Badger Coulee 345 kV Transmission Line Project

Construction and Mitigation Plan (CMP)

Segment 4

CONSTRUCTION and MITIGATION PLAN

Badger Coulee 345 kV Transmission Line Project – Segment 4

American Transmission Company LLC, by its corporate manager, ATC Management Inc. (ATC); Dairyland Power Cooperative (DPC); Northern States Power Company, a Wisconsin corporation (NSPW); SMMPA Wisconsin, LLC (SMMPA Wisconsin), and WPPI Energy (WPPI) (the Applicants) were granted a Ch. 30.025 utility permit by the Wisconsin Department of Natural Resources (WDNR) for work in and adjacent to wetlands and waterways for the Badger Coulee 345 kV Transmission Line Project (Permit #IP-WC/SC-2015-N20001 through N20273)(Attachment 3). This permit requires the Applicants prepare a Construction and Mitigation Plan (CMP) for work in wetlands and waterways for WDNR approval prior to beginning work in these features (General Conditions #9 and 11). As the Project Construction Manager, ATC has prepared this CMP for Segment 4, which outlines construction methods and procedures that will be followed to minimize impacts to these features. Segment 4 is located in Juneau and Sauk Counties and is 18.8 miles long.

The components of this CMP follow those outlined in General Condition #11 of the WDNR utility permit.

A. Environmental Access Plan

An Environmental Access Plan (EAP) for Segment 4 is provided in Appendix A. This EAP shows the location of wetlands and waterways, pole locations, temporary clear span bridge (TCSB) crossings, construction access, and other pertinent information.

Field work was conducted in 2012 to delineate wetlands and characterize other natural resource features along the majority of Segment 4; however, access to the entire corridor width was not available. The project corridor was subsequently re-evaluated during additional field visits in 2015 and 2016 after full access was gained. The following twelve new wetlands were identified in 2015/2016:

- N-W182a – at structure 137408
- N-W182b – between structures 137408-137409
- N-W187b – between structures 137427-137428
- N-W191a – between structures 137435-137436
- K-W6b – between structures 137492-137493
- K-W6c – between structures 137493-137494
- K-W6d – between structures 137495-137496
- K-W6e – between structures 137497-137498
- K-W6f – between structures 137502-137503
- K-W7b – between structures 137504-137505
- J-W1b – between structures 137516-137517
- J-W1c - at structure 137518.

These newly identified wetlands are typically smaller isolated features and several occur outside of the DOT ROW where access was not available during the 2012 field work.

The boundaries of several wetlands were also adjusted during these subsequent evaluations. One previously identified wetland at the edge of the ROW (N-W191) was determined to be upland as it occurs on a steeper slope and is dominated by non-hydrophytes (Appendix B). In addition, wetland M-W7 was merged with wetland M-W6. Wetland boundary adjustments often reduced larger wetlands into several smaller discrete areas (e.g., several upland areas were identified in wetland N-W185 and this feature was divided into smaller areas and re-labelled as N-W185a through N-W185g). The adjusted boundaries are shown on the EAP and a description summarizing the rationale for the boundary adjustments are provided in Appendix B.

As shown on the EAP, thirty new structures will be placed in wetlands along Segment 4, requiring 0.058 acre of wetland fill. The wetlands in which these structures occur and their associated EAP map pages are included in Appendix B. New structure placement in these wetlands was approved in the Joint Application except for one structure each in N-W182a and N-W188. The placement of thirty-eight structures in wetlands along Segment 4, requiring 0.086 acre of wetland fill, was approved in the utility permit. This reduction in number of structures in wetlands is primarily due to refining wetland boundaries in larger wetland complexes (e.g., N-W185), re-spanning during final design, and because structures occurring within 50 feet of a wetland were conservatively included in wetland fill calculations in the Joint Application.

Up to two temporary poles will be placed in wetland M-W5 to protect the CTH HH crossing during construction (EAP map page 19). These temporary poles are needed from a public safety perspective in case the wires fall during stringing. These two poles will be directly embedded into the ground surface which will result in approximately 0.005 acre of temporary wetland fill. The poles will be removed and the area restored to existing grade with topsoil replacement when complete. Revegetation of the disturbed areas will follow the Revegetation and Monitoring Plan (Attachment 2). Attempts to minimize the number of temporary poles in this wetland will be made; however complete avoidance of this wetland is unlikely due to the position of the wetland and steep road embankment on the west side of CTH HH in the transmission line ROW.

Numerous existing poles will be removed from wetlands (e.g., EAP map pages 1, 14-22). Pole removal and restoration of the area will be the same as described above for temporary pole removal.

Up to eleven TCSBs will be required along Segment 4 (Appendix A). The TCSBs are required over the following waterways:

- N-R85c
- N-R85d
- N-R86
- N-R88
- N-R89
- M-R1
- M-R2
- M-R3

- K-R1
- K-R2
- K-R3

All of these TCSBs were approved in the WDNR utility permit. The applicants will attempt to gain alternate access from private property owners to eliminate the need for some of these TCSBs; however at this point it is assumed all of the TCSBs will be required.

Waterways N-R84, N-R85 and N-R85a are oxbows associated with the Lemonweir River, and J-R1 is an unnamed tributary to the Wisconsin River (EAP map pages 3 and 33). Temporary bridges requiring the placement of construction matting below the Ordinary High Water Mark (OHWM) of these features as support will be required due to the waterway widths (refer to Appendix D for a typical plan and profile drawing of these crossings). The bridge across N-R85a will be used during clearing and construction, while the bridges across N-R84, N-R85 and J-R1 will only be used during clearing. The matting across N-R85a and J-R1 would span the culvert outfall to allow water to flow. The placement of miscellaneous structures (e.g., construction matting) below the OHWM of N-R84, N-R85 and N-R85a was approved in the WDNR utility permit. A TCSB over J-R1 was approved in the WDNR Utility Permit but after further evaluation it was determined the entire shallow marsh contiguous to J-R1 (J-W1a) may be considered below the OHWM this waterway. Therefore we are requesting approval for the placement of miscellaneous structures below the OHWM of the J-R1/J-W1a complex.

Approximately 21.9 acres of forested wetland clearing will be required along Segment 4. This amount of clearing along Segment 4 is less than the 28.2 acres provided in the Joint Application. This is mainly due to the reduction in forested wetland along the Lemonweir River determined during 2016 field evaluations.

Construction access along Segment 4 is presented on the EAP (Appendix A). Access through wetlands has been avoided where feasible (e.g., N-W189, N-W191a, M-W8, K-W6c and J-W1b), or minimized by crossing only portions of wetlands (e.g., N-W194, K-W6a and J-W1a). However, access through other wetlands along this segment is necessary due to equipment access constraints, project alignment and the configuration of these wetlands. (Note: *While most construction equipment will be limited in wetlands where access is not shown, small-track vehicles or all-terrain vehicles may still be used to pull the conductor through these portions of wetlands).*

Construction matting may be used to facilitate access and minimize impacts in wetlands. The table below identifies the anticipated area of matting in each wetland along the proposed ROW.

Wetland Identifier	Acreage of mats	Wetland Identifier	Acreage of mats	Wetland Identifier	Acreage of mats	Wetland Identifier	Acreage of mats
N-W182a	0.10	N-W187b	0.07	M-W2	1.13	K-W3	0.04
N-W182b	0.15	N-W188	0.37	M-W3	0.65	K-W4	0.13
N-W183	0.05	N-W190	0.07	M-W4	0.82	K-W5	0.78
N-W184	0.08	N-W192	0.03	M-W6	1.32	K-W6a	0.48
N-W185a	0.41	N-W193	0.43	M-W9	0.43	K-W6b	0.05
N-W185b	0.11	N-W194	0.35	M-W10	0.03	K-W6d	0.01
N-W185c	0.03	N-W195	0.03	M-W11	0.21	K-W6e	0.04
N-W185d	0.37	N-W196	0.09	M-W12	0.36	K-W6f	0.02
N-W185e	0.05	N-W197	1.08	M-W13	0.04	K-W7a	0.18
N-W185f	0.01	N-W198	0.22	M-W14	0.04	K-W7b	0.05
N-W185g	0.15	N-W199	0.01	M-W15	0.11	J-W1a	0.21
N-W186	1.30	N-W200	0.35	K-W1	0.33	J-W1c	0.11
N-W187a	1.79	M-W1	0.35	K-W2	0.07		

Most off-ROW access paths occur in upland areas however six paths cross wetlands (EAP map pages 7, 10, 15, 20, 22, and 24). Wetland boundaries in off-ROW areas were determined from aerial photographs and NRCS soil mapping. About 0.59 acre of wetland matting may be required for these off-ROW access paths. Forested wetland clearing is not required along these off-ROW access paths. These off-ROW access paths are generally required due to long stretches of project corridor that do not have access to roadways or to provide an alternate path to the ROW.

In addition, the following off-ROW access paths not identified in the Joint Application will require upland clearing / trimming:

- Access to structure 137469 (EAP map page 19) – clearing/trimming approximately 0.12 acre to widen an existing two-track path;

- Access to structure 137473 (EAP map page 20)– clearing approximately 0.04 acre near the Lyndon Station substation;
- Access to structure 137508 (EAP map page 30) – clearing approximately 0.36 acre for a graded access path; and
- Access to structure 137509 (EAP map page 30) – clearing approximately 0.23 acre for a graded access path.

Wire set up areas by structure 137496 (EAP map page 27) may also require up to approximately 0.4 acre of upland tree clearing outside of the project ROW.

Attempts will be made to find alternate access that does not impact wetlands or upland forest; however at this point it is assumed these routes will be required.

Additional measures to minimize wetland and waterway impacts along Segment 4 are outlined in other sections of this CMP (e.g. *Invasive Species Management Plan* and *Wetland Restoration and Revegetation Plan*).

B. Photographs of Pre-Construction Site Conditions (Wetlands and Waterways)

Pre-construction photographs of wetlands and waterways along the ROW of Segment 4 are provided in Appendix C.

C. Waterway Impacts

As discussed above, up to eleven TCSB crossings will be required along Segment 4. In addition, temporary bridges with support elements (i.e. construction matting) below the OHWM of N-R84, N-R85 and N-R85a (Lemonweir River oxbows), and J-R1 (unnamed tributary to the Wisconsin River), will be required. Final plan and cross-sectional view drawings for each bridge crossing are provided in Appendix D. As required in General Condition #51 of the utility permit, the TCSBs will incorporate measures to minimize soil reaching the waterways.

The approved route and off-ROW access along Segment 4 crosses five waterways identified in the WDNR 24K hydrology layer that do not have defined bed and banks based on field observations from 2015 or 2016. These features are shown on the EAP (map page 5, 11, 20, 26 and 27) and labelled as "non-regulated-WDNR confirmed (pending)", and a recent photo is presented in Appendix E. We are requesting WDNR concurrence that theses feature would not be considered navigable and therefore not subject to provisions of Chapter 30 (Wis. Stats.). One additional WDNR mapped waterway (EAP map page 14) was previously determined to be non-navigable based on correspondence with Ben Callan as part of the soil boring investigations (labelled as "non-regulated-WDNR confirmed").

During construction of concrete foundations, water is often pumped into the borehole to maintain the integrity of the excavation. Suitable surface waters adjacent to the ROW may be used as a source of this

water. Several waterways along this segment may be utilized for withdrawals; however, a final determination has not been made at this time. If surface water withdrawals are required, they will meet the following conditions outlined in the Utility Structure, Bridge and Wetland General Permit (WDNR-GP3-2013):

- Pump intakes and discharges shall be placed to prevent impacts to fisheries, wildlife, and their habitat; and
- Pump intakes and discharges shall be placed to prevent the disturbance, removal and scour of bed material.

In addition, water withdrawals from public waterways must avoid placement of a structure on the bed of the waterway unless prior authorization under ch. 30.12 (Wis. Stats.) is granted from the WDNR. The WDNR will be notified if surface water withdrawals occur along Segment 4.

Clearance Waiver

General Condition #46 of the WDNR utility permit indicates: *All bridges across navigable waterways shall either maintain a clearance of not less than 5 feet, or comply with requirements of s. NR 320.04 (Wis. Admin. Code)*. Wisconsin Admin. Code Chapter NR 320.04(3) indicates the department may allow less than 5 feet of navigation clearance when all of the following apply:

- The waterway is known to have little or no navigation or snowmobile use;
- The waterway is not anticipated to have navigational use by other than lightweight craft;
- The owner provides a portage over or around the bridge or culvert; and
- The reduced clearance would not be detrimental to the public interest.

The Applicants would allow a portage over or around a TCSB if necessary; however given the waterway dimensions and other characteristics at the eleven TCSB crossings, these waterways likely have infrequent or no watercraft use. The Applicants believe the other conditions specified in Wis. Admin. Code Chapter NR 320.04(3) are met at each waterway crossing and therefore, a five-foot clearance is not required at any of the eleven TCSB locations.

Fishery Waiver

General Condition #44 of the WDNR utility permit indicates that: *All bridges must be placed and removed in compliance with timing restrictions, unless authorized by the local DNR fisheries biologist. For trout streams and navigable tributaries to those trout streams, placement and removal is prohibited from September 15 through May 15, annually. On all other waterways, placement and removal of the bridges is prohibited from March 1 through June 15, annually*. As discussed above, TCSBs will be required over eleven waterways and construction matting will be required below the OHWM of three Lemonweir River oxbows and an unnamed tributary to the Wisconsin River. Waterways M-R1, M-R2, M-R3, K-R1, K-R2 and K-R3 are trout streams or tributaries to a trout stream, and the remaining waterways requiring a bridge crossing are classified as warm water streams. The Applicants requested a waiver of

the September 15 through May 15 timing restriction for the six trout streams or their tributaries, and the March 1 through June 15 timing restriction for the other waterways from Mr. Nate Nye (Columbia County Fisheries Manager) and Ms. Jennifer Bergman (Juneau County Fisheries Manager). Their responses will be provided to the Office of Energy when it is received and included in Appendix F.

D. Endangered Resources Plan

ATC worked with the WDNR to develop a Certified Endangered Resources (ER) Review as part of the Joint Application. The Certified ER Review identified and summarized endangered resources known to occur along each proposed segment. Upon receiving the ordered route, the Certified ER has been amended in coordination with WDNR as construction details have been developed. The amendment table identified which state-listed species have required follow-up actions and the specific areas along Segment 4 where measures are needed to avoid and minimize direct or indirect impacts to state-listed species. Furthermore, the amendment table identified voluntary measures recommended to avoid and minimize impacts to other sensitive state-listed species or resources (e.g. natural communities). The amendment table serves as a communication and coordination tool to be used among the Applicants, WDNR, and construction contractor(s). For federally listed species, the Applicants are preparing a Biological Evaluation/Assessment in coordination with the USFWS that will outline a determination of affects for federally listed species that may occur along Segment 4, as well as the necessary conservation measures to protect them. Where necessary, specific areas and protection measures will be documented on the EAP for state- and federally listed species known or assumed to be present along the segment.

E. Invasive Species Management Plan

Plant communities and dominant vegetation within the ROW of Segment 4 were documented during field evaluations in 2012, and additional field visits in 2015 and early 2016. The presence (i.e. general location and density) of Restricted and Prohibited species defined in *Wis. Admin Code* Ch. NR 40 within the ROW were identified during these assessments.

Segment 4 extends along I-90/94 from the north side of STH 82 in Mauston to the north side of CTH H in Wisconsin Dells. The northern and southern portions of this segment share ROW with the interstate, while the central portion follows existing transmission line ROW which is adjacent to, but off-set from, the interstate. When sharing interstate ROW, this segment crosses the Lemonweir River and associated floodplain at the north end, and then primarily traverses woodlands and wetlands, as well as some agricultural, residential, and commercial parcels. Several higher-quality wetland communities, as well as cleared woodland and some agricultural parcels occur along the existing transmission line corridor.

The following summarizes invasive species observed in vegetative communities along the Segment 4 project corridor. Numerous Restricted species were identified, as well as one Prohibited species. All species identified below in this section are classified as Restricted, unless otherwise noted.

In general, the interstate ROW along Segment 4 is regularly mowed and is commonly dominated by invasive species. Eurasian cool season grasses such as smooth brome (*Bromus inermis*), an invasive species not included in NR 40, are common. Additionally, a number of invasive forb species not included in NR 40 are also present within the interstate ROW including bird's-foot trefoil (*Lotus conriculata*), and white and yellow sweet-clover (*Melilotus alba, M. officinalis*). A variety of other invasive species are also present throughout the interstate ROW within areas subject to regular mowing including wild parsnip (*Pastinaca sativa*), Canada thistle (*Cirsium arvense*), spotted knapweed (*Centaurea stoebe*) and scattered locations of crown vetch (*Coronilla varia*). Common shrub species observed within the interstate ROW, typically along fence lines, include common buckthorn (*Rhamnus cathartica*) and invasive honeysuckle shrubs (*Lonicera* spp.). A few scattered small patches of purple loosestrife (*Lythrum salicaria*) were observed in the interstate ROW northwest of Structure 137484, and east of wetland K-W4.

Extensive woodlands, some of which are higher quality, are common along Segment 4 often extending well beyond the Project ROW. Invasive species such as common buckthorn, glossy buckthorn (*Frangula alnus*), honeysuckle shrubs, and black locust (*Robinia pseudoacacia*) were occasionally observed with their abundance ranging from scattered to common. Garlic mustard (*Alliaria petiolata*) was also observed in a few scattered locations.

Agricultural lands consist primarily of corn and soybean row crops, as well as hay fields and Christmas tree farms. Invasive species were commonly observed along the boundaries between fields and along the interstate ROW fence line. Invasive species observed along agricultural lands are similar to those observed within the interstate ROW, including species such as common buckthorn, honeysuckle shrubs, wild parsnip, and Canada thistle. Spotted knapweed and garlic mustard were also observed in scattered populations.

Wetland communities observed along Segment 4 include wet meadow, degraded wet meadow, hardwood swamp, floodplain forest, shrub-carr, alder thicket, shallow marsh, sedge meadow, degraded sedge meadow, and farmed wetlands. Several of the wetlands along this segment are extensive, higher quality communities while invasive species are commonly present in other wetland areas. Reed canary grass (*Phalaris arundinacea*) (not included in NR 40) and narrow-leaf cattail (*Typha angustifolia*) were commonly observed within many of these wetlands. In addition, common buckthorn, glossy buckthorn, and honeysuckle shrubs are scattered to common within some wooded wetlands, and Canada thistle and garlic mustard are also present in scattered locations. Common reed grass (*Phragmites australis*), a Prohibited species in Juneau County, was observed within wetland N-W182a at the north end of Segment 4.

