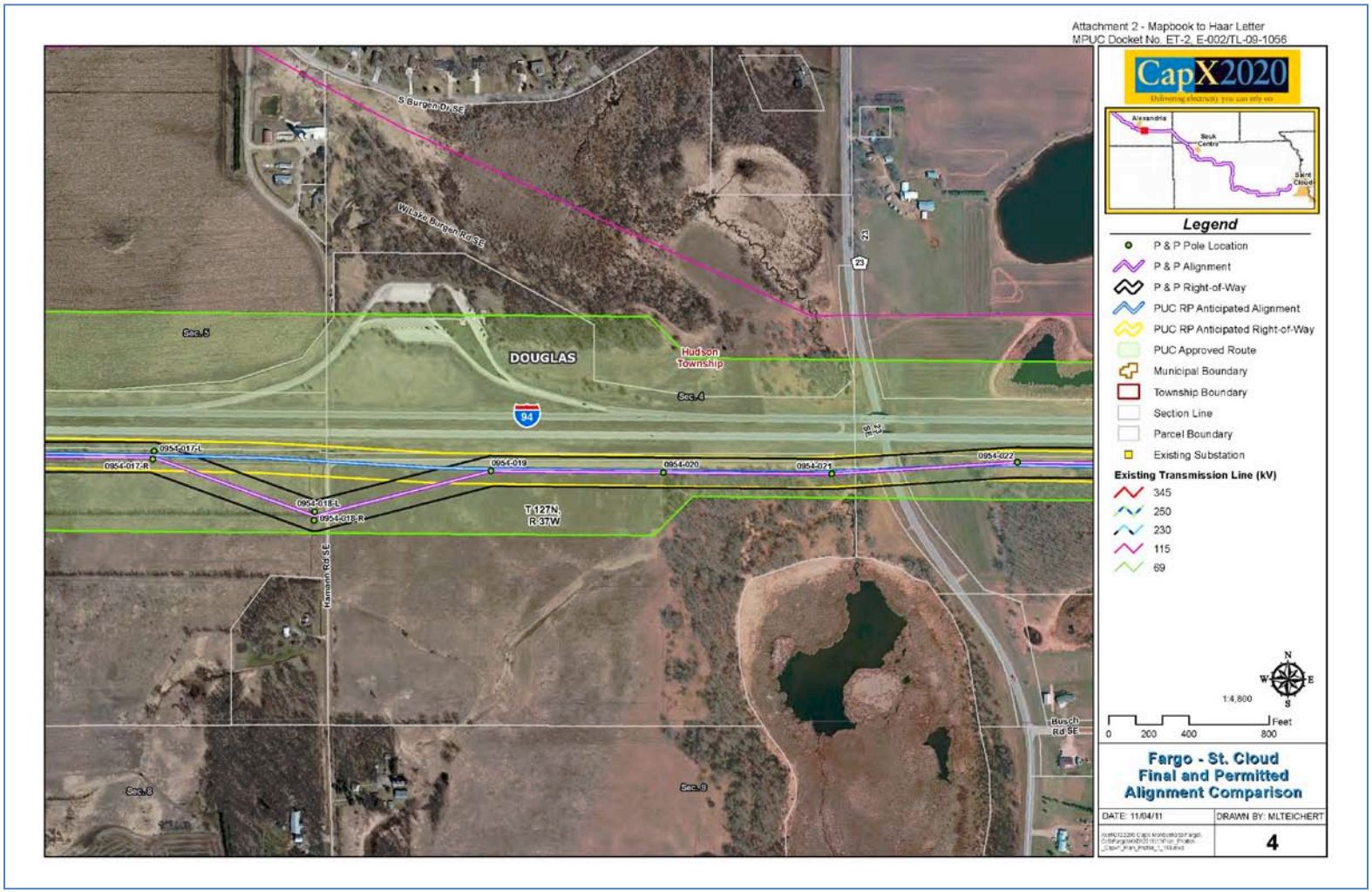


EXAMPLE 2: PLAN AND PROFILE AND CORRESPONDING MAP SHEET

This example shows an aerial photographic view of a route segment and a corresponding vertical view for the same segment, with the structures aligned as much as possible. The alignment and right-of-way are clearly shown and geographic features are identified or clearly visible. An important feature, the legend, is present on each sheet of the plan and profile and on each sheet of the corresponding map book, which facilitates using and reviewing the document. Both horizontal and vertical scales are identified.