Location-Specific BMP's

Location-specific BMP's should be applied to the following locations:

- Common reed grass is present within wetland N-W182a. Attempts will be made to avoid or minimize work activities in this wetland. If this area cannot be avoided, vehicles should stay on construction matting, or the vehicles will be inspected and cleaned before leaving the area.
- Glossy buckthorn, honeysuckle shrubs, reed canary grass and garlic mustard are scattered to common within wetlands N-W185a-f. Vehicles should stay on construction matting, or the vehicles will be inspected and cleaned before leaving the area. In addition, a layer of wood chips will be left on the ground after clearing activities (if allowed by the landowners) which will act as a barrier between vehicles and the ground surface.
- Black locust is common between wetland N-W195 and structure 137441. Vehicles should stay on matting or vehicles will be inspected and cleaned before leaving the area.
- Spotted knapweed is common between structures 137442-137448 and 137476-137479, east of structure 137494, and from structure 137505 to the railroad crossing south of structure 137506. Black locust is also common between structures 137442-137443. Vehicles should stay on construction matting, or the vehicles will be inspected and cleaned before leaving the area.
- Scattered purple loosestrife is present within the interstate ROW northwest of structure 137484 and east of wetland K-W4. Attempts will be made to avoid accessing these areas or the vehicles will be inspected and cleaned before leaving these areas.

Location-specific BMPs may be implemented elsewhere within Segment 4 if ATC encounters a localized population of an invasive species other than those discussed above during future field visits.

General BMP's

The following general BMPs will be utilized during construction along Segment 4 to comply with *Wis. Admin Code* Ch. NR 40. The intent of these practices is to limit the spread of invasive species.

- Construction equipment and material
    - Minimize soil disturbance and utilize gravel roads or established equipment access paths to the extent practicable.
    - To the extent practicable, avoid localized populations of invasive species through construction timing and alternate access.
    - When working in areas infested with invasive species, clean mud and plant material from construction matting and equipment.
- Managing soil and vegetative material
    - Avoid movement of invasive material to non-infested areas. If possible, invasive material should be left within the ROW. For example, when clearing areas dominated by honeysuckle or buckthorn shrubs, cut material should be left in generally the same place and not spread off-site or to uninfested areas.

- If infested soil or vegetative material must be transported from the ROW, transport to a designated area for appropriate disposal. Prior to transporting material, manage the load to limit potential spread to uninfested areas.
- Manage stockpiles onsite to prevent the spread to adjacent areas.
- In areas requiring clearing, a layer of wood chips should be left on the ground (if approved by the landowner) to act as a barrier between vehicles and the ground surface.

- Restoration and landscaping

  - Seed mixes have been developed for the Project and will be installed in accordance with the Revegetation and Monitoring plan (Attachment 2).
  - Revegetate disturbed soils as soon as possible with an appropriate temporary cover crop to minimize invasive species establishment. As appropriate, a perennial seed mix shall be installed during the appropriate seeding window.

- Aquatic invasive species

  - Water may be withdrawn from waterways for foundation construction and materials will be placed below the OHWM of the three Lemonweir River oxbows and an unnamed tributary to the Wisconsin River. All equipment used for withdrawing water or to facilitate construction access (i.e. mats, pumps, hoses, vehicles, boats/barges, turbidity curtains, machinery, etc.) will be adequately decontaminated/disinfected for aquatic invasives. Decontamination/disinfection can be accomplished by allowing equipment to dry thoroughly for at least 5 days or by utilizing another appropriate method identified in NR 329.04, prior to being used in non-infested waters of the state.

F. Wetland Compensatory Mitigation Plan

As compensation for unavoidable impacts to wetlands as part of the Project, the applicants propose wetland compensatory mitigation. Unavoidable temporary and permanent impacts to wetlands occur within Segment 4, which is located within the Lower Wisconsin Bank Service Area (BSA). The total wetland impacts and proposed compensatory mitigation acres for Segment 4 are identified in the Mitigation Summary Table (Appendix G).

Temporary Impacts

Temporary wetland impacts along Segment 4 are associated with temporary matting of non-degraded sedge meadow, which is identified as a difficult to replace (DTR) wetland community. Temporary matting will impact 1.76 acres of non-degraded sedge meadow within the ROW. There will be no temporary clearing of shrub or forested wetlands for off-ROW access purposes associated with Segment 4.

Permanent Impacts

Permanent impacts due to structure placement in wetlands have been minimized to a total of 0.06 acre. The following community types are impacted by structure placement and acreages of impact by community type are provided in Appendix G: shallow marsh, sedge meadow, wet meadow, shrub-carr and hardwood swamp.

Permanent conversion of shrub and forested wetland within the project corridor of Segment 4 totals 32.06 acres, which excludes acreage associated with structure impacts within these communities. Specifically, permanent conversion of shrub wetland (primarily shrub-carr with impacts to one alder thicket community) is 10.18 acres, hardwood swamp is 18.13 acres, and floodplain forest totals 3.75 acres.

Mitigation Credits

The applicants propose the use of the Wisconsin in-lieu fee program, Wisconsin Wetland Conservation Trust (WWCT), to compensate for wetland impacts. Credits required for compensation are available for this project, as confirmed in a conversation with the in-lieu fee coordinator on April 2016. Mitigation credits are based on mitigation ratios agreed upon by the WDNR and the USACE and are as follows: 1.45:1 for permanent impacts related to structure placement; 0.5:1 for permanent conversion of shrub-carr/ alder thicket, hardwood swamp, and floodplain forest; and 0.25:1 for temporary matting of sedge meadow. At these ratios, a total of 16.55 credits are required to compensate for the unavoidable wetland impacts to Segment 4 within the Lower Wisconsin BSA.

G. Wetland Restoration and Revegetation Plan

A general summary of wetland community characteristics within the ROW of Segment 4 is presented in Appendix B. This characterization is based on field observations from 2012, 2015, and early 2016. In summary, wetland communities present within this segment include wet meadow, degraded wet meadow, floodplain forest, hardwood swamp, sedge meadow, degraded sedge meadow, shallow marsh, shrub-carr, alder thicket, and farmed wetland. Many wetland communities are degraded to a certain degree with typically one or more invasive species present. However, several extensive, higher quality communities are present south of the Lemonweir River corridor and along the existing transmission line ROW. In addition, several higher quality, but smaller, wetland communities are also present along Segment 4. Construction within wetlands shall comply with the segment-specific Erosion Control Plan (ECP). Revegetation of wetlands is presented in the project specific Revegetation and Monitoring Plan (Attachment 2). A summary of wetland restoration and revegetation guidelines for Segment 4 is provided below.

Restoration / Revegetation

- Restoration within wetland areas will include removal of all construction-related materials (e.g. timber matting) and the restoration of significant ruts and depressions.
- The ROW will be restored to pre-existing topography as much as practicable.
- Areas with significant rutting in wetlands will be repaired using hand tools, back dragging, or other appropriate means to restore topography while minimizing additional disturbance.
- Wetland areas where disturbance is minimal, as anticipated along matted access routes, will generally be allowed to revegetate naturally. These locations will be monitored to determine if supplemental seeding is necessary.
- A temporary cover crop may be installed over disturbed soils following ground disturbance. A project-specific permanent native wetland seed mix may be installed within disturbed wetland areas that have a native component but are not high quality wetlands (see Revegetation and Monitoring Plan for seed mixes and installation specifications, Attachment 2).
- Farmed wetlands will not be re-seeded due to their current land use.

Other /Miscellaneous

- Fertilizers will not be used within 100 feet of wetlands, streams and rivers.
- Cover such as erosion blankets or other weed-free devices may be applied after seeding and final restoration has occurred in wetland areas disturbed by the construction activities. All erosion control measures utilized will conform to WDNR Technical Standards.
- Soil erosion and sedimentation control measures installed will be maintained until the disturbed areas are permanently stabilized.

H. Wooded Riparian and Wetland Management Plan

Approximately 21.9 acres of wooded wetlands will be impacted by construction along Segment 4. This primarily includes hardwood swamps (some of which are associated with smaller waterways) and floodplain forest associated with the Lemonweir River. In addition, upland wooded riparian areas occur in pockets along the Lemonweir River.

In general, the entire ROW width will be cleared for safe construction equipment access in wooded areas. In riparian areas, efforts will be made to retain low-growing vegetation on/near stream banks for erosion control, where it currently exists. In areas where a TCSB will be installed, the amount of clearing will be kept to a minimum, which will minimize the impacts to riparian corridors.

Trees cut in wetland areas will generally be removed from the wetland and windrowed or chipped in upland areas. Some of the woody vegetation that is cleared may remain in the wetland areas. This includes lop and scatter of tree limbs, and thin scatter of wood chips and vegetation fragments resulting from mowing the shrub and sapling layer. Wood left in the wetland will be scattered in a manner that does not impede vegetation growth, water flow or alter the bottom elevation of the wetland.

Areas disturbed by construction will be restored as described in the *Wetland Restoration and Re-Vegetation Plan* section.

I. Final Sequencing and Scheduling Plan

Clearing along Segment 4 is anticipated to begin in August 2016. The following summarizes the anticipated timing of construction along Segment 4:

- ROW Clearing – Aug. 2016 - Nov. 2016
- Structure Foundations – Dec. 2016 - Jan. 2017
- Install Structures – Jan. 2017 – Aug. 2017
- Install Conductor – July 2017 - Nov. 2017

ROW cleanup and restoration is scheduled to occur in the spring following completion of construction, although actual dates for restoration will be weather dependent. Permanent restoration within any given area will be properly implemented within 30 days of final construction, however, if restoration is delayed due to weather or soil conditions, the area will be protected until permanent restoration can be completed.

J. Post-Construction Monitoring Plan

Wetland and waterway monitoring will be required for this project. Weekly monitoring will occur during and after construction until disturbed areas are stabilized and annual post-construction monitoring will be conducted as discussed below.

In accordance with Condition #38 of the WDNR utility permit, ATC will conduct frequent monitoring (e.g., weekly and after a significant rainfall event) of erosion and sediment controls during and after construction, which may include areas within and adjacent to wetlands and waterways. This monitoring will occur until the areas are stabilized as defined in Condition #38 of the utility permit.

ATC will also conduct annual post-construction monitoring of the portions of wetlands and waterways impacted by construction, as outlined in Condition #70 of the utility permit. This monitoring shall continue for a minimum of 5 years after construction unless compliance is achieved and documented earlier. Refer to the Revegetation and Monitoring Plan (Attachment 2) for more detail regarding wetland and waterway monitoring, and the associated reporting.

Badger Coulee 345 kV Transmission Line Project

Segment 4 CMP

Appendix A

Environmental Access Plan

Environmental Access Plan – Segment 4

Graphic Index for Badger Coulee Project

SEGMENT HIGHLIGHTS

- **11 Temporary Clear Span Bridges will be required over waterways**
- **Construction matting will be installed below the OHWM of N-R84, N-R85 and N-R85a (oxbows of the Lemonweir River) and J-W1a/J-R1 (UNT to Wisconsin River) for construction access.**
- **A total of 30 poles will be constructed in the following wetlands (parenthetic value refers to number of structures within the feature):**
  - **N-W182a (1), N-W185a (1), N-W186 (3), N-W187a (4), N-W188 (1), N-W193 (1), N-W194 (1), N-W197 (2), N-W200 (1), M-W1 (1), M-W2 (3), M-W3 (2), M-W4 (2), M-W6 (2), M-W9 (1), M-W12 (1), K-W1 (1), K-W5 (1) and K-W6a (1).**
- **A total of 2 temporary poles will be placed in M-W5**
- **Invasive Species Caution: Invasive species locations are identified on pages 1-4, 10-13, 21, 23-24, 26 and 29-30. Refer to these pages for instructions on how to proceed in these areas.**
- **Rare Species Caution: Rare species locations are identified on pages 3, 29-31 and 33 of this plan. Refer to these pages for instructions on how to proceed in these areas.**

INDEX TO FEATURES

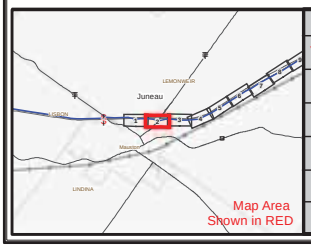
BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

0 100 200 Feet

7/28/2016



Proposed Centerline

Proposed Pole DIRECT EMBED | Proposed Pole FOUNDATION | Proposed Pole VIBRATORY

Vehicle Construction Access

Potential Vehicle Construction Access

Clearing Access Only

Graded Construction Access and Structure Pads

Existing Pole to be Removed

Existing Pole

Existing Substation

Existing ATC Transmission Line

Existing Non-ATC Transmission Line

Transmission Right-of-Way*

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TCSB
Temporary Clear Span Bridge

STOP - NO VEHICLE ACCESS - FOOT TRAFFIC ONLY

Approximate wire set up area
(Dimensions: Approximately 200' X 400')

200 Topographic Line Elevation

Protected or Sensitive Resource - Construction Technique Protocol Needed

Invasive Species - Construction Technique Protocol Needed

Possible Wetland (WDNR Wetland)

Delineated Wetland

Field Located Waterway

WDNR Perennial Stream

WDNR Intermittent Stream

DATCP Identified Soils - Difficult to Decompact

Property Line

City/Village/Town Boundary

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

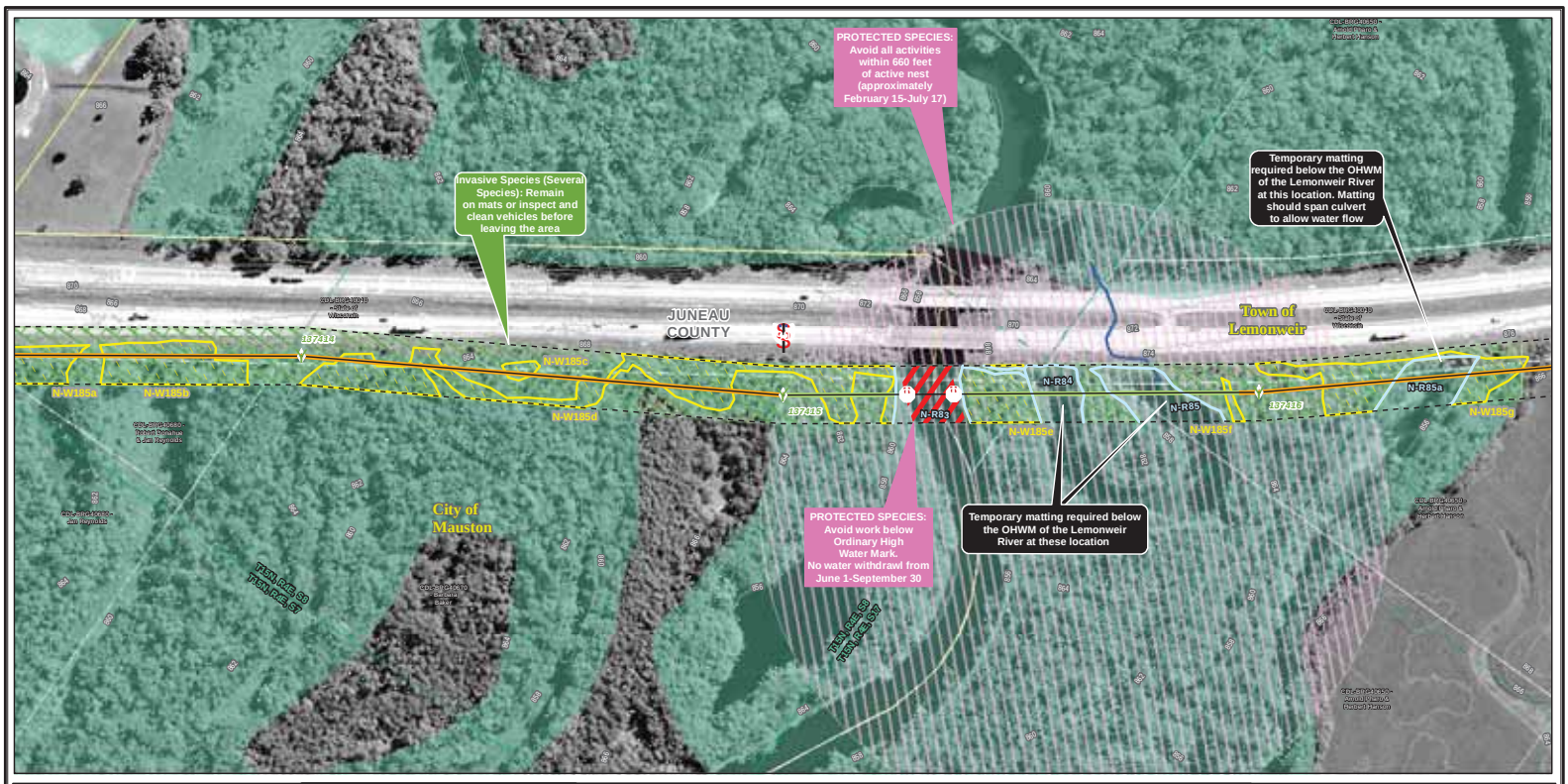
Orthophotography: NAIP 2010

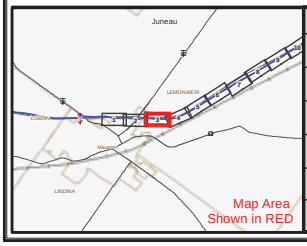
Xcel Energy

ATC

0 100 200 Feet

7/28/2016





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- Potential Vehicle Construction Access
- Clearing Access Only
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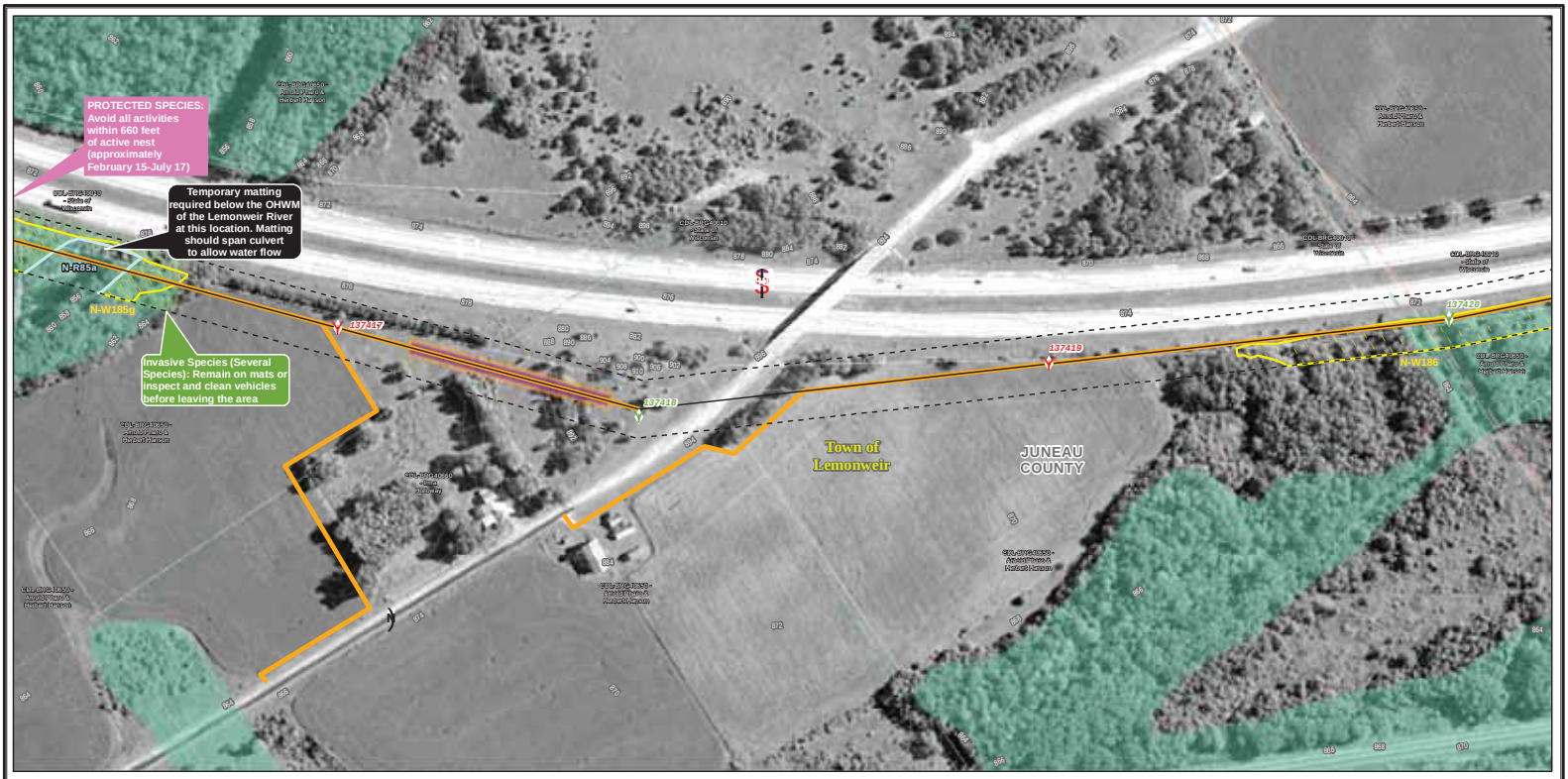
BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

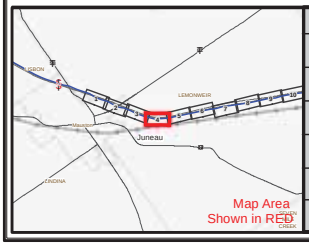
ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

0 100 200 Feet

7/28/2016





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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT
ENVIRONMENTAL ACCESS PLAN
SEGMENT 4

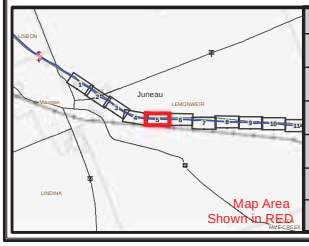
Orthophotography: NAIP 2010

Xcel Energy

ATC

0 100 200
Feet

7/28/2016



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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

Xcel Energy

ATC

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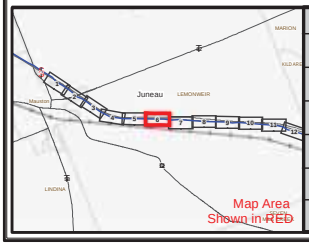

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

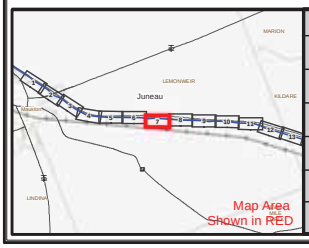
Orthophotography: NAIP 2010

Xcel Energy

ATC

0 100 200 Feet

7/28/2016



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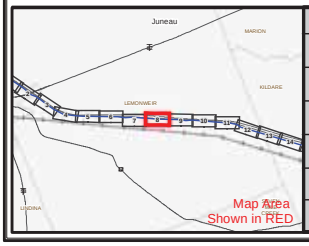

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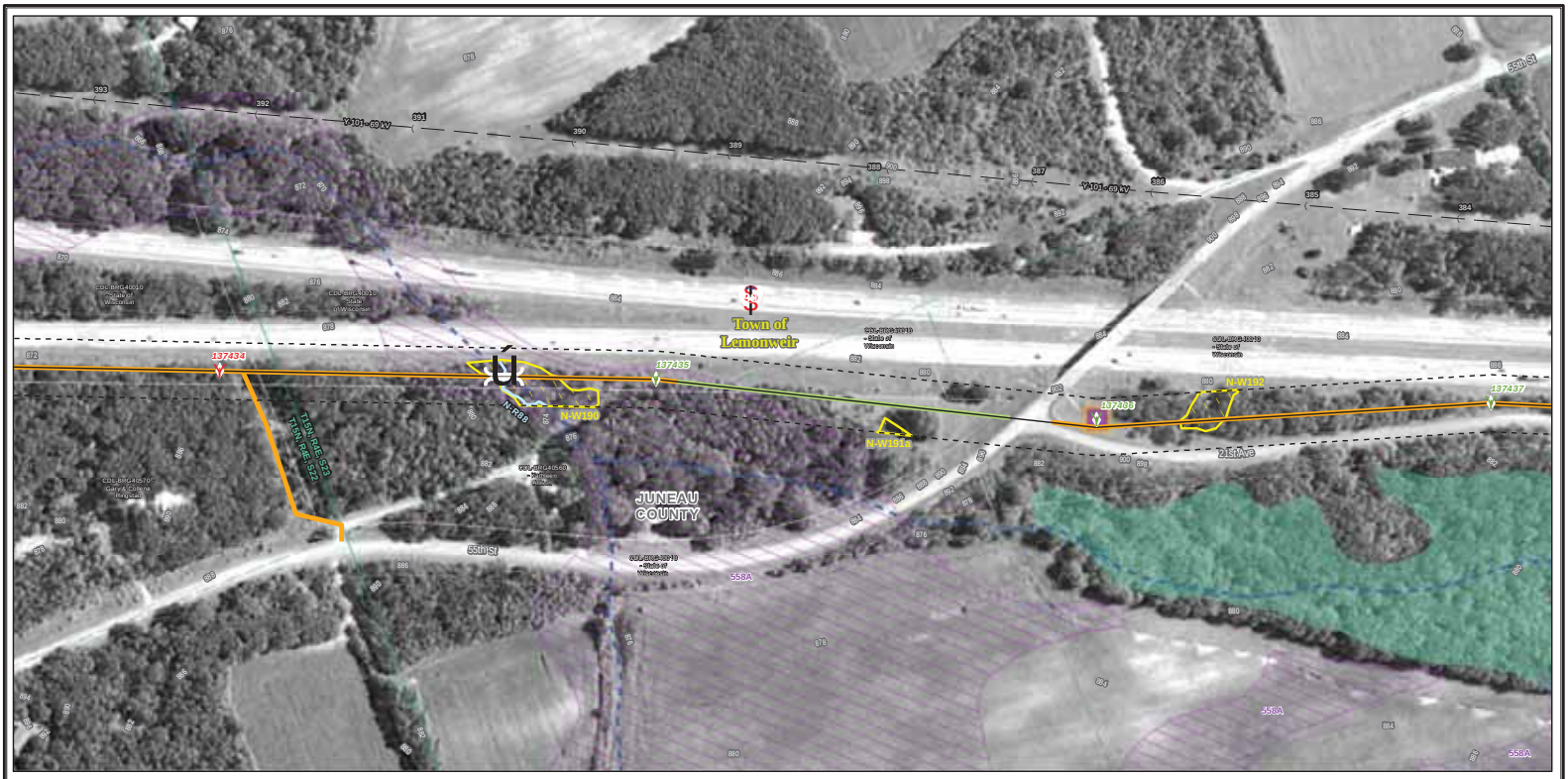

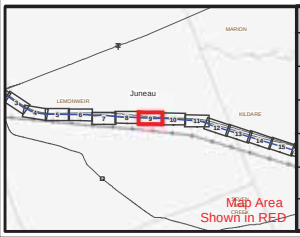

Proposed Centerline

Proposed Pole DIRECT EMBED | Proposed Pole FOUNDATION | Proposed Pole VIBRATORY

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

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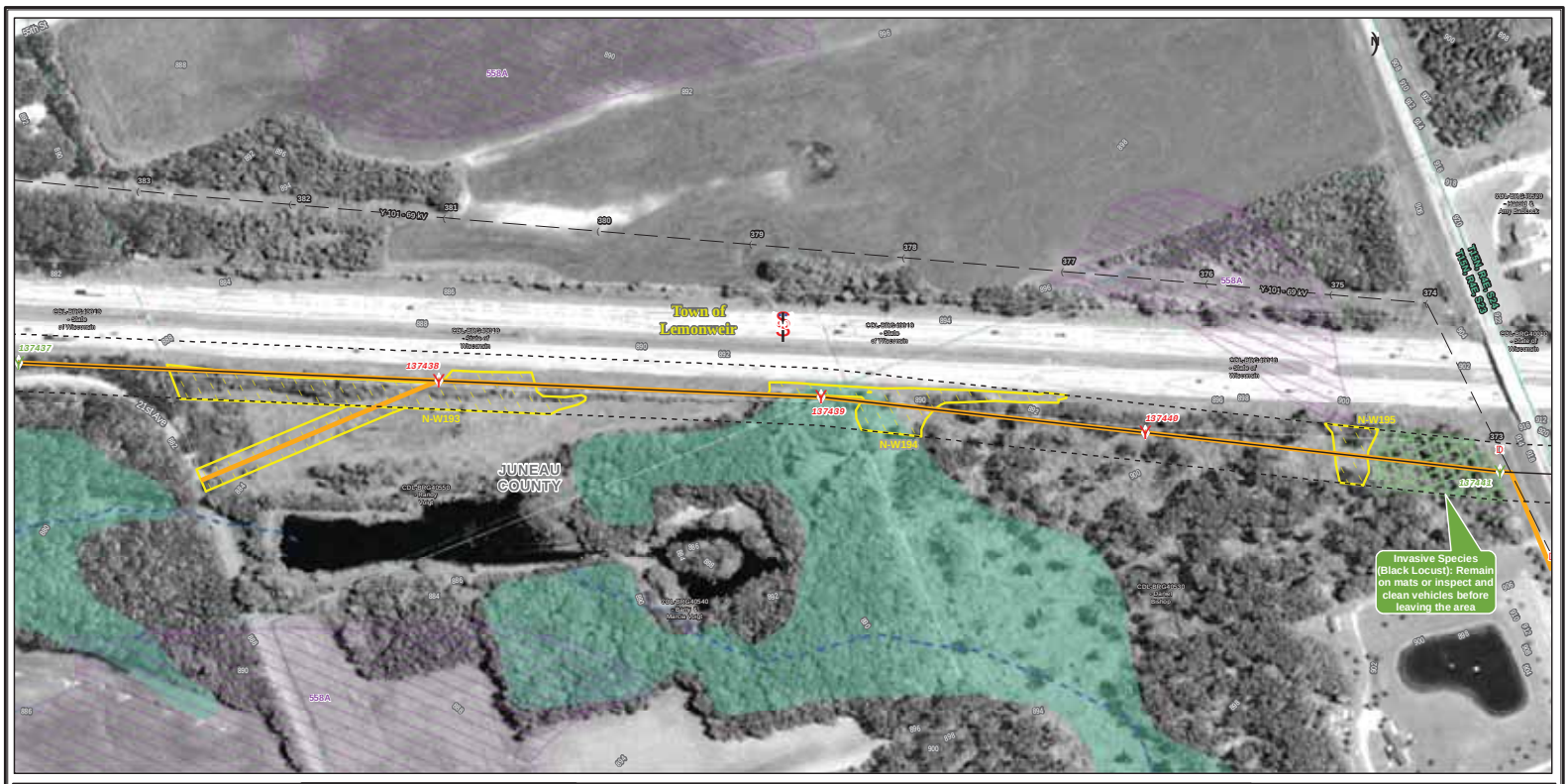

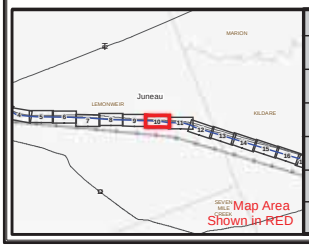

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ENVIRONMENTAL ACCESS PLAN SEGMENT 4

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Xcel Energy

ATC

0 100 200
Feet

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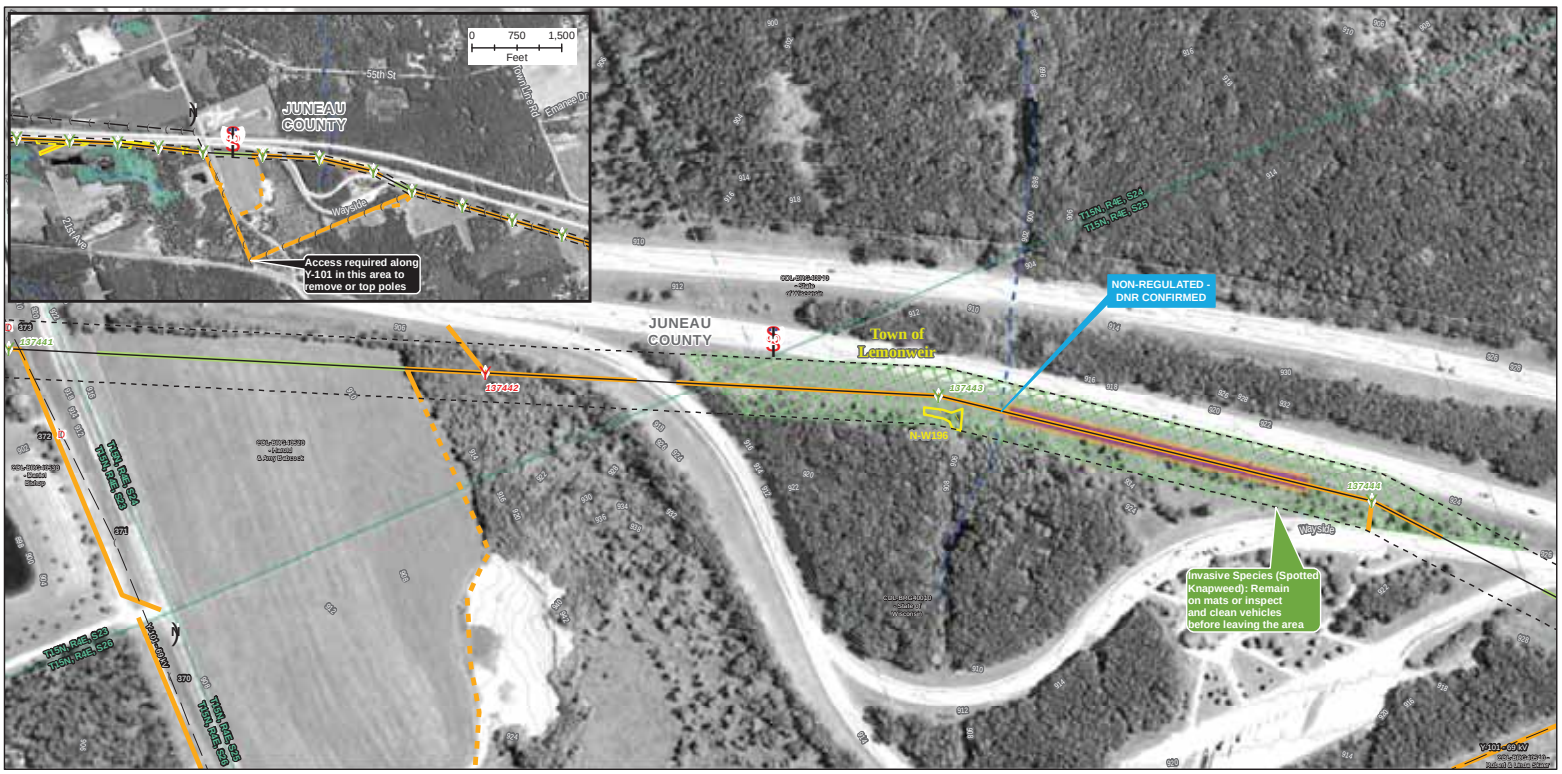

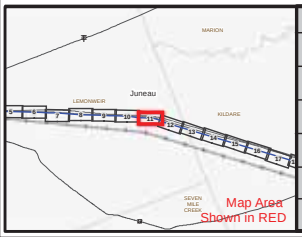

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ENVIRONMENTAL ACCESS PLAN SEGMENT 4

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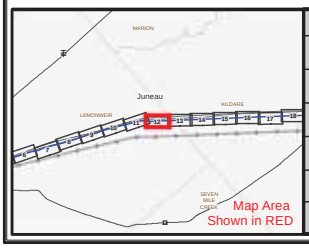

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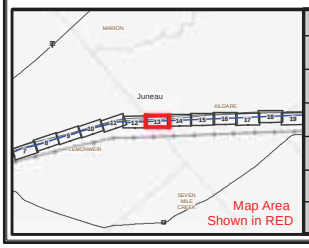

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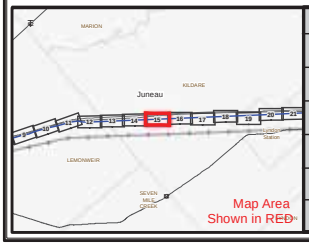