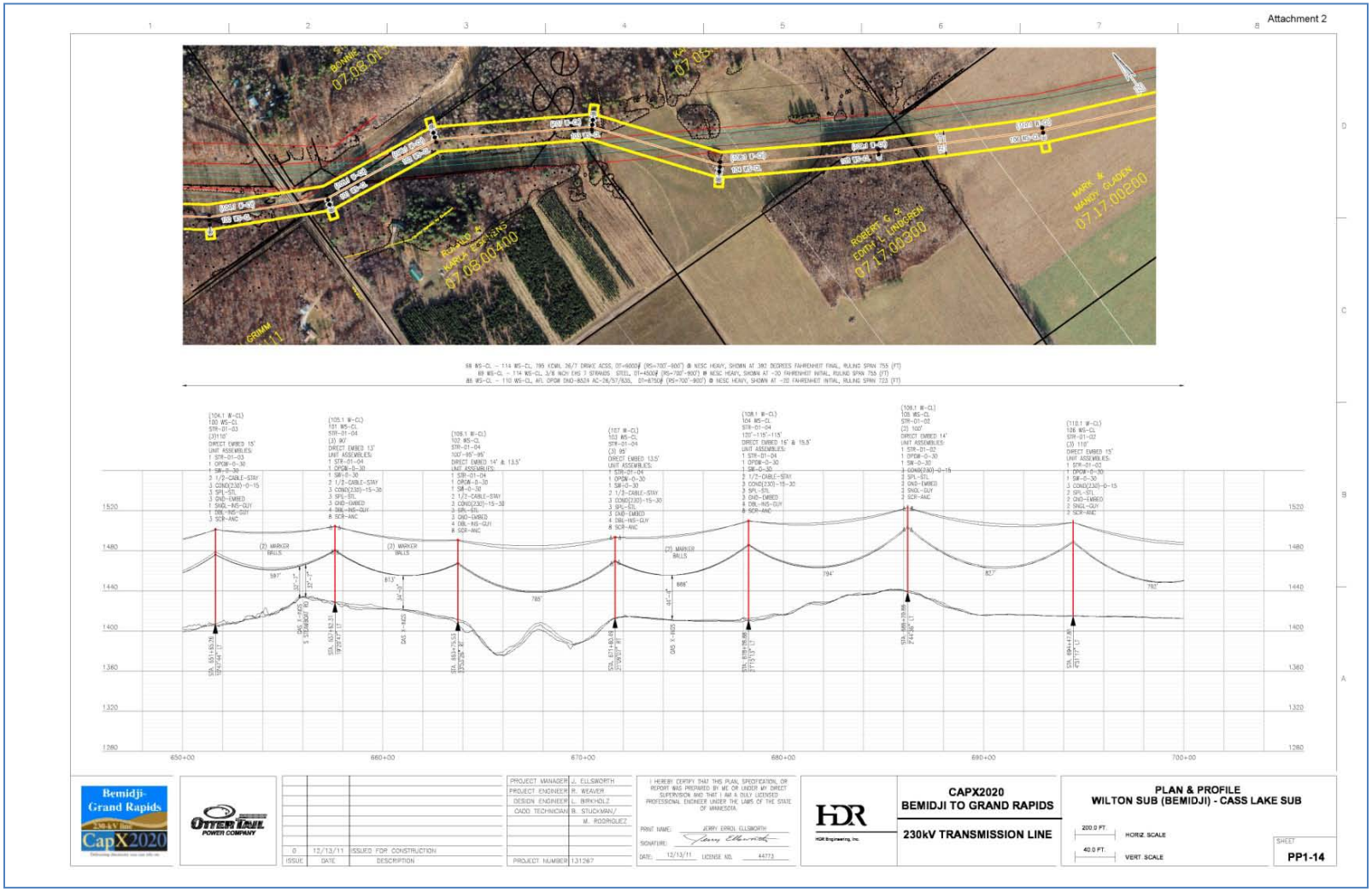


This corresponding map sheet clearly shows the requested change in route width. Also note that the route is parallel to or occupies existing right-of-way. Another important feature of this map sheet is the inclusion of the small map block above the legend that shows the entire route and the location of the route segment (designated by the small red square) that is represented by this map sheet. Note that geographic and locational features are identified and the scale allows for clear resolution and ease of use.