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- Existing Pole
- Existing Substation
- Existing ATC Transmission Line
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- Transmission Right-of-Way*
  *Right-of-Way shown on this map is approximate and is shown for guidance only.
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- Invasive Species - Construction Technique Protocol Needed
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- Delineated Wetland
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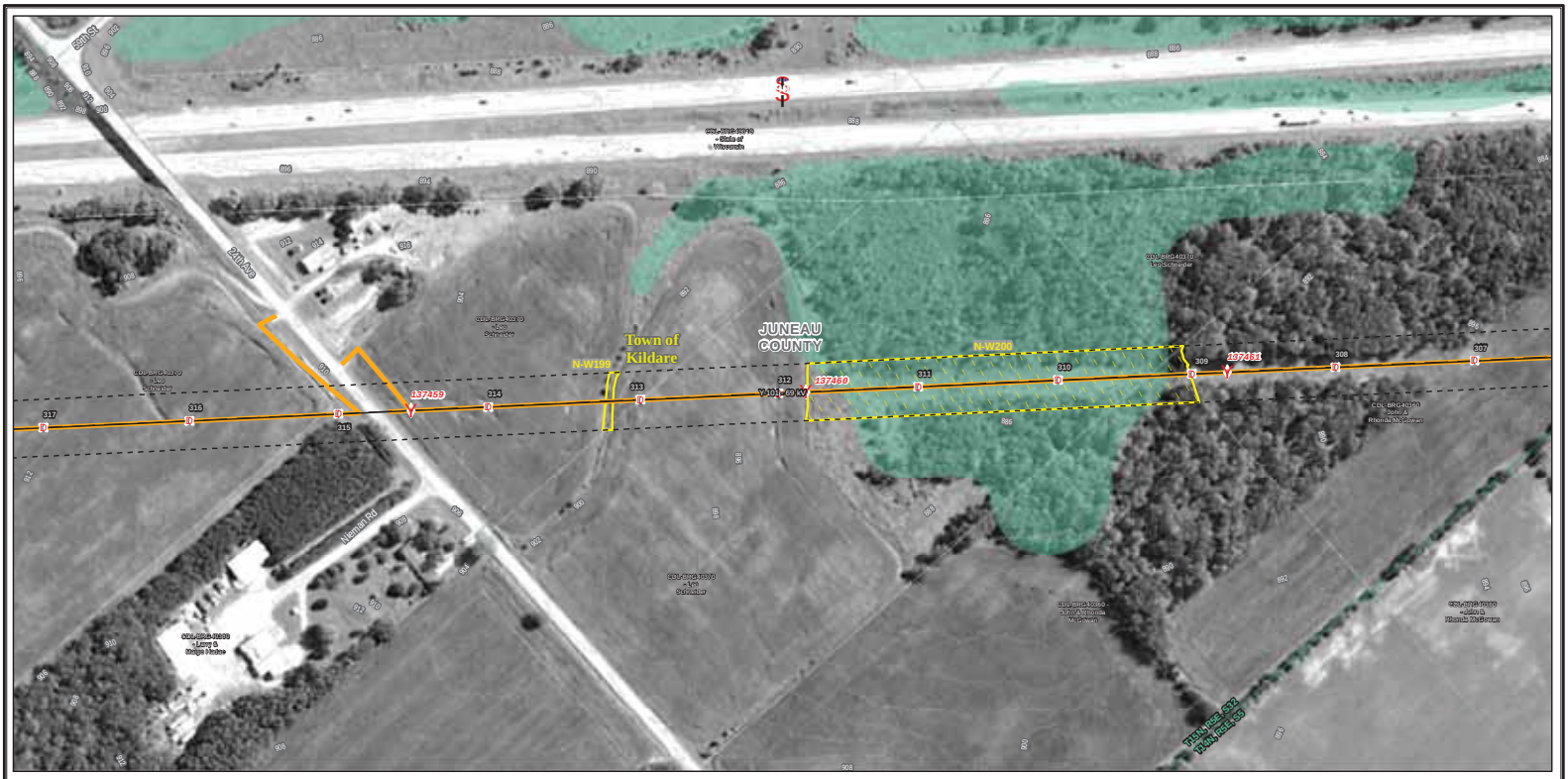
BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

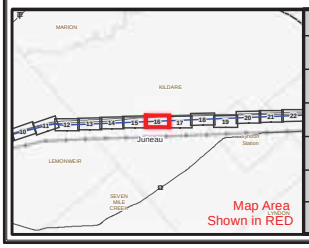
ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

0 100 200 Feet

7/28/2016





- Proposed Centerline
- Proposed Pole DIRECT EMBED
- Proposed Pole FOUNDATION
- Proposed Pole VIBRATORY
- Vehicle Construction Access
- Potential Vehicle Construction Access
- Clearing Access Only
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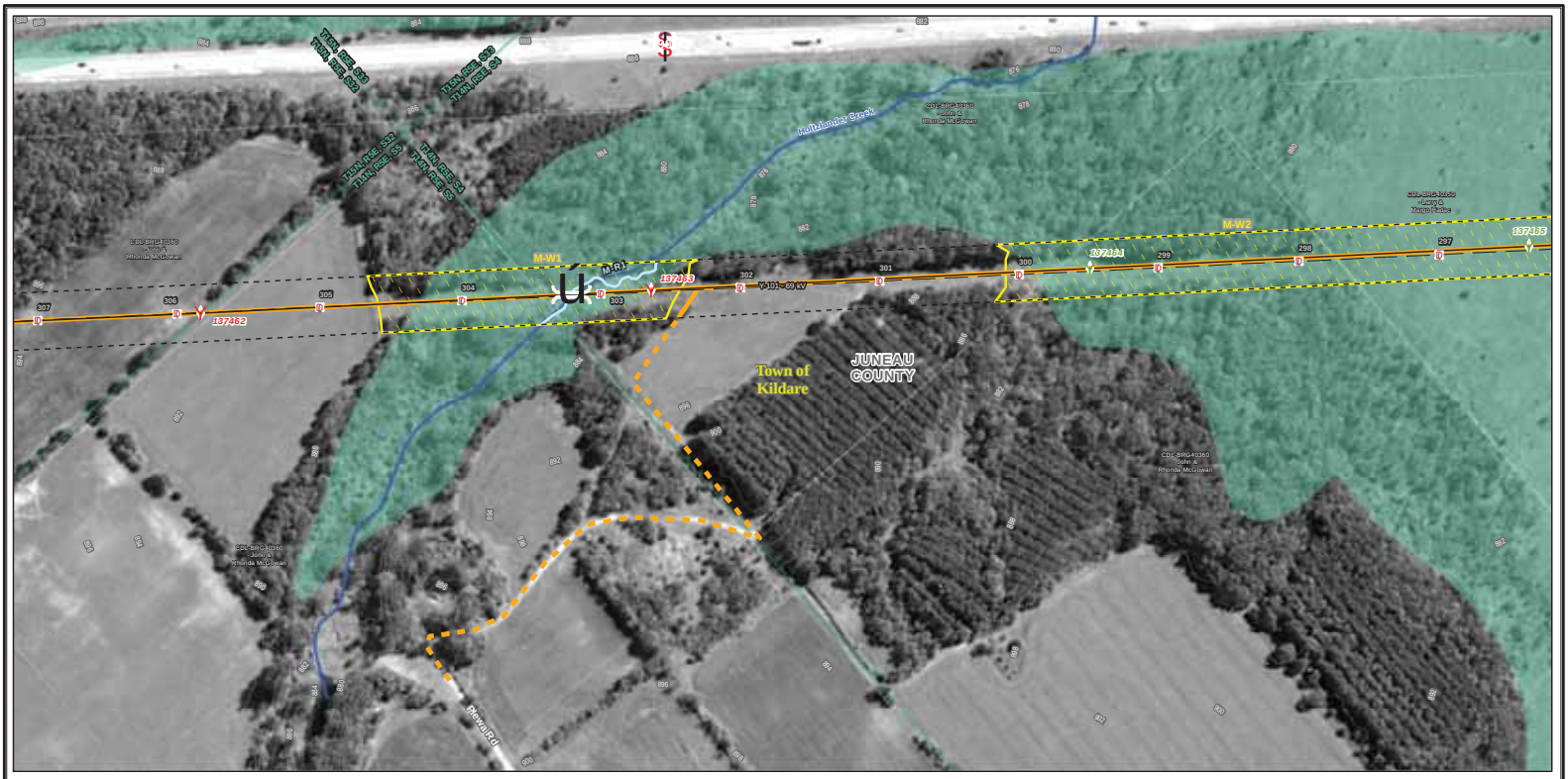
BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

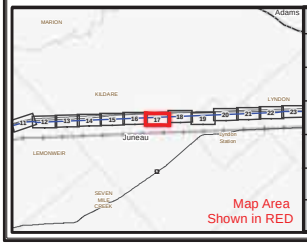
ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

0 100 200 Feet

7/28/2016





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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

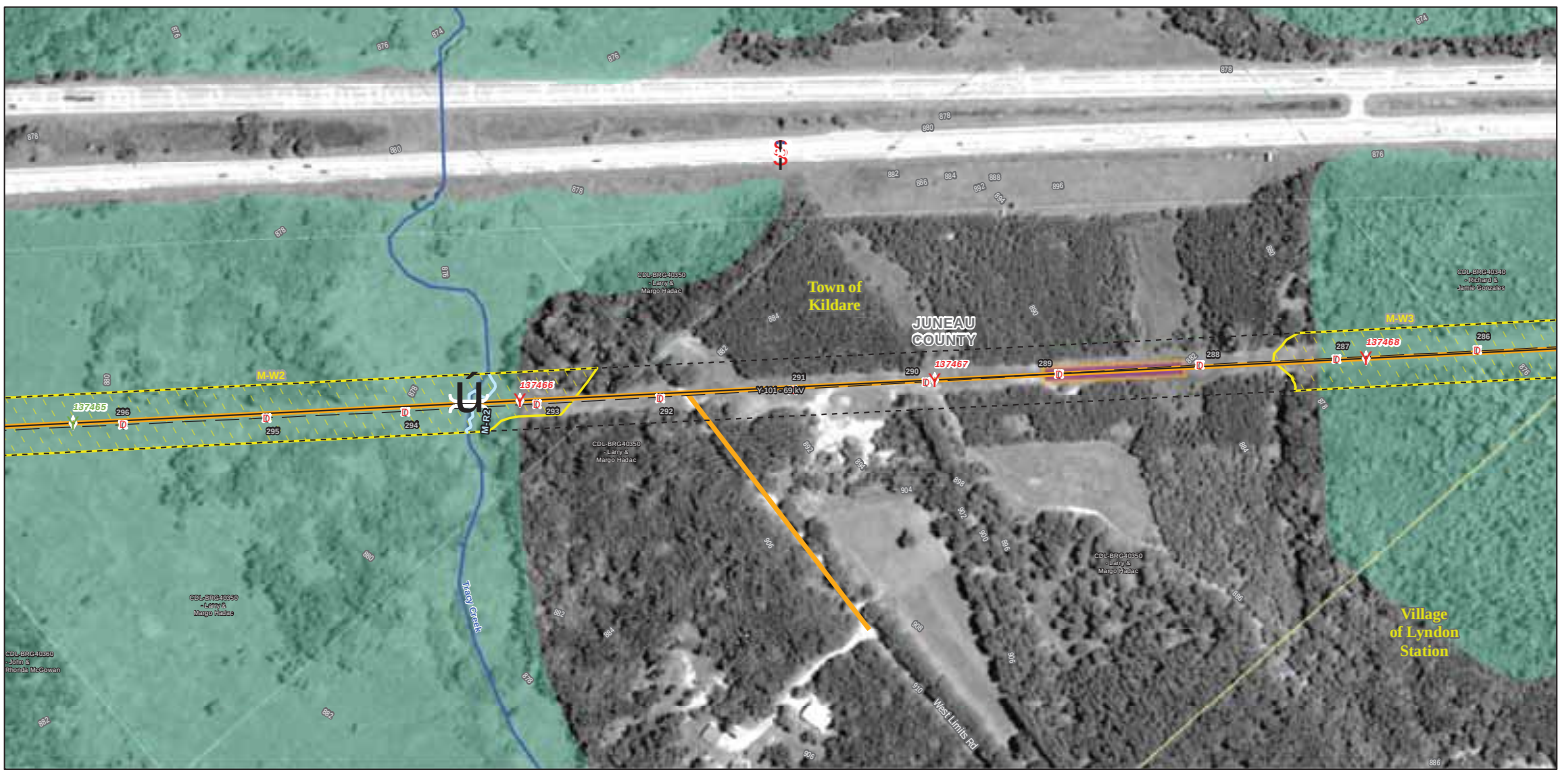
Orthophotography: NAIP 2010

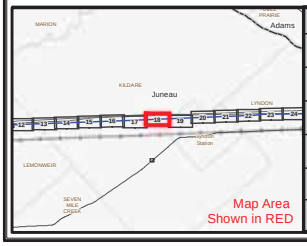
Xcel Energy

ATC

0 100 200
Feet

7/28/2016





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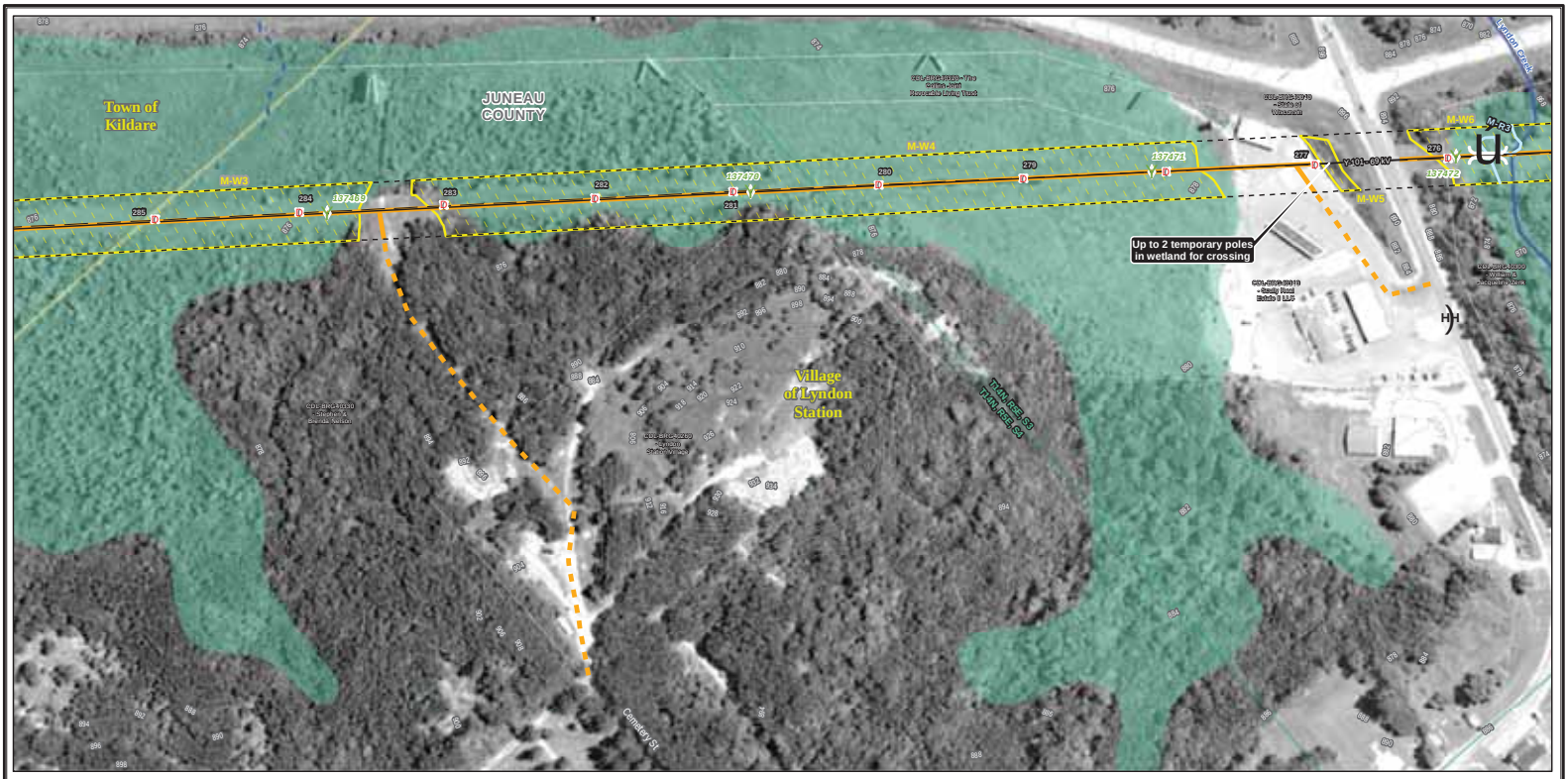
BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

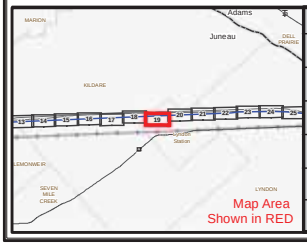
ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

0 100 200 Feet

7/28/2016





Map Area Shown in RED

- Proposed Centerline
- Proposed Pole DIRECT EMBED / Proposed Pole FOUNDATION / Proposed Pole VIBRATORY
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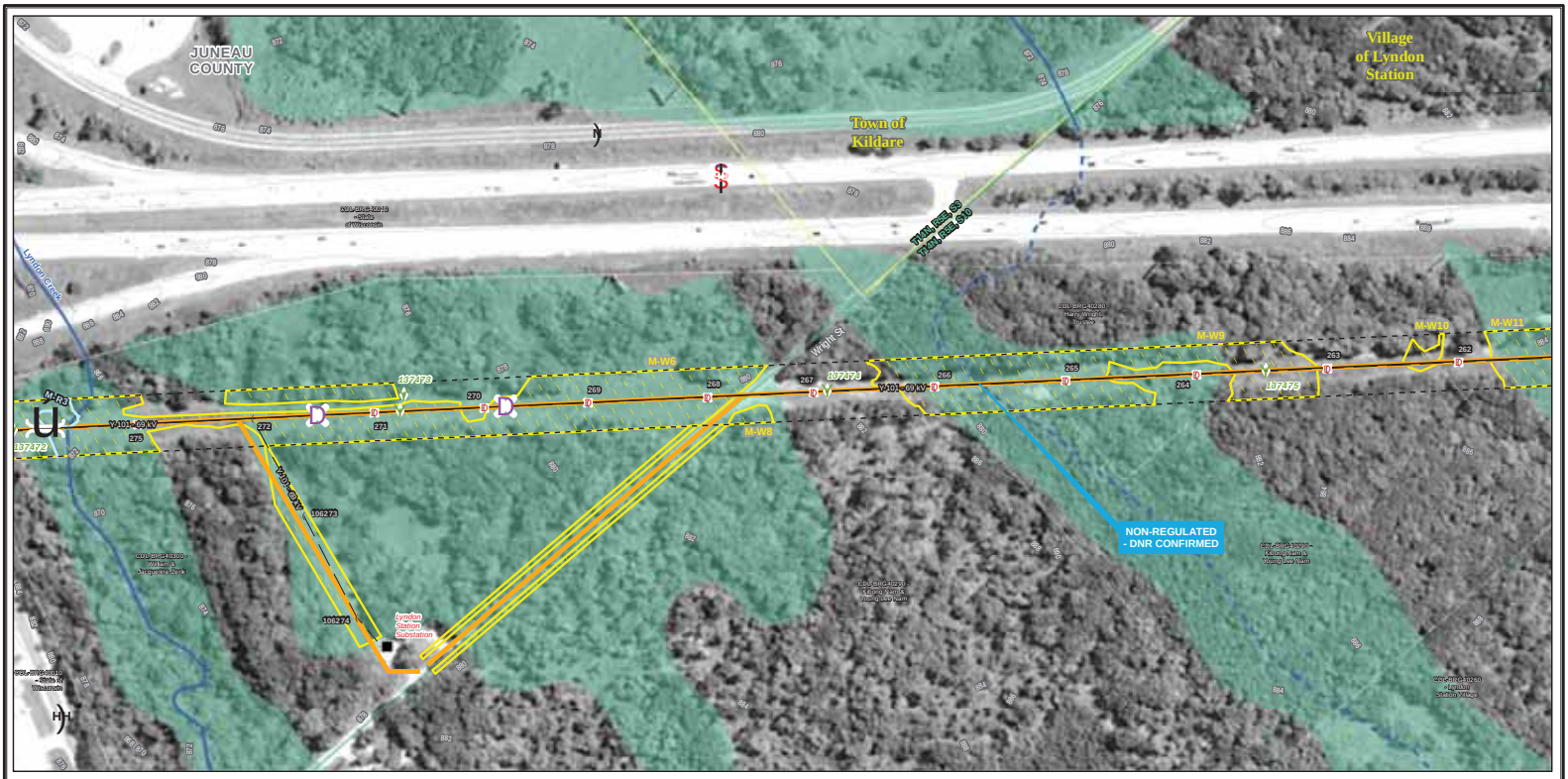
BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

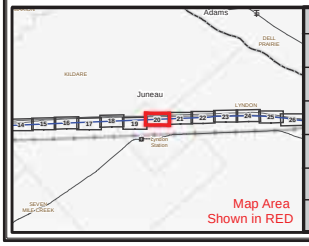
ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

0 100 200 Feet

7/28/2016





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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

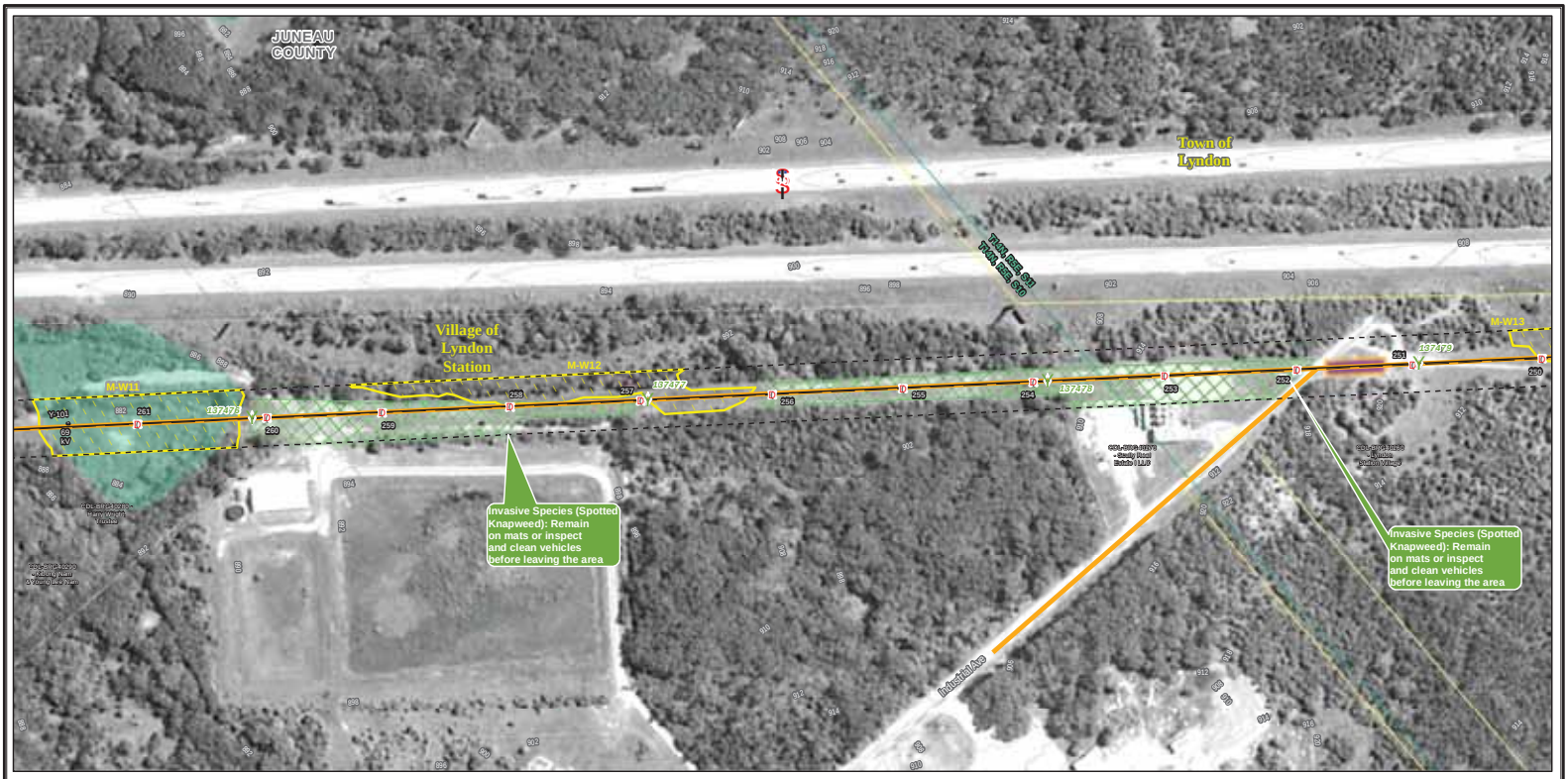
Orthophotography: NAIP 2010

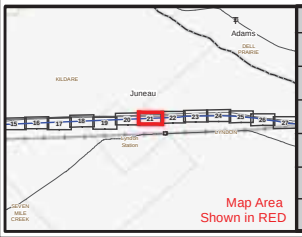
Xcel Energy

ATC

0 100 200 Feet

7/28/2016





- Proposed Centerline
- Proposed Pole DIRECT EMBED
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- Vehicle Construction Access
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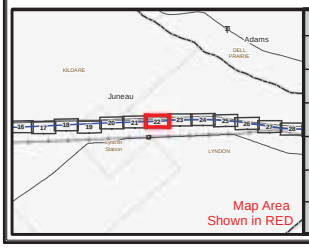
BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

0 100 200 Feet

7/28/2016



Proposed Centerline
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Proposed Pole FOUNDATION
Proposed Pole VIBRATORY
Vehicle Construction Access
Potential Vehicle Construction Access
Clearing Access Only
Graded Construction Access and Structure Pads
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Transmission Right-of-Way*
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TCSB
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Elevation
Protected or Sensitive Resource - Construction Technique Protocol Needed
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Possible Wetland (WDNR Wetland)
Delineated Wetland
Field Located Waterway
WDNR Perennial Stream
WDNR Intermittent Stream
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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT
ENVIRONMENTAL ACCESS PLAN
SEGMENT 4

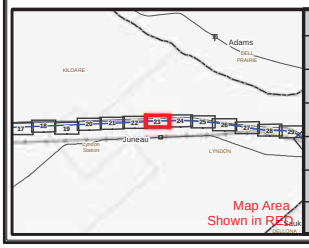
Orthophotography: NAIP 2010

Xcel Energy®

ATC

0 100 200
Feet

7/28/2016



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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

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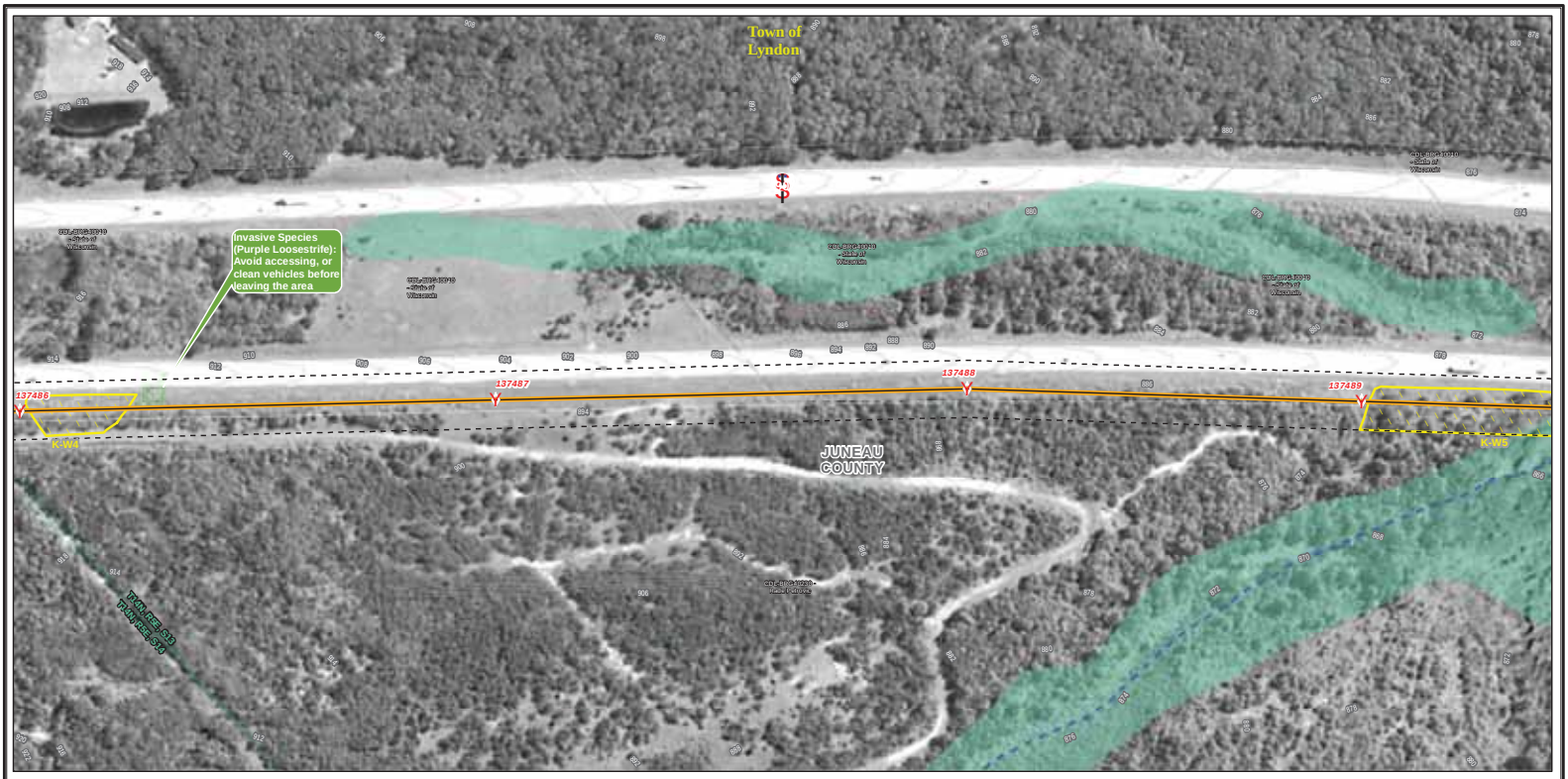

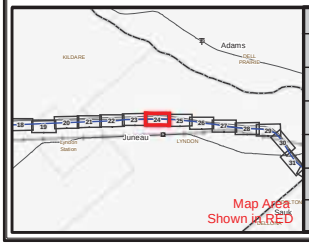

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Orthophotography: NAIP 2010

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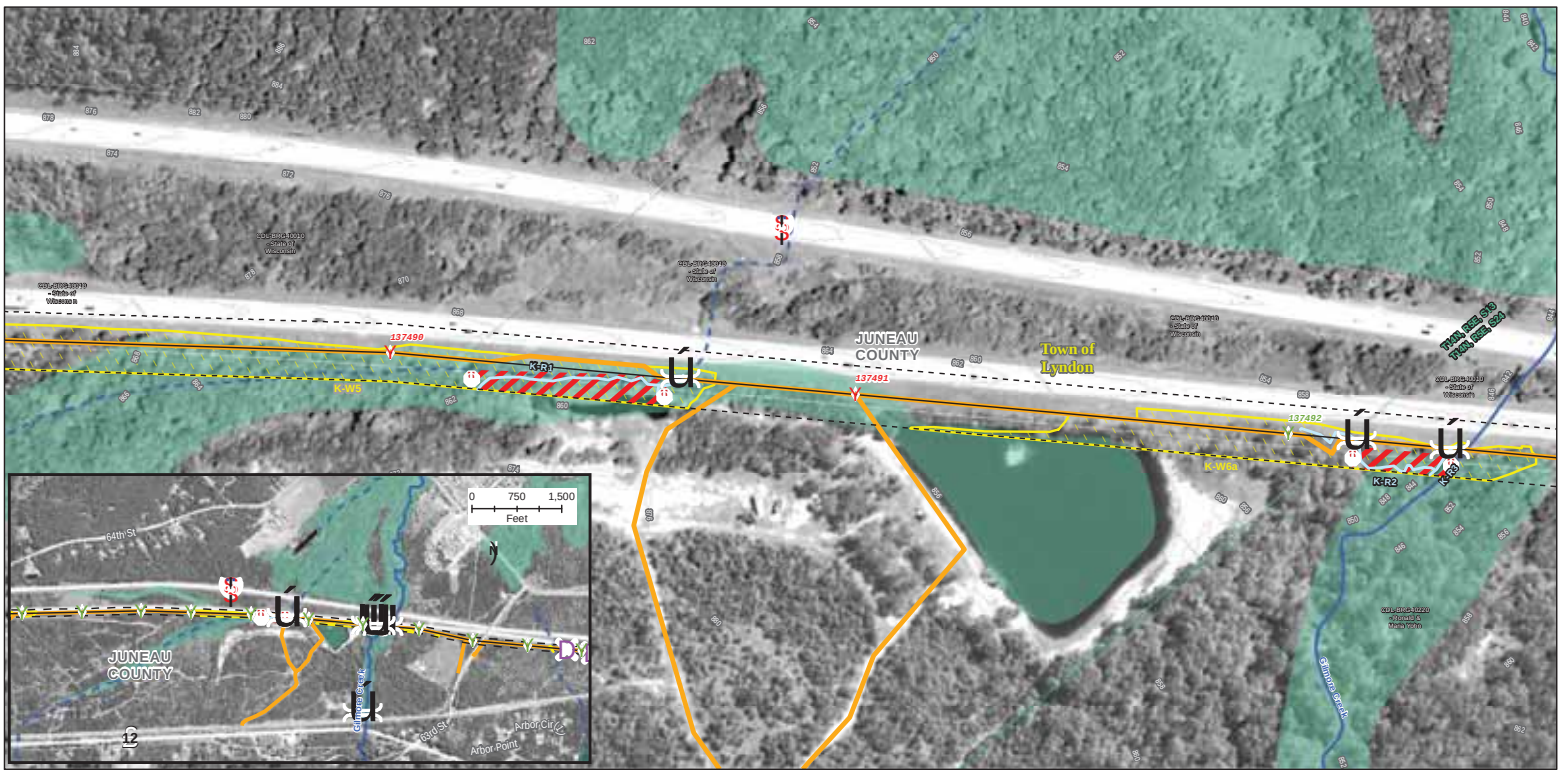

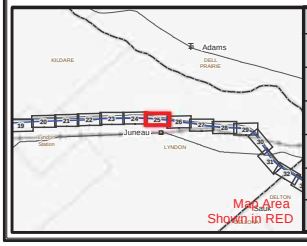

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

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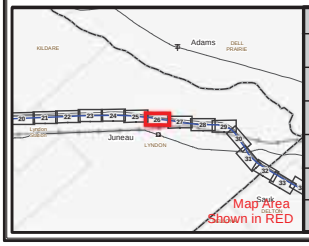
7/28/2016



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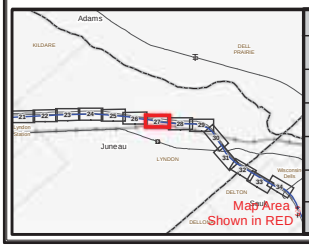

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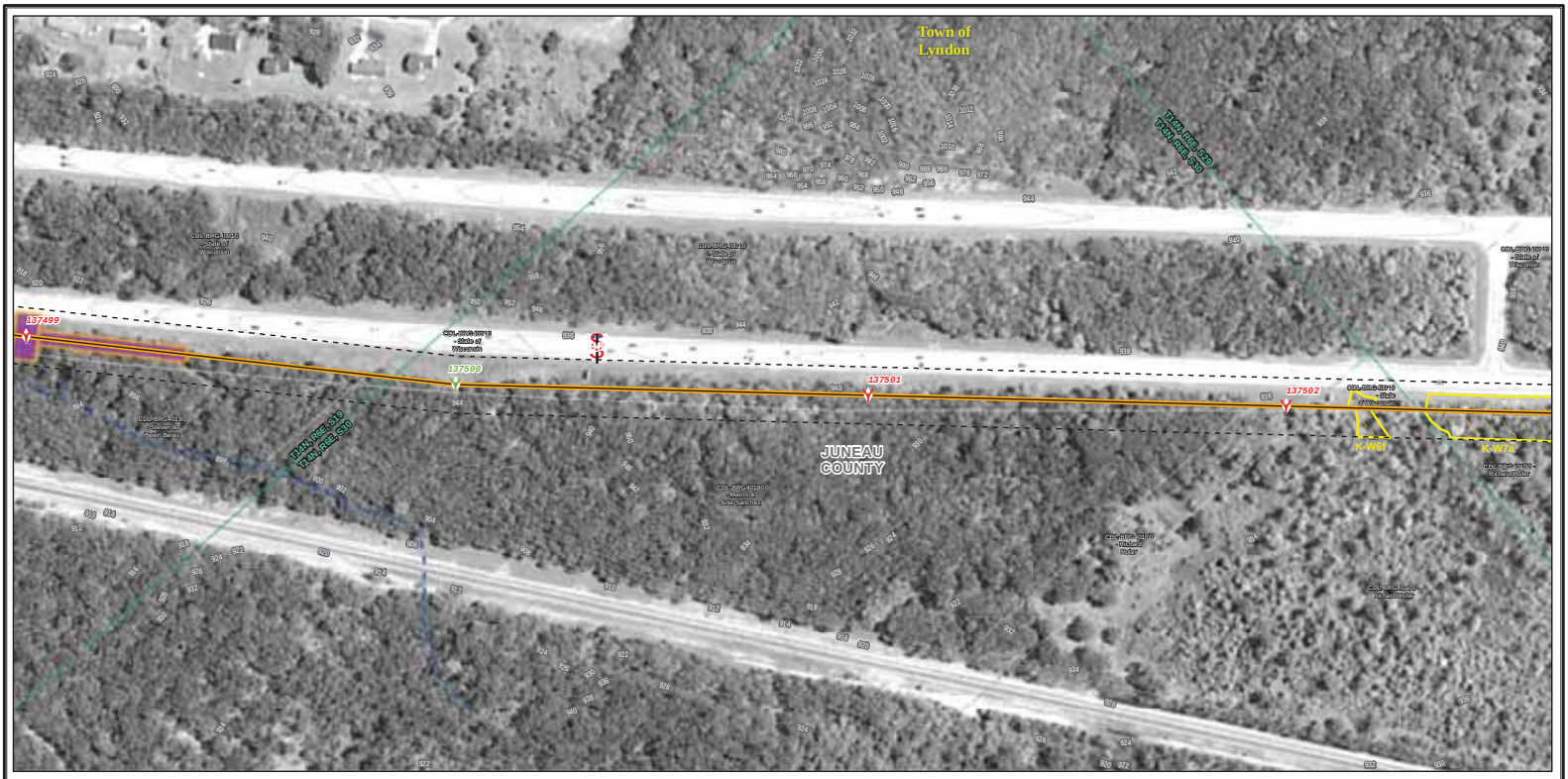
BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