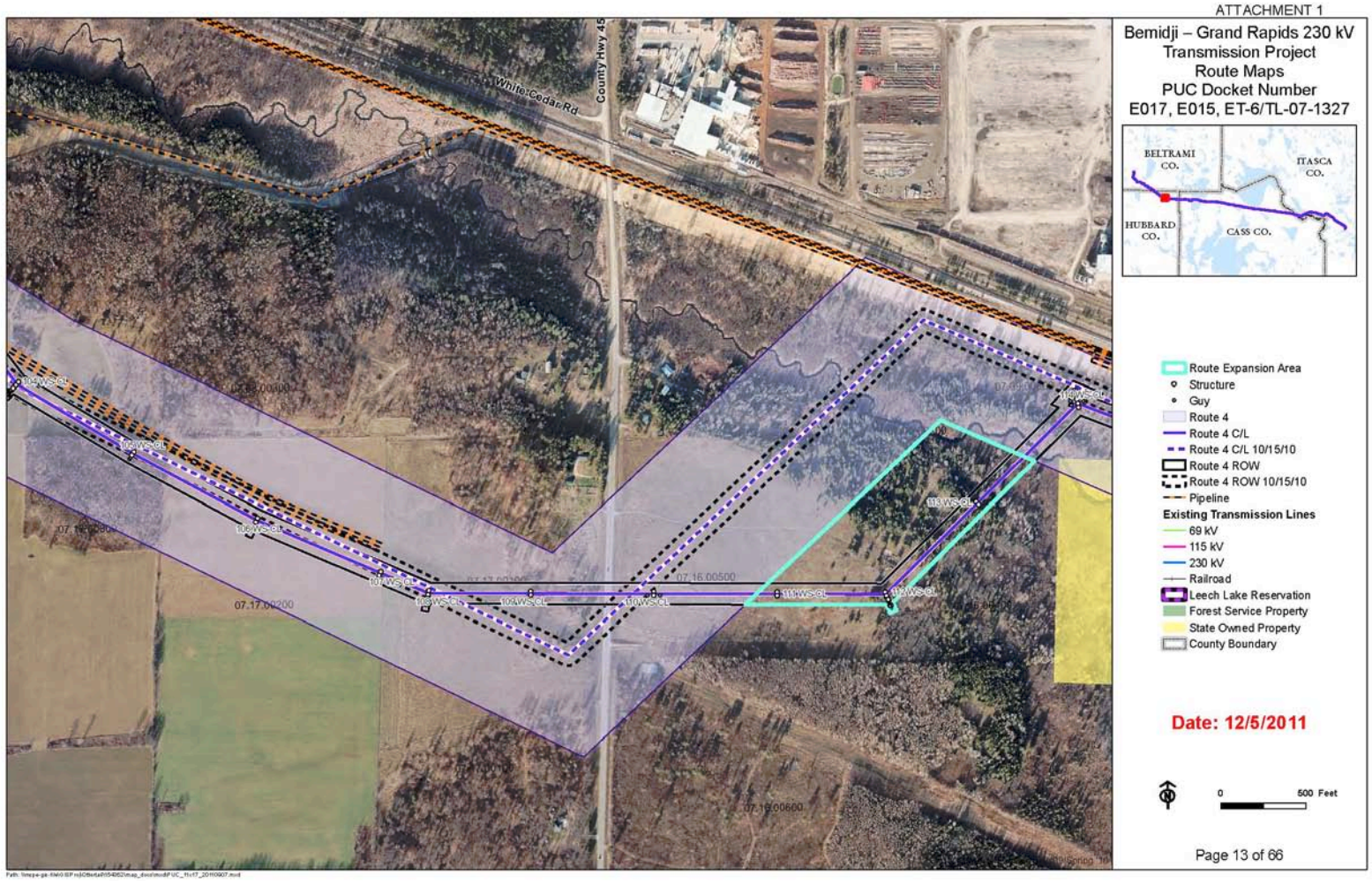


EXAMPLE 3: PLAN AND PROFILE AND CORRESPONDING MAP SHEET

The Plan and Profile example below clearly shows the alignment and right-of-way, identifies parcels along the route, and shows the pole points in the aerial view aligned with the vertical view. Both views are for the same segment of the route. This example also has another important feature: the signature of a licensed professional engineer and the date of the signature.