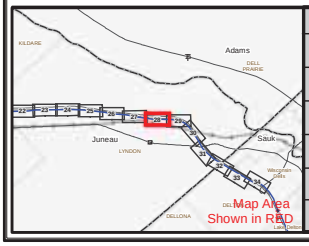
ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

0 100 200 Feet

7/28/2016





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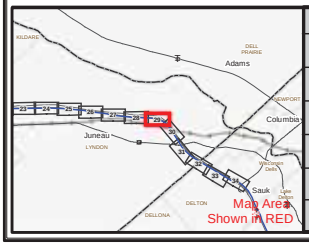

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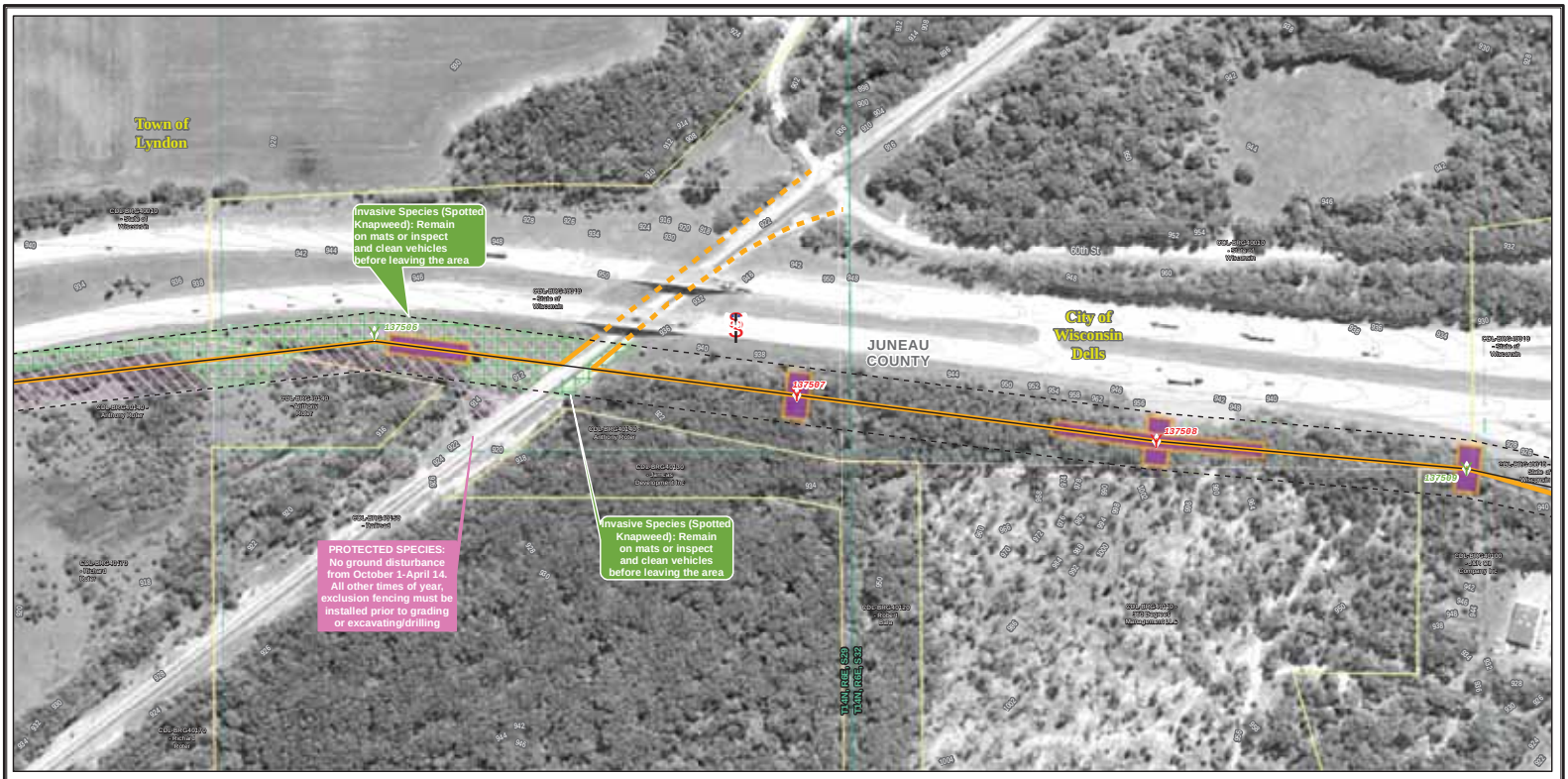

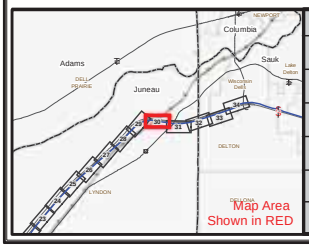

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

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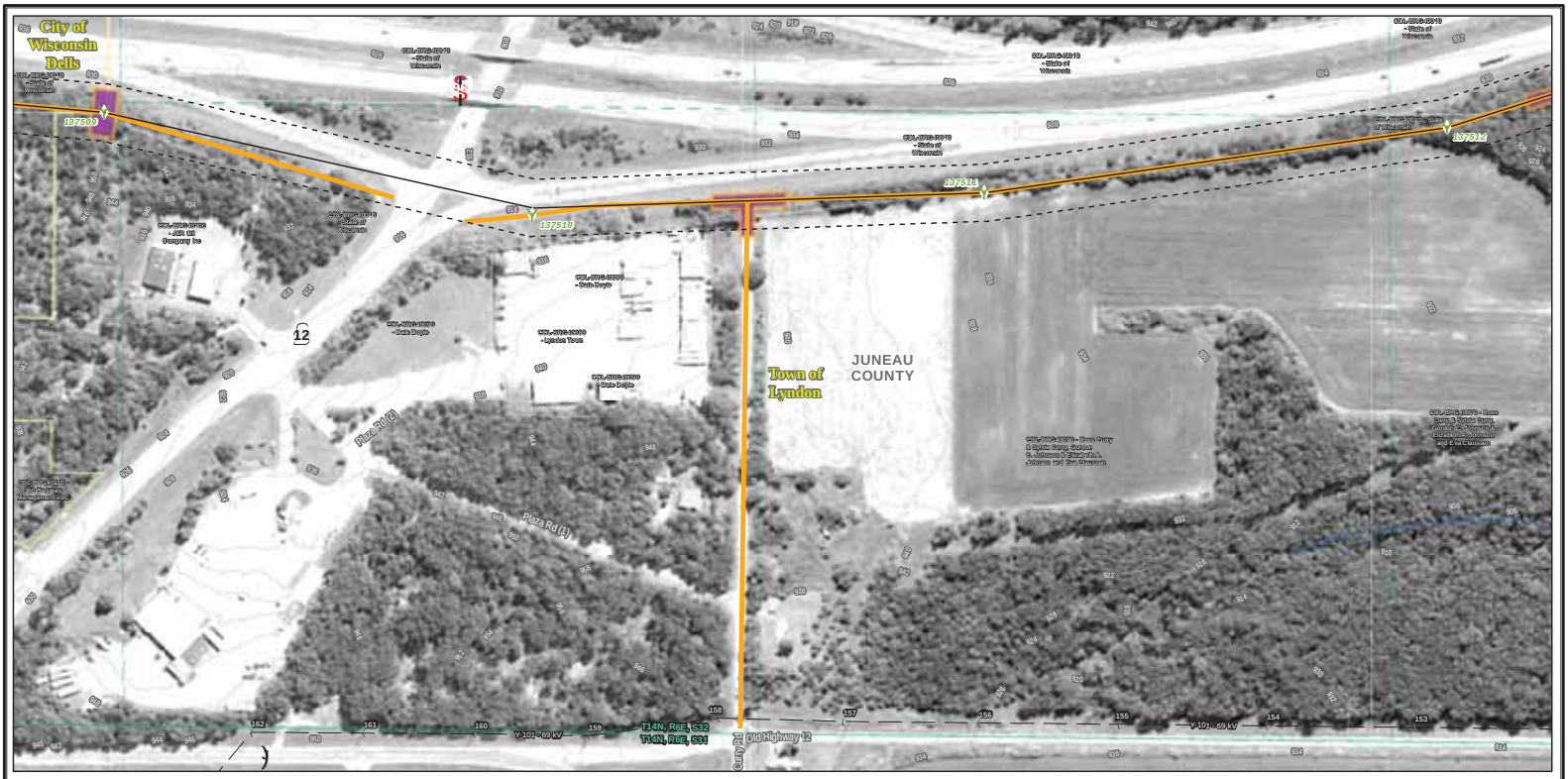

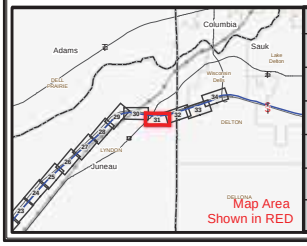

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT
ENVIRONMENTAL ACCESS PLAN
SEGMENT 4

Orthophotography: NAIP 2010

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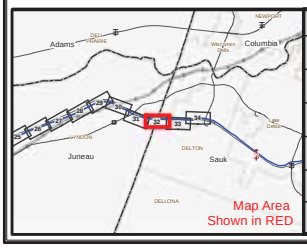
Feet

7/28/2016



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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

Xcel Energy

ATC

0 100 200 Feet

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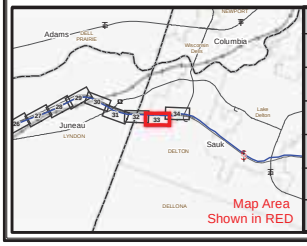

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BADGER COULEE 345 kV TRANSMISSION LINE PROJECT

ENVIRONMENTAL ACCESS PLAN SEGMENT 4

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ATC

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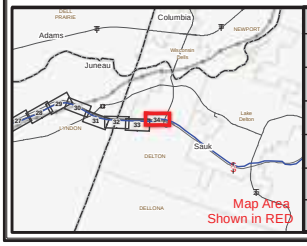

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ENVIRONMENTAL ACCESS PLAN SEGMENT 4

Orthophotography: NAIP 2010

0 100 200 Feet

7/28/2016

Badger Coulee 345 kV Transmission Line Project

Segment 4 CMP

Appendix B

Wetland Summary Table

Appendix B. Wetland Summary Table
ATC - Badger Coulee 345 kV Transmission Line Project

Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W182a	1	137408	Shallow marsh dominated by reed canary grass and narrow-leaf cattail with *Phragmites* common. Canada thistle, giant goldenrod, and Canada goldenrod scattered along perimeter. Connected via culvert under CTH G to wetland N-W182b.	1
			Feature added during 2016 field investigations.	
N-W182b	1	None	Shallow marsh community within northwest portion of feature; dominated by narrow-leaved cattail and reed canary grass with scattered Canada goldenrod. Wet meadow with slightly hummocky topography in southeastern portion of feature; dominated by fowl meadow grass and broad-leaved woolly sedge, white panicle aster and giant goldenrod common, and scattered bull thistle. Degraded wet meadow located primarily west of the DOT ROW and associated with a drainage ditch on private lands; dominated by reed canary grass with scattered Canada and giant goldenrod.	2, 3, 4
			Feature added during 2016 field investigations.	
N-W183	1	None	Small depressional shallow marsh dominated by narrow-leaved cattail; with reed canary grass common and scattered giant goldenrod, blue vervain, and white panicle aster.	5
N-W184	2	None	Predominantly hardwood swamp with a stormwater drainage swale passing through and emptying into adjacent excavated open water pond located outside of the Project corridor to the west. Box elder dominant in the canopy with scattered quaking aspen and a few larger river birch along the drainage swale. Box elder, elderberry, and honeysuckle common in the shrub layer with jewelweed, stickseed, and sensitive fern dominant in the herb layer. Degraded wet meadow along the eastern portion of the feature within the DOT ROW; jewelweed, stinging nettle, and reed canary grass common. The southeast portion of the feature is comprised of a shallow marsh drainage swale with narrow-leaf cattail, reed canary grass, jewelweed, blue vervain, and scattered spotted Joe-pye weed. The bottom of the swale is lined with rock.	6, 7, 8
			Feature extended to the southeast to include shallow marsh associated with drainage swale conveying stormwater through wetland to excavated open water pond beyond Project corridor to the west.	
N-W185a	2	137413	Predominantly hardwood swamp with areas of shrub-carr, degraded wet meadow, and degraded sedge meadow. Hardwood swamp in northwest portion of feature dominated by quaking aspen in the canopy with glossy buckthorn common in the shrub layer and royal fern and sensitive fern scattered in the herb layer. Remaining hardwood swamp was dominated by river birch with scattered silver maple in the canopy, honeysuckle and glossy buckthorn common in the shrub layer, and reed canary grass common in the herb layer. The shrub-carr portion dominated by pussy willow, red osier dogwood, and grey dogwood with scattered river birch, quaking aspen, and glossy buckthorn in the shrub layer with Canada bluejoint, sensitive fern, and wool-grass. Reed canary grass is common in the degraded wet meadow with sensitive fern, wool-grass, giant goldenrod, and scattered tussock sedge, lake sedge, glossy buckthorn, quaking aspen and red osier dogwood. The degraded sedge meadow is dominated by lake sedge with reed canary grass and scattered wool-grass.	9, 10, 11, 12
			This feature was part of the larger N-W185 northwest of the Lemonweir River. Large areas of upland mesic woods located on rises 2-6 feet above adjacent wetland areas were excluded from the feature during 2016 field investigations. The excluded mesic woods were dominated by pin oak, red oak, white oak, and scattered shagbark hickory in the canopy; pin cherry, honeysuckle, and prickly ash shrubs were observed in varying levels of abundance in the understory, with the herb layer typically dominated by bracken fern and Pennsylvania sedge. Additionally, an area of old field grassland dominated by Kentucky bluegrass, Canada goldenrod, beebalm, and yarrow was excluded from N-W185a.	

Appendix B. Wetland Summary Table
ATC - Badger Coulee 345 kV Transmission Line Project

Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W185b	3	None	Predominantly hardwoodswamp with areas of degraded wet meadow. Hardwood swamp dominated by river birch with scattered silver maple, honeysuckle and glossy buckthorn common in the understory, with reed canary grass common in the herb layer. The degraded wet meadow portions are dominated by reed canary grass with sensitive fern, wool-grass, giant goldenrod, and blue vervain. This feature was part of the larger N-W185 northwest of the Lemonweir River. Large areas of upland mesic woods located on rises 2-6 feet above adjacent wetland areas were excluded from the feature during 2016 field investigations. The excluded mesic woods were dominated by pin oak, red oak, white oak, and scattered shagbark hickory in the canopy; pin cherry, honeysuckle, and prickly ash shrubs were observed in varying levels of abundance in the understory, with the heb layer typically dominated by bracken fern and Pennsylvania sedge.	11, 12
N-W185c	3	None	Small pocket of hardwood swamp in a depressional area surrounded by upland mesic woods. Hardwood swamp dominated by river birch and silver maple with some prickly ash and a sparse herb layer. This feature was part of the larger N-W185 northwest of the Lemonweir River. Large areas of upland mesic woods located on rises 2-6 feet above adjacent wetland areas were excluded from the feature during 2016 field investigations. The excluded mesic woods were dominated by pin oak, red oak, white oak, and scattered shagbark hickory in the canopy; pin cherry, honeysuckle, and prickly ash shrubs were observed in varying levels of abundance in the understory, with the heb layer typically dominated by bracken fern and Pennsylvania sedge.	11, 12
N-W185d	3	None	Floodplain forest along the northwest bank of the Lemonweir River, N-R83. Silver maple predominant in the canopy with black ash and swamp white oak also present. River birch is dominant along the banks of the Lemonweir River. Lake sedge and reed canary grass are common. This feature was part of the larger N-W185 northwest of the Lemonweir River. Large areas of upland mesic woods located on rises 2-6 feet above adjacent wetland areas were excluded from the feature during 2016 field investigations. The excluded mesic woods were dominated by pin oak, red oak, white oak, and scattered shagbark hickory in the canopy; pin cherry, honeysuckle, and prickly ash shrubs were observed in varying levels of abundance in the understory, with the heb layer typically dominated by bracken fern and Pennsylvania sedge.	13, 14
N-W185e	3	None	Floodplain forest along the southeast bank of the Lemonweir River, N-R83. Silver maple predominant in the canopy with black ash, swamp white oak, and scattered white pine also present. River birch is dominant along the banks of the Lemonweir River. Lake sedge and reed canary grass are common. This feature was part of the larger N-W185 southeast of the Lemonweir River. Large areas of upland mesic woods located on rises 2-6 feet above adjacent wetland areas were excluded from the feature during 2016 field investigations. The mesic woods are dominated by white pine, shagbark hickory, American elm, and red oak in the canopy, prickly ash common with scattered greenbriar and honeysuckle in the shrub layer, with Pennsylvania sedge and partridgeberry in the herb layer.	15
N-W185f	3	None	Narrow floodplain forest swale with swamp white oak and silver maple dominant. Little to no understory or herb layer. This feature was part of the larger N-W185 southeast of the Lemonweir River. Large areas of upland mesic woods located on rises 2-6 feet above adjacent wetland areas were excluded from the feature during 2016 field investigations. The mesic woods are dominated by white pine, shagbark hickory, American elm, and red oak in the canopy, prickly ash common with scattered greenbriar and honeysuckle in the shrub layer, with Pennsylvania sedge and partridgeberry in the herb layer.	16

Appendix B. Wetland Summary Table
ATC - Badger Coulee 345 kV Transmission Line Project

Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W185g	3, 4	None	Floodplain forest with silver maple, river birch, and green ash in the canopy, sparse honeysuckle shrubs, and scattered reed canary grass herb layer. This feature was part of the larger N-W185 southeast of the Lemonweir River. Large areas of upland mesic woods located on rises 2-6 feet above adjacent wetland areas were excluded from the feature during 2016 field investigations. The mesic woods are dominated by white pine, shagbark hickory, American elm, and red oak in the canopy; prickly ash common with scattered greenbriar and honeysuckle in the shrub layer, with Pennsylvania sedge and partridgeberry in the herb layer.	16
N-W186	4, 5	137420, 137421, 137422	Large wetland complex consisting of hardwood swamp, shrub-carr, shallow marsh, degraded wet meadow, and degraded sedge meadow. Hardwood swamp canopy dominated by river birch and quaking aspen with scattered white pine, northern pin oak, and swamp white oak; shrub layer dominated by gray and red-osier dogwood with honeysuckle scattered to common; herbaceous layer with reed canary grass scattered to dominant. A seasonally flooded basin west of pole 137420 was dominated by silver maple, ash, and reed canary grass. Shrub-carr dominated by gray dogwood, red-osier dogwood, and reed canary grass; with scattered quaking aspen, bur oak, and honeysuckle. Degraded wet meadow areas were primarily located within DOT ROW; dominated by reed canary grass with scattered sensitive fern, bull thistle, sedges, and meadowsweet. Degraded sedge meadow located in the eastern portion of feature with some hummocky areas dominated by tussock sedge and reed canary grass, with scattered meadowsweet. An area of shallow marsh is present west of structure 137420 within an existing transmission line ROW running perpendicular to the project ROW. The shallow marsh contained reed canary grass and standing water of unknown depth during 2016 field investigations. Feature reduced at northwest edge to exclude mesic woodland with a white pine canopy and gray dogwood dominant in the shrub layer; located at a higher elevation than the wetland. Feature extended at the east edge to include a shrub-carr area dominated by gray dogwood, broad-leaved woolly sedge, and reed canary grass with scattered giant goldenrod.	17, 18, 19, 20, 21, 22, 23
N-W187a	5, 6	137423, 137424, 137425, 137426	Large wetland complex consisting of hardwood swamp, shrub-carr, degraded wet meadow, and degraded sedge meadow. Hardwood swamp canopy dominated by quaking aspen with scattered river birch, northern pin oak, and swamp white oak; shrub layer dominated by gray dogwood with scattered honeysuckle, red-osier dogwood, and hazelnut; herb layer dominated by reed canary grass with pockets of sedges. Shrub-carr dominated by gray dogwood, red-osier dogwood, alder, and scattered elderberry and honeysuckle in the shrub layer; reed canary grass dominant in the herb layer with scattered sedges; and scattered mature quaking aspen. Degraded wet meadow primarily located within the DOT ROW and east of waterway N-R86 (mown for hay at this location); dominated by reed canary grass with scattered sedges. Degraded sedge meadow pockets dominated by tussock sedge, meadowsweet common, wool grass present, and approx. 15% cover by reed canary grass. Woolly sedge common within degraded sedge meadow in DOT ROW. Farmed wetland (seasonally flooded basin) located at eastern extent of feature. Feature extended at western edge in non-DOT ROW to include shrub-carr dominated by gray dogwood, woolly sedge, and sensitive fern.	24, 25, 26, 27, 28, 29, 30, 31

Appendix B. Wetland Summary Table
ATC - Badger Coulee 345 kV Transmission Line Project

Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W187b	7	None	Wetland consisting of two lobes located within depression at perimeter of farm field with shallow seasonal inundation. Western lobe dominated by sandbar willow with scattered cottonwood saplings, reed canary grass, sedges, foxtail, and Kentucky bluegrass. Eastern lobe dominated by red-osier dogwood, gray dogwood, reed canary grass (particularly in DOT ROW); with scattered sensitive fern, meadowsweet, and quaking aspen trees. Feature added during 2016 field investigations.	32, 33
N-W188	7, 8	137430	Degraded wet meadow within DOT ROW dominated by reed canary grass with wool-grass, spotted lady's-thumb, and wild parsnip common; and giant goldenrod, eastern willow-herb, Canada bluejoint, and various sedge species present. Hardwood swamp with areas of seasonally flooded basins present south of DOT ROW with American elm, river birch, red and silver maple dominant in the canopy with a sparsely vegetated herb layer of scattered pockets of sedges and reed canary grass. Garlic mustard present in few locations. Feature extended to west and east to include additional degraded wet meadow in the DOT ROW and additional hardwood swamp in the non-DOT ROW. Extended hardwood swamp to the west included seasonally inundated area with silver maple, blue-joint grass, and American elm; as well as a large extension to the east to include hardwood swamp dominated by river birch and silver maple with scattered shagbark hickory saplings and honeysuckle, and a sparse understory. Excluded mesic woodland area in central portion of feature on a rise 2-3 feet above wetland; dominated by white pine, shagbark hickory, white oak, and Pennsylvania sedge.	34, 35, 36, 37
N-W189	8	None	Hardwood swamp, shrub-carr, and degraded wet meadow complex. Degraded wet meadow within DOT ROW and at SE corner dominated by reed canary grass with wool-grass, water hemlock, wild parsnip, wild quinine, and various sedge species common. Shrub-carr dominated by elderberry and reed canary grass with red maple saplings. Hardwood swamp associated with N-R87 with American elm, river birch, silver maple, elderberry, and reed canary grass common. This feature was reduced in 2015 at east end to exclude area of higher topography dominated by red cedar, red oak, and American elm. The west end of feature was reduced within DOT ROW to exclude area of high topography near the waterway.	38
N-W190	9	None	Hardwood swamp associated with N-R88 and degraded wet meadow within DOT ROW. Hardwood swamp with a canopy dominated by American elm and silver maple; with elderberry, American elm saplings, and winterberry common in the shrub layer; and an herb layer of reed canary grass, jewelweed, and giant goldenrod, with scattered cardinal flower. Degraded wet meadow dominated by reed canary grass with scattered jewelweed, common beggar-ticks, mad-dog skullcap, water hemlock, giant goldenrod, calico aster, and wild parsnip. Black locust scattered. Extended feature in spring 2016 to include additional hardwood swamp with seasonal inundation; dominated by silver maple with some lake sedge, reed canary grass, and sensitive fern. Portion of area was recently cleared of woody vegetation for an overhead line.	39, 40, 41
N-W191	N/A	None	**Feature removed - not wetland within Project corridor.** Area of N-W191 within Project corridor is along a steep embankment along 21st Ave; dominated by smooth brome, pin and black oaks, black cherry, black locust, scattered dry prairie forbs, with spotted knapweed present.	N/A
N-W191a	9	None	Shrub-carr community extending beyond Project corridor into hardwood swamp. Shrub-carr dominated by gray dogwood, silky dogwood, winterberry, and glossy buckthorn in the shrub layer; with sensitive fern, giant goldenrod, and reed canary grass common herbaceous species. This feature was added during 2015 field investigations.	42

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W192	9	None	Hardwood swamp and degraded wet meadow wetland located in depression between I-90 and 21st Avenue with culverts from each road draining into this feature. Hardwood swamp canopy dominated by silver maple and quacking aspen; glossy buckthorn and honeysuckle shrubs common in the shrub layer; with reed canary grass, sensitive fern, and giant goldenrod in the herb layer. Degraded wet meadow present within DOT ROW and dominated by reed canary grass, giant goldenrod, and sensitive fern. Feature extended to the southwest to include additional area of hardwood swamp.	43
N-W193	10	137438	Predominantly shrub-carr with small components of hardwood swamp and degraded wet meadow. Shrub-carr with sandbar willow and speckled alder shrubs with steeplebush, reed canary grass, wool-grass, flat-top aster, and scattered common buckthorn. Hardwood swamp portions with red maple, river birch, and cottonwood in the canopy, scattered common buckthorn and honeysuckle shrubs, and reed canary grass, interrupted fern, royal fern, and sensitive fern. Degraded wet meadow within the DOT ROW dominated by reed canary grass and narrow-leaf cattail with sensitive fern, scattered common buckthorn, and American manna grass.	44, 45, 46
N-W194	10	137439	Degraded wet meadow within DOT ROW extends into shrub-carr community to the south. Degraded wet meadow dominated by reed canary grass with sensitive fern, marsh fern, wool-grass, Canada bluejoint, blue vervain, various sedges, and boneset. Shrub-carr component with speckled alder, red maple saplings, and common buckthorn shrubs with reed canary grass dominant in the herb layer. A few scattered larger oak trees are present within the shrub-carr component. This feature reduced in area during 2015 field investigations to exclude area of mesic woodland dominated by various oaks, black cherry, red maple, shagbark hickory, and some white pine in the canopy; with an understory of hazelnut and sapling oaks, pines, and red maple; with bracken fern, Pennsylvania sedge, Canada mayflower, and starflower in the herb layer.	47, 48
N-W195	10	None	Large brush pile and wood chips present within wetland beyond DOT ROW. Degraded wet meadow dominated by reed canary grass with Canada bluejoint, marsh fern, scattered speckled alder, and cinnamon fern extending beyond DOT ROW with scattered shrubs present. Open water observed during spring 2016 investigation in channel through wetland starting at a culvert under interstate. Feature reduced during 2015 field investigations to exclude small area of woodland at east end dominated black locust.	49, 50
N-W196	11	None	Degraded wet meadow at culvert outlet that extends southwest as a drainage swale through an oak woodland. Reed canary grass dominant with water pepper, scattered Bebb's willow, arrow-leaf tear-thumb, bittersweet nightshade, some blue vervain and narrow-leaf cattail. Feature extended to the northwest to include additional area of degreaded wet meadow within depression.	51

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
N-W197	14, 15	137454, 137455	Extensive high-quality wetland complex comprised of sedge meadow, shallow marsh, wet meadow, shrub-carr, and small component of degraded wet meadow. Sedge meadow component dominated by tussock sedge, lake sedge, and marsh fern; also common was sensitive fern, steeplebush, meadowsweet, mad-dog skullcap, joe-pye weed, and marsh marigold; with scattered bog birch, various willows, and broad-leaved cattail. Reed canary grass present. Shallow marsh comprised of broad-leaved cattail predominantly with jewelweed, American manna grass, marsh milkweed, Canada bluejoint, and various sedge species. High quality wet meadow dominated by Canada bluejoint, joe-pye weed, giant goldenrod, jewelweed, broadleaf arrowhead, and lake sedge. Shrub-carr present in scattered pockets with similar wet meadow understory and various dogwood and willow shrubs. Degraded wet meadow along banks of waterway N-R89 and at northwest end of wetland dominated by reed canary grass with stinging nettle, sensitive fern, joe-pye weed, and elderberry.	52, 53, 54
N-W198	15	None	High-quality wetland complex comprised of wet meadow, shrub-carr, shallow marsh, and a narrow fringe of hardwood swamp. Contiguous with N-W197 outside Project corridor. Wet meadow dominated by Canada bluejoint, jewelweed, arrow-leaf tear-thumb, wool-grass, giant goldenrod, joe-pye weed, blue vervain, and tussock sedge. Reed canary grass common only at southeast boundary of wetland feature. Shrub-carr with American hazelnut, poison sumac, speckled alder, bog birch, meadowsweet, leatherleaf, and many of the herbaceous species comprising the wet meadow community. Shallow marsh dominated by broad-leaf cattail, wool-grass, tussock sedge, and Canada bluejoint with many high-quality wetland forbs present. Some tussock formation within seasonally inundated wetland community. Narrow fringe of hardwood swamp at SW corner of the Project corridor with red maple and paper birch in the canopy; winterberry and poison sumac in the shrub layer; with marsh fern and Canada bluejoint common in the herb layer. Sphagnum layer also present.	55, 56
N-W199	16	None	Narrow degraded wet meadow associated with agricultural drainage swale. Reed canary grass dominant with scattered blue vervain, riverbank grape, giant goldenrod, and wild parsnip.	57
N-W200	16	137460	Higher quality wetland complex of hardwood swamp, sedge meadow, and a small component of disturbed wet meadow at northwest end of feature. Hardwood swamp with red maple and tamarack in the canopy; poison sumac, speckled alder, and red maple in the shrub layer; with interrupted fern and skunk cabbage dominant in the herb layer. Various oaks are present on scattered shallow rises. Sedge meadow present within existing cleared ROW; tussock sedge, lake sedge, jewelweed, wool-grass, arrow-leaf tear-thumb, giant goldenrod, and marsh fern are common. Degraded wet meadow at northwest end of feature dominated by reed canary grass with blue vervain, giant goldenrod, and sensitive fern. This feature reduced in area during 2015 field investigations to exclude area of grassland dominated by Pennsylvania sedge and scattered reed canary grass at southeast end of feature. Adjacent uncleared woodland dominated by various oaks, black cherry, and red maple; with an understory of Pennsylvania sedge, bracken fern, Canada mayflower, and starflower.	58, 59, 60

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
M-W1	17	137463	Wetland complex of degraded wet meadow, alder thicket, and hardwood swamp. Degraded wet meadow dominated by reed canary grass with stinging nettle, jewelweed, and joe-pye weed. Alder thicket associated with waterway M-R1 and dominated by speckled alder with scattered poison sumac and elderberry in the shrub layer; and jewelweed, skunk cabbage, reed canary grass and stinging nettle in the herb layer. Hardwood swamp with a red maple canopy; a shrub layer of speckled alder, black chokeberry, and winterberry; with interrupted fern, royal fern, and scattered poison sumac.	61, 62
M-W2	17, 18	137464, 137465, 137466	Extensive, high-quality wetland complex comprised of sedge meadow, shrub-carr, wet meadow, and hardwood swamp with small component of degraded wet meadow at northwest and southeast ends of the feature. Sedge meadow near center of feature dominated by tussock sedge and lake sedge with Canada bluejoint, joe-pye weed, giant goldenrod, and meadowsweet common. Shrub-carr components dominated by speckled alder, poison sumac, Bebb's willow, and red-osier dogwood shrubs with Canada bluejoint, various sedge species, jewelweed, meadowsweet, and sphagnum in the understory. High quality wet meadow within eastern portion of feature dominated by Canada bluejoint, tussock sedge, joe-pye weed, boneset, jewelweed, marsh fern, meadowsweet, wool-grass, sensitive fern, and lake sedge with scattered reed canary grass. A sphagnum layer is also present. The hardwood swamp component is present within the western portion of the feature and has a canopy dominated by red maple and tamarack; with red maple, speckled alder, and poison sumac in the shrub layer; and interrupted fern, skunk cabbage, and jewelweed common over the hummocky ground surface. Degraded wet meadow located at northwest and southeast ends of feature, dominated by reed canary grass with scattered stinging nettle and elderberry.	63, 64, 65, 66, 67
M-W3	18, 19	137468, 137469	High-quality wetland complex comprised of sedge meadow, shrub-carr, hardwood swamp, shallow marsh, and a small component of degraded wet meadow. Sedge meadow predominant and dominated by lake sedge, tussock sedge, hairy-fruit sedge, wool-grass, and Canada bluejoint with scattered poison sumac, steeplebush, marsh fern, *Glyceria* spp., jewelweed, and sensitive fern over a layer of sphagnum. Shrub-carr dominated by poison sumac with scattered river birch and speckled alder over lake sedge, skunk cabbage, broad-leaf cattail, and a variety of fern species. Shallow marsh component dominated by broad-leaf cattail, lake sedge, water plantain, broad-leaf arrowhead, tussock sedge, and rattlesnake manna grass over a layer of sphagnum. Hardwood swamp is present along the boundaries of the Project corridor. The canopy is dominated by red maple and quaking aspen in the canopy; poison sumac, winterberry, black chokeberry, and scattered speckled alder in the shrub layer; with skunk cabbage, interrupted fern, and cinnamon fern dominant in the herb layer. Degraded wet meadow is present at the northwest end of the feature on slightly higher topography and is dominated by reed canary grass with giant goldenrod, blue vervain, and American manna grass common. This feature was reduced in area during 2015 field investigations to exclude an area of higher topography near the northwest end of the feature dominated by Queen Anne's-lace, red oak, and planted red pine.	68, 69, 70, 71, 72

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
M-W4	19	137470, 137471	High-quality wetland complex comprised of wet meadow, shrub-carr, and hardwood swamp. Diverse wet meadow community in eastern half of feature dominated by joe-pye weed, giant goldenrod, grass-leaved goldenrod, wool-grass, steeplebush, royal fern, sensitive fern, interrupted fern, flat-top aster, a variety of *Juncus* spp., dark-green bulrush, lake sedge, Canada bluejoint, and only sparse reed canary grass. Narrow-leaf sundew present on sandy soils exposed by existing access road. Wet meadow at western end of feature also high-quality, but with fewer species including Canada bluejoint, scattered reed canary grass, wool-grass, steeplebush, cinnamon fern, hairy-fruit sedge, and scattered poison sumac over a thick layer of sphagnum. Shrub-carr in western half of feature dominated by black chokeberry, winterberry, poison sumac, scattered speckled alder and various willows, with an understory including steeplebush, royal fern, boneset, and a variety of sedge species over sphagnum hummocks. Hardwood swamp is present along the shrub-carr community with red maple and river birch common in the canopy, winterberry and scattered speckled alder in the shrub layer, and skunk cabbage and interrupted fern dominant in the herb layer.	73, 74, 75, 76
M-W5	19	None	Degraded wet meadow routinely mowed within DOT ROW. Dominant species include Oriental lady's-thumb, common fox sedge, reed canary grass, and narrow-leaf cattail.	77
M-W6	19, 20	137472, Str 106271 of Y-101 line	Large wetland feature comprised of wet meadow and hardwood swamp communities. A small component of degraded wet meadow is present northwest of waterway M-R3. Reed canary grass and Canada thistle were more prevalent, but skunk cabbage and jewelweed were still common. Relatively high quality wet meadow within the majority of the feature. Common species include wool-grass, joe-pye weed, marsh milkweed, rice cut-grass, sensitive fern, common great Angelica, skunk cabbage, blue vervain, royal fern, tussock sege, lake sedge, various asters, and scattered reed canary grass. Various willow and dogwood shrubs are scattered throughout. High quality hardwood swamp present along boundaries of Project corridor. Red maple and river birch common with some quaking aspen in the canopy; scattered speckled alder and elderberry in the shrub layer. Interrupted fern, skunk cabbage, jewelweed, arrow-leaf tear-thumb, blue-flag iris, and various sedge species common in the herb layer. Feature merged with previous M-W7 due to wet meadow identified during the 2015 field investigations connecting the two wetland areas. Mesic oak woodland and a large man-made berm were excluded from this feature. The woodland is dominated by various oaks, red maple, and black cherry with Canada mayflower and star flower. The berm was 3-4 feet above the adjacent wetland areas, approximately 16 feet wide, and vegetated with Kentucky bluegrass, early low blueberry, bracken fern, common dewberry, and Canada goldenrod, as well as scattered American hazelnut, red oak, and black cherry saplings.	78, 79, 80, 81
M-W7	N/A	N/A	**Feature merged with M-W6**	N/A
M-W8	20	None	Hardwood swamp dominated by red maple with white pine and green ash. Silky dogwood, winterberry, and elderberry common in the shrub layer with lake sedge, jewelweed, skunk cabbage, and royal fern in the herb layer. Reed canary grass scattered. Feature reduced at eastern end during 2015 field investigations to remove an area of woodland on higher topography with a white pine canopy, hazelnut shrub layer, and bracken fern and Canada mayflower common in the herb layer.	82