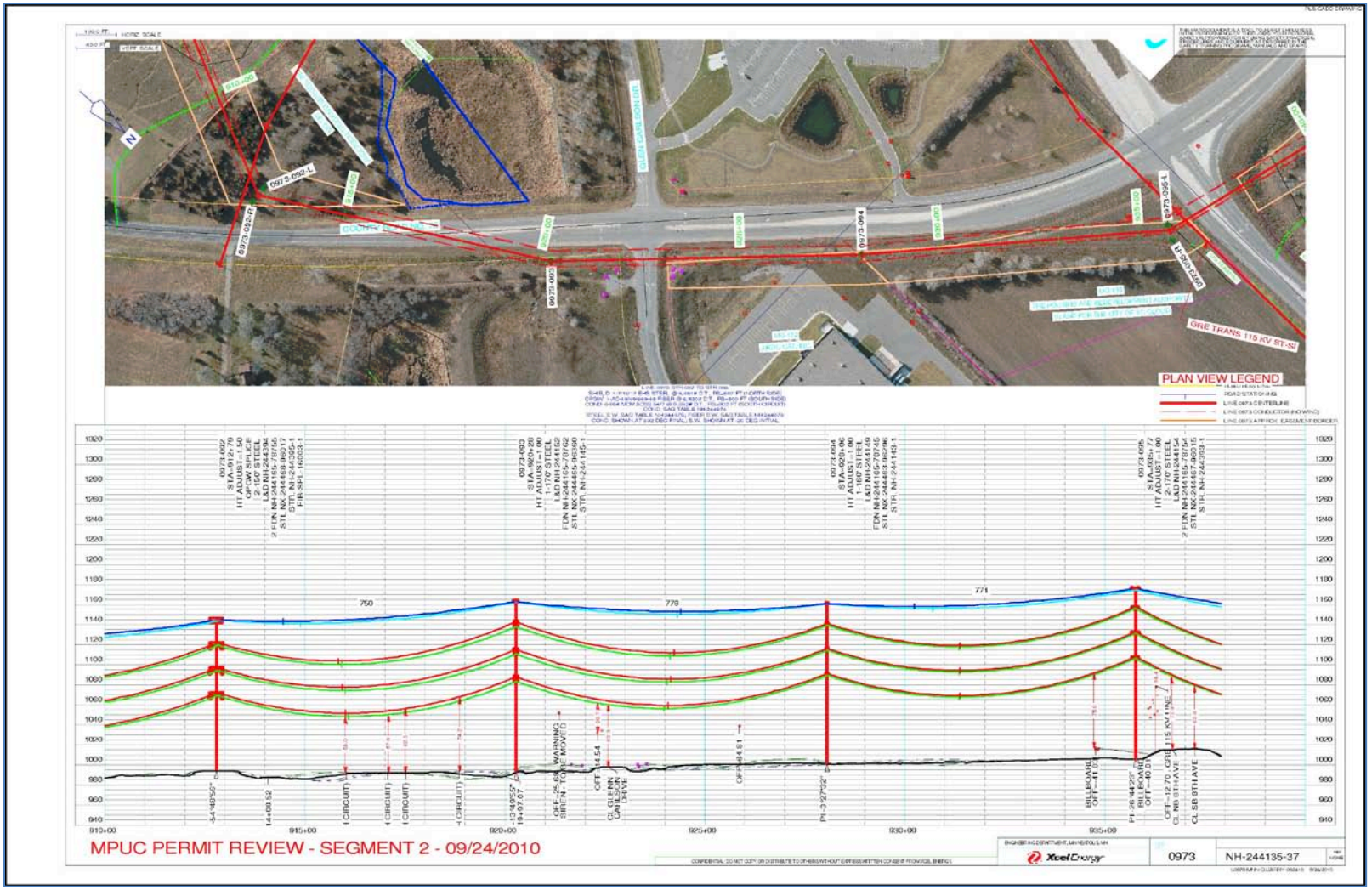


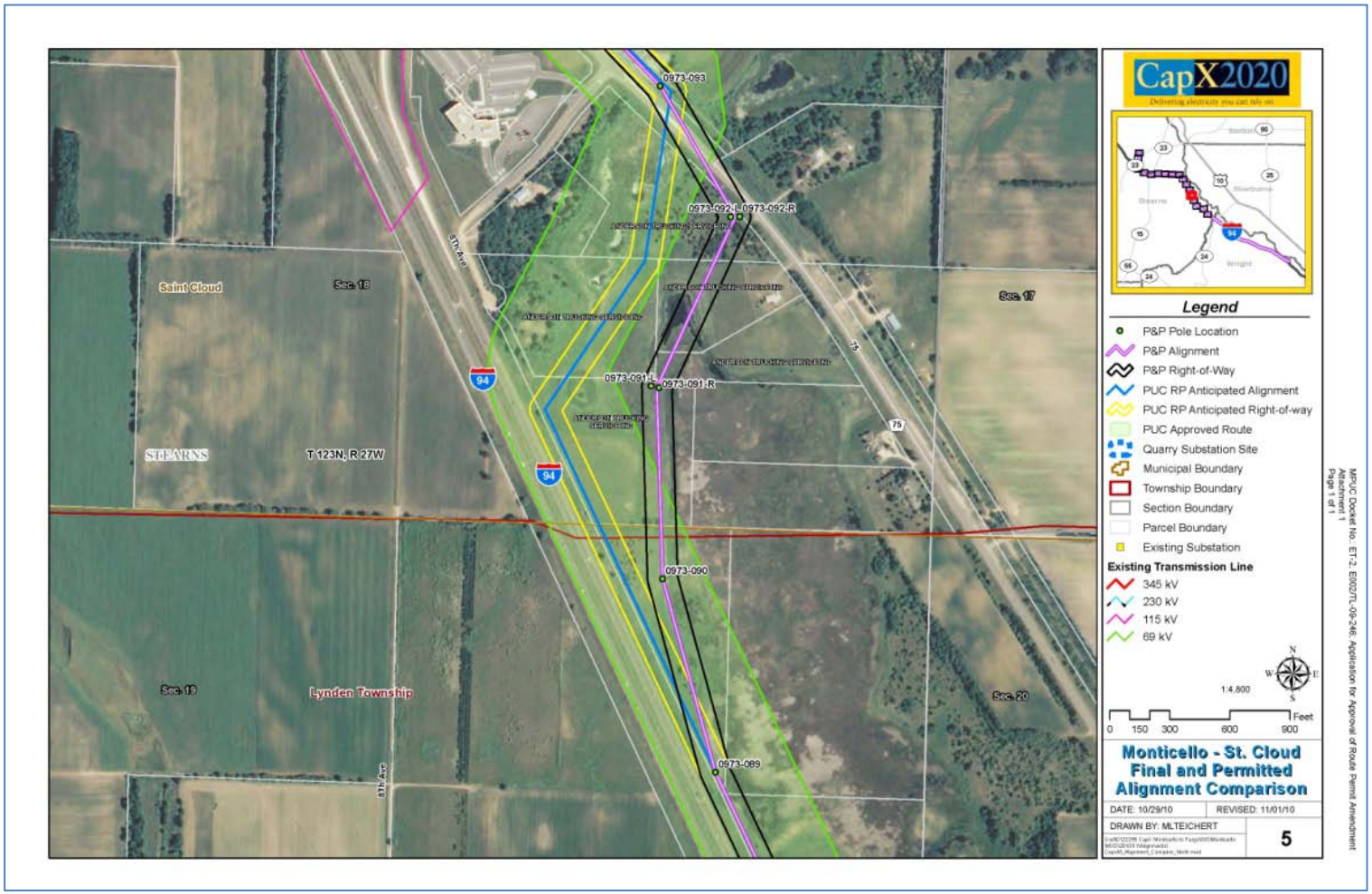
A map sheet that corresponds to the Plan and Profile on the previous page shows, on the left side of this page, the portion of the route that is on the right side on the previous page (104-106 WS-CL). The permitted route width is easy to identify, the permitted alignment and right-of-way are shown in comparison to the requested change in route and the requested route width expansion area is clearly shown as well.



EXAMPLE 4: PLAN AND PROFILE AND CORRESPONDING MAP SHEET

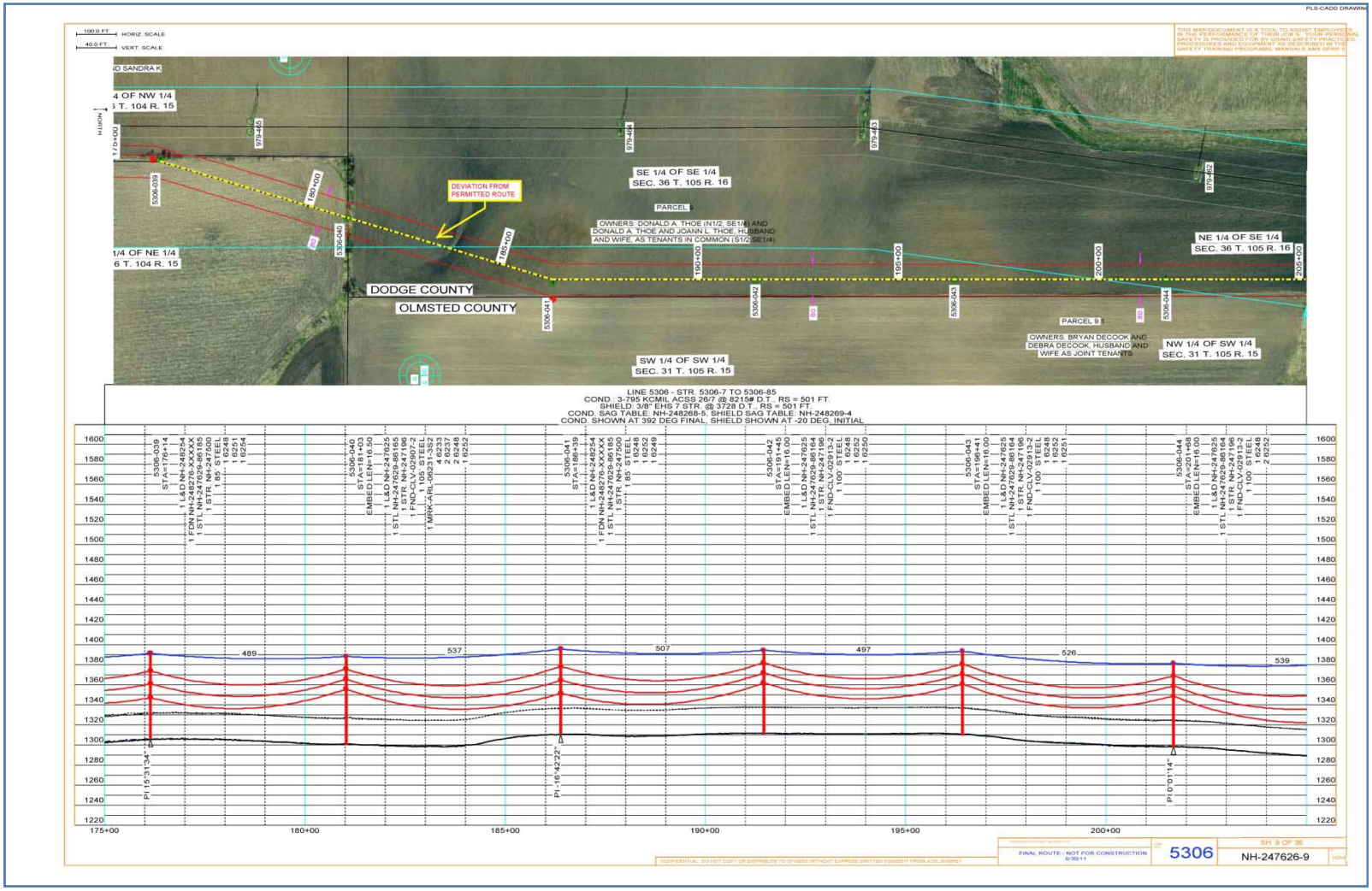
This Plan and Profile example shows another important feature: the delineation of existing right-of-way and the sharing of that right-of-way with the transmission line alignment and right-of-way. Also since the views on this page are presented in a different north-south orientation than the corresponding map sheet on the next page, the presence of the north arrows on each sheet is especially important.

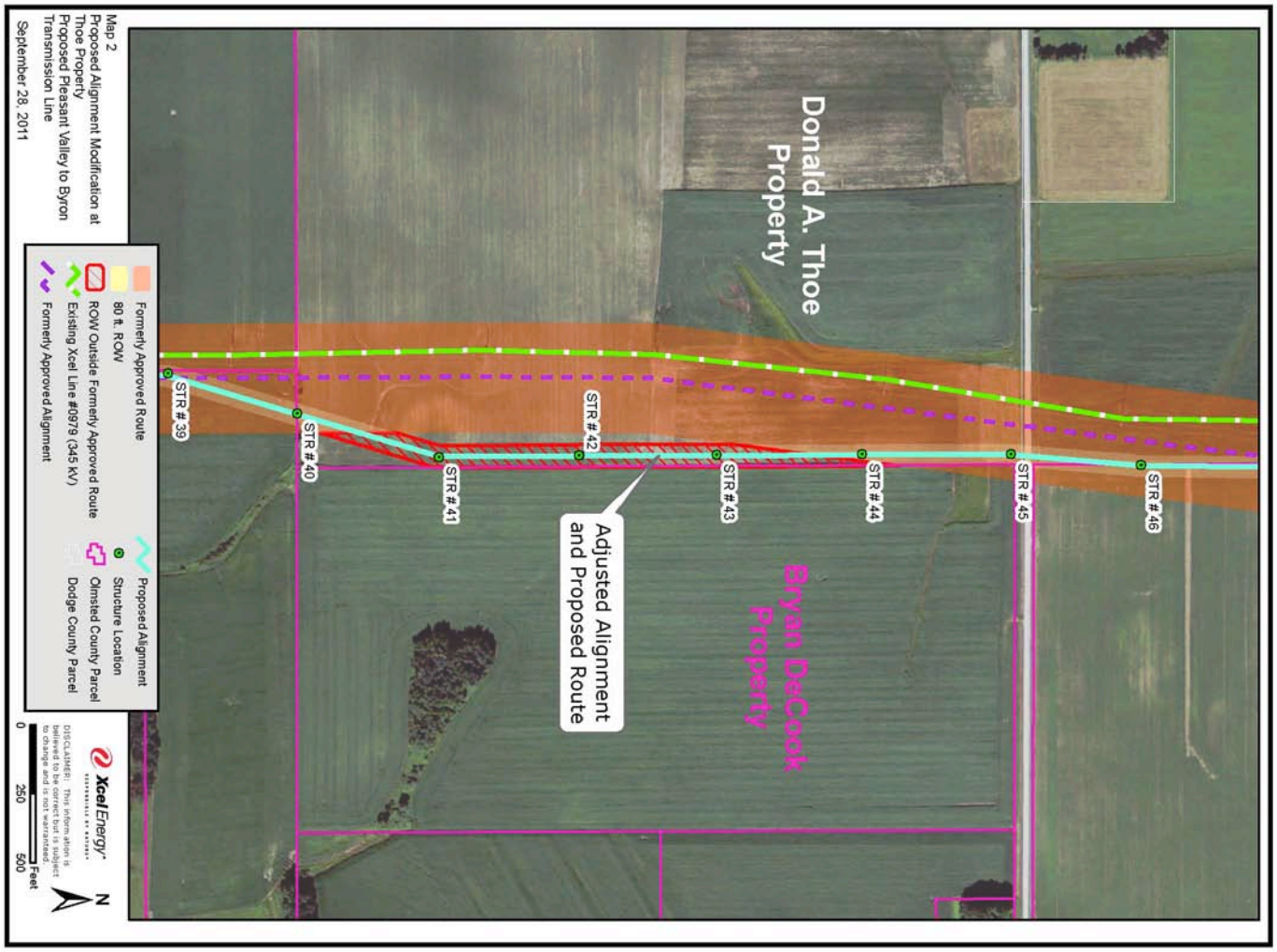



CapX2020
Legend
P&P Pole Location
P&P Alignment
P&P Right-of-Way
PUC RP Anticipated Alignment
PUC RP Anticipated Right-of-way
PUC Approved Route
Quarry Substation Site
Municipal Boundary
Township Boundary
Section Boundary
Parcel Boundary
Existing Substation
Existing Transmission Line
345 kV
230 kV
115 kV
69 kV
1:4,800
0 150 300 600 900 Feet
Monticello - St. Cloud
Final and Permitted
Alignment Comparison
DATE: 10/29/10
REVISED: 11/01/10
DRAWN BY: MLTEICHERT
5
Saint Cloud
Sec. 18
Sec. 17
Sec. 19
Sec. 20
T 123N, R 27W
Lynden Township
0973-093
0973-092-L
0973-092-R
0973-091-L
0973-091-R
0973-090
0973-089
94
75
8th Ave
MPUC Docket No. ET-2, E002/TL-09-246, Application for Approval of Route Permit Amendment
Attachment 1
Page 1 of 1

EXAMPLE 5: PLAN AND PROFILE AND CORRESPONDING MAP SHEET

This example shows the permitted alignment and right-of-way, and also the permitted route width, in comparison to the requested route change on the plan and profile sheets. The same comparison is also clear on the corresponding map sheet. Other useful features of this example include the identification of parcels, presence of north arrow, vertical and horizontal scales and alignment of pole points between the aerial photographic view and the vertical view.




STR # 46
STR # 45
STR # 44
STR # 43
STR # 42
STR # 41
STR # 40
STR # 39
Donald A. Thoe Property
Bryan DeCook Property
Adjusted Alignment and Proposed Route
Formerly Approved Route
80 ft. ROW
ROW Outside Formerly Approved Route
Existing Xcel Line #0979 (345 KV)
Formerly Approved Alignment
Proposed Alignment
Structure Location
Olmsted County Parcel
Dodge County Parcel
Xcel Energy
DISCLAIMER: This information is believed to be correct but is subject to change and is not warranted.
N
0
250
500
Feet
Map 2
Proposed Alignment Modification at Thoe Property
Proposed Pleasant Valley to Byron Transmission Line
September 28, 2011