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
M-W9	20	137475	Wetland complex consisting of wet meadow and shallow marsh within maintained ROW and hardwood swamp to the north and south of ROW. Wet meadow dominated by reed canary grass with Joe-Pye weed, boneset, skunk cabbage, and giant goldenrod common; and scattered patches of wool-grass, lake sedge, and flat-topped white aster. Shallow marsh area in N half of feature; dominated by broad-leaved cattail, water-plantain, American manna grass, reed canary grass, wool-grass, and Joe-Pye Weed. Hardwood swamp dominated by red maple, black ash, and American elm in the canopy; dogwoods and winterberry in the shrub layer; and orange jewelweed, skunk cabbage, cinnamon fern, senstive fern, and royal fern in the herbaceous layer. Feature extended to NW in 2015 to include a wet meadow community dominated by reed canary grass, wool-grass, Joe-Pye weed, and boneset as well as a hardwood swamp component dominated by black ash, cinnamon fern, and skunk cabbage. Removed upland area within west-central portion of feature at higher elevation than adjacent wetland and dominated by a black locust clone, Canada goldenrod, Canada bluegrass, bracken fern, and common milkweed. Scattered hydrophytes observed (stinging nettle, giant goldenrod) but not dominant. Reduced wetland in east-southeast corner of feature at a higher elevation than adjacent wetland and dominated by white pine, Canada mayflower, and bracken fern.	83, 84, 85
M-W10	20	None	Wet meadow community with narrow hardwood swamp component at east end. Feature with sandy soils and a mosaic of topography and mix of hydrophytes and non-hydrophytes. Wet meadow dominated by giant goldenrod, bristly dewberry, and Canada bluejoint; with reed canary grass and lady's thumb smartweed common; and scattered bracken fern, blue vervain, and Canada goldenrod. Hardwood swamp component with red maple canopy, winterberry and hazelnut in the shrub layer; and cinnamon, sensitive and bracken ferns in the understory. Reduced NW portion of wetland in 2015. Woodland area with red maple canopy and bracken fern, Pennsylvania sedge, black raspberry, Canada mayflower, and scattered black oak saplings in the understory. Reduced area within open ROW dominated by fescue, common mullein, bracken fern, and brambles.	86, 87
M-W11	20, 21	None	Wetland complex comprised of shrub-carr, shallow marsh, wet meadow, and hardwood swamp, with an excavated open water pond present along the northeast boundary. Shallow marsh component dominated by broad-leaf cattail, reed canary grass, wool-grass, boneset, steeplebush, sharp-fruited rush, dark-green bulrush, with narrow-leaf cattail. Shrub-carr with sandbar willow, shining willow, and scattered poison sumac over understory of steeplebush, broad-leaf cattail, reed canary grass, and wool-grass. Wet meadow dominated by prairie cordgrass, marsh milkweed, steeplebush, and scattered broad-leaf cattail. Small area of hardwood swamp in southeast portion of feature with red maple and quaking aspen in the canopy; scattered speckled alder shrubs; and sensitive, interrupted, and royal ferns dominant in the herb layer.	88, 89, 90, 91, 92

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Wetland ID	EAP Map Page	Structures in Wetland	Community Description / Observations	Photo Number
M-W12	21	137477	Wetland comprised of wet meadow and hardwood swamp communities. The hardwood swamp is dominated by red maple and quaking aspen in the canopy, scattered winterberry in the shrub layer, and interrupted fern, royal fern, and scattered steeplebush in the herb layer. Pockets of wet meadow are present within the hardwood swamp and comprised of Canada bluejoint, tussock sedge, giant goldenrod, and scattered steeplebush and willow species. Within the existing cleared t-line ROW, the wet meadow community contained similar species with the addition of heal-all, various *Juncus* spp., common goldenrod, common blackberry, and bristly dewberry present.	93, 94
			Total area of feature adjusted during 2015 field investigations to add additional hardwood swamp at the west end and to remove two upland areas. The upland area at the eastern edge of the feature was comprised of woodland dominated by oaks, paper birch, jack pine, and black cherry; the other upland along the southwest boundary was dominated by spotted knapweed, Canada goldenrod, little bluestem, and scattered oak shrubs.	
M-W13	21, 22	None	Wet meadow within shallow depression; dominated by sedges, steeplebush, meadowsweet, common dewberry, larger Canadian St. John's wort, grass-leaved goldenrod, and *Muhlenbergia* sp. Shrubs comprise approximately 30% of the feature and are less than 1.5 feet tall. NW edge (<10% of feature) with paper birch, red maple, jack pine, cinnamon fern, and royal fern.	95, 96
			Western corner of feature reduced in 2015; area with higher topography than wetland and dominated by little bluestem.	
M-W14	22	None	Wet meadow within shallow depression with sandy soils. Dominated by sedges with blue vervain, meadowsweet, steeplebush, dark-green bulrush, clustered beak-rush, and western ragweed common. Scattered dry prairie forbs intermixed with wetland vegetation along the edges of the feature. Glossy buckthorn scattered.	97
			Reduced NE 1/3 of feature in 2015; area was approximatley one foot higher in elevation than wetland, dominated by red pine, Jack pine, sand willow, paper birch, cottonwood, and black oak in the tree and shrub layer and big bluestem, little bluestem, and Pennsylvania sedge dominant in the herbaceous layer.	
M-W15	22	None	Feature consists of wet meadow and shrub-carr. Wet meadow community in W portion of feature dominated by sedges, grass-leaved goldenrod, *Juncus* spp., and wool-grass with Joe-Pye weed and clustered beak-rush common. Shrub-carr in E 2/3 of feature dominated by steeplebush and meadowsweet with a wet meadow understory. ATV path bisects feature.	98, 99
K-W1	22, 23	137483	Wetland complex of shrub-carr, sedge meadow, and hardwood swamp. Shrub-carr dominated by Bebb's willow and sandbar willow with meadowsweet, steeplebush, giant goldenrod, royal fern, sensitive fern, prairie blazing star, and some reed canary grass. Sedge meadow component dominated by tussock sedge and wool-grass with narrow-leaf cattail closer to highway, scattered steeplebush and sandbar willow, and sphagnum hummocks present. The hardwood swamp has a canopy dominated by quaking aspen with some river birch, red maple, and paper birch also present. Royal, cinnamon, and ostrich ferns dominant in the herb layer. Within hardwood swamp, approximately 10-20% upland inclusions on shallow rises dominated by quaking aspen, paper birch, various oaks, and bracken fern.	100, 101, 102
			Feature reduced on eastern end during 2015 field investigations to remove woodland area dominated by red and black oaks, paper birch, big-tooth aspen, and black locust.	
K-W2	23	None	Wet meadow within shallow depression; previously shrub-carr community but recent mowing removed shrub dominance. Common species include tussock sedge, reed canary grass, blue vervain, meadowsweet, and sensitive fern; with scattered young Bebb's, shining, and sandbar willows.	103

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K-W3	23	None	Shrub-carr dominated by Bebb's and sandbar willows over Canada bluejoint, cinnamon fern, bristly dewberry, with some huckleberry.	104
K-W4	23, 24	None	Shrub-carr community dominated by red maple saplings and Bebb's willow with meadowsweet, flat-top aster, cinnamon fern, giant goldenrod, steeplebush, and sensitive fern. Extends a few feet beyond DOT ROW fence, then ends at established ATV road on higher, sandy soils.	105
K-W5	24, 25	137490	Relatively high quality wetland complex of wet meadow, shrub-carr, and hardwood swamp. Higher quality wet meadow within DOT ROW dominated by joe-pye weed, broad-leaf cattail, tussock sedge, jewelweed, giant goldenrod, marsh milkweed, boneset, royal fern, arrow-leaf tear-thumb, with scattered sandbar willow. Shrub-carr adjacent to waterway K-R1 dominated by speckled alder, Bebb's willow, poison sumac, black willow, and sandbar willow with various sedge species, skunk cabbage, and joe-pye weed common in the herb layer. Hardwood swamp with a canopy of red maple, tamarack, and quaking aspen; speckled alder, poison sumac, and red maple saplings in the shrub layer; various sedge species, skunk cabbage, jewelweed, senstive fern, and cinnamon fern common in the herb layer. Feature reduced during 2015 field investigations to exclude small area of mesic woodland at east end; woodland dominated by basswood, red maple, and black cherry with a Pennsylvania sedge herb layer.	106, 107, 108
K-W6a	25, 26	137492	Wetland complex of wet meadow, shrub-carr, and hardwood swamp. Wet meadow present within DOT ROW and dominated by wool-grass, reed canary grass, sensitive fern, blue vervain, lake sedge, tussock sedge, marsh milkweed, boneset, and broad-leaf cattail. Shrub-carr at northwest end of feature dominated by speckled alder, gray dogwood, elderberry, and various willows over a herb layer dominated by various sedge species. Hardwood swamp with red maple dominant in the canopy, speckled alder and winterberry common in the shrub layer, and a herb layer with skunk cabbage, bristly dewberry, and interrupted fern common. Area of feature adjusted during 2015 field investigations to exclude upland areas and add additional area of wet meadow. Upland areas included woodland dominated by basswood, red maple, black cherry, and Pennsylvania sedge and DOT ROW dominated by Kentucky bluegrass, spotted knapweed, bird's-foot trefoil, and sweet clover.	109, 110
K-W6b	26	None	Hardwood swamp in shallow depression surrounded by mesic woodland. Canopy dominated by red maple and quaking aspen, shrub layer with speckled alder and winterberry common, and the herb layer dominated by broad-leaved woolly sedge, royal fern, interrupted fern, sensitive fern, and steeplebush. This feature added during 2015 field investigations; located beyond DOT ROW.	111
K-W6c	26	None	Small sedge meadow opening in shallow depression within jack pine and quaking aspen dominated woodland. Broad-leaved woolly sedge, tussock sedge, sensitive fern, and marsh fern common with sparse sandbar willow. This feature added during 2015 field investigations; located beyond DOT ROW.	112
K-W6d	26	None	Wet meadow swale running through oak woodland. Overall vegetation sparse, but wool-grass, reed canary grass, and oval sedge observed. This feature added during 2015 field investigations; located beyond DOT ROW.	113
K-W6e	27	None	Shallow wet meadow depression within oak dominated woodland extending into degraded wet meadow within DOT ROW. Wet meadow dominated by Canada bluejoint, reed canary grass, meadowsweet, and wool-grass with a few red maple and white oak saplings. Degraded wet meadow dominated by reed canary grass with blue vervain and Canada bluejoint. This feature added during 2015 field investigations.	114, 115

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K-W6f	28	None	Shallow marsh at culvert outlet within DOT ROW extending beyond DOT ROW into degraded wet meadow depression within oak/red maple woodland. Shallow marsh dominated by narrow-leaf cattail, blue vervain, and reed canary grass. Degraded wet meadow dominated by reed canary grass, wool-grass, sensitive fern, giant goldenrod, and steeplebush. This feature added during 2015 field investigations.	116, 117
K-W7a	28, 29	None	Primarily hardwood swamp beyond DOT ROW with degraded wet meadow within DOT ROW. Hardwood swamp with red and silver maple dominant with scattered river birch in the canopy, a sparse shrub layer of winterberry and gray dogwood, and an herb layer dominated by Canada bluejoint, common wood sedge, tussock sedge, wool-grass, and some reed canary grass. A few larger white and pin oaks are present on shallow upland rises within the hardwood swamp. Degraded wet meadow dominated by reed canary grass with blue vervain, giant goldenrod, and sparse narrow-leaf cattail and riverbank grape.	118, 119
K-W7b	29	None	Wet meadow and shrub-carr complex within oak/red maple woodland connected to degraded wet meadow ditch within DOT ROW. Shrub-carr predominant with winterberry over Canada bluejoint, wool-grass, royal fern, and various sedge species. Wet meadow component comprised of similar herb species, but lacking shrub layer. Degraded wet meadow dominated by reed canary grass with blue vervain, narrow-leaf cattail, Canada thistle, and Culver's root. This feature added during 2015 field investigations.	120, 121
J-W1a	33	None	Wet meadow along highway berm; dominated by orange jewelweed and lake sedge with brambles, Canada thistle, and giant goldenrod common. Garlic mustard and invasive honeysuckle present along mesic woodland edge to west. Shallow marsh located in NW finger; associated with J-R1; dominated by American manna grass, arrowhead, and sweet flag with orange jewelweed, reed canary grass, rice-cut grass, lake sedge, and Joe-Pye weed common.	122, 123
J-W1b	33, 34	None	Sedge meadow within drainage area/ravine within area of extensive rocky outcrops. S end of feature is a narrow drainage swale. Evidence of ponding and drainage patterns in wetland. Dominated by skunk cabbage, fringed sedge, common hop sedge, wool-grass, water smartweed, royal fern, marsh fern, and beggar-ticks. Reed canary grass scattered. This feature added during 2015 field investigations; located beyond DOT ROW.	124
J-W1c	34	None	Shallow marsh located between highway embankment and old field community. Dominated by narrow-leaf cattail with sparse reed canary grass and Canada thistle. This feature was added during 2015 field investigations.	125

Badger Coulee 345 kV Transmission Line Project

Segment 4 CMP

Appendix C

Photographs of Wetlands and Waterways

Wetland Photographs

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 01. N-W182a; vN. March 2016

Photo 02. N-W182b DWM; vN. March 2016

Photo 03. N-W182b ShM near center of feature; vN. March 2016

Photo 04. N-W182b WM near SE end; vSE. March 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 05. N-W183; vW. March 2016

Photo 06. N-W184; vS of HS. Aug 2015

Photo 07. N-W184; vS of WM. Aug 2015

Photo 08. N-W184; viewSE of ShM. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 09. N-W185a DWM; vSW. March 2016

Photo 10. NW185a SC; vS. March 2016

Photo 11. N-W185a, b, c, representative photo of HS; vN. March 2016

Photo 12. N-W185 a, b, c representative photo of HS; vW. March 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 13. Representative photo of FF in N-W185d; vS. March 2016

Photo 14. N-W185d flooded FF at NW of N-R83; vSW. March 2016

Photo 15. View towards N-W185e FF; vNW. March 2016

Photo 16. N-W185f, g representative photo of FF; vW. March 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 17. N-W186 representative view of flooded HS; vE. March 2016

Photo 18. N-W186 SC at W end of feature; vNW. March 2016

Photo 19. N-W186 cleared t-line DWM and ShM; vS. March 2016

Photo 20. N-W186-FF N of N-R85b; vS. March 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 21. N-W186 representative view of DWM; vSE. March 2016

Photo 22. N-W186 representative view of DSM; vS. March 2016

Photo 23. N-W186-ShM at E end of feature; vNW. March 2016

Photo 24. N-W187a DSM at W end of feature; vE. March 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 25. N-W187a SC at W end of feature; vNW; March 2016

Photo 26. N-W187a DWM, SC, DSM in DOT ROW; vE. March 2016

Photo 27. N-W187a representative view of HS; vW. March 2016

Photo 28. N-W187a representative view of SC; vW. March 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 29. N-W187a representative view of SM pockets in HS; vW. March 2016

Photo 30. N-W187a hayed DWM at E end; vW. March 2016

Photo 31. N-W187a farmed wetland at E end; vW. March 2016

Photo 32. N-W187b DWM, SC in DOT ROW; vE. March 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 33. N-W187b SC; vNE. March 2016

Photo 34. N-W188 DWM in DOT ROW; vSE. Aug 2015

Photo 35. N-W188 HS at W end of feature; vE. March 2016

Photo 36. N-W188 representative view of flooded HS; vS. March 2016

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 37. N-W188 HS extension at E end of feature; vW. March 2016

Photo 38. N-W189 DWM, SC, HS; vNW. Aug 2015

Photo 39. N-W190 DWM; vW. Aug 2015

Photo 40. N-W190 HS; vSE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 41. N-W190 addition at access crossing for STR 137434; vSW. March 2016

Photo 42. N-W191a SC; vE. Aug 2015

Photo 43. N-W192; vE. Aug 2015

Photo 44. N-W193 HS from DOT ROM, vSE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 45. N-W193 SC from DOT ROW, vS. Aug 2015

Photo 46. N-W193 DWM in DOT ROW, vSE. Aug 2015

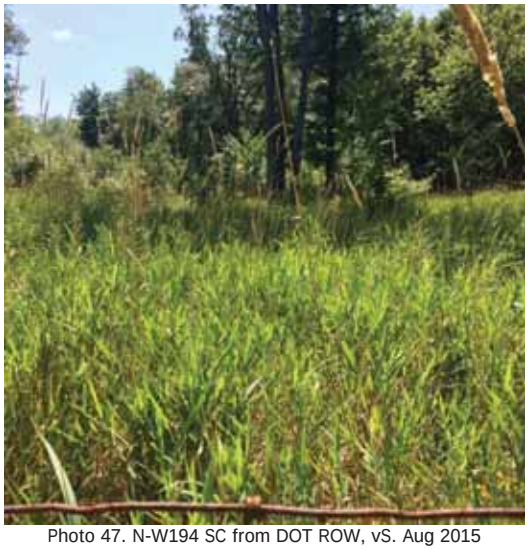


Photo 47. N-W194 SC from DOT ROW, vS. Aug 2015

Photo 48. N-W194 DWM in DOT ROW, vSE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 49. N-W195 DWM in DOT ROW, vSE. Aug 2015

Photo 50. N-W195; vS from DOT ROW. March 2016

Photo 51. N-W196 DWM; vN. Aug 2015

Photo 52. N-W197 representative view of DWM; vSE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 53. N-W197high quality WM; vW. Aug 2015

Photo 54. N-W197 WM with SC pockets; vSE. Aug 2015

Photo 55. N-W198 SC; vNW. Aug 2015

Photo 56. N-W198 DWM; vNW. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 57. N-W199 DWM; vSW. Aug 2015

Photo 58. N-W200 HS; vSE. Aug 2015

Photo 59. N-W200 SM; vNW. Aug 2015

Photo 60. N-W200 DWM; vW. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 61. M-W1 HS; vN. Aug 2015

Photo 62. M-W1 DWM; vSE. Aug 2015

Photo 63. M-W2 HS, SM; vW. Aug 2015

Photo 64. M-W2 SM, SC; vN. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 65. M-W2 SM; vNW. Aug 2015

Photo 66. M-W2 WM; vNW. Aug 2015

Photo 67. M-W2 DWM; vNW. Aug 2015

Photo 68. M-W3 DWM; vSE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 69. M-W3 SM, vNW from SE end. Aug 2015

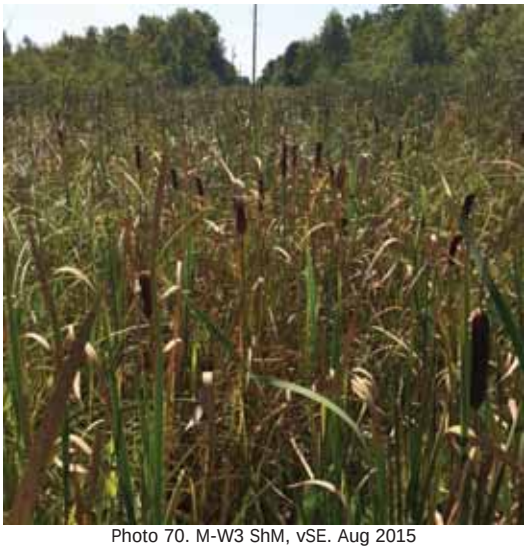


Photo 70. M-W3 ShM, vSE. Aug 2015

Photo 71. M-W3 SM, HS, vN. Aug 2015

Photo 72. M-W3 ShM, SC. vNW. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 73. M-W4 HS; view NW. Aug 2015

Photo 74. M-W4 SC; vNW. Aug 2015

Photo 75. M-W4 WM, vNW. Aug 2015

Photo 76. M-W4 WM, vNW. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 77. M-W5 DWM, vS. Aug 2015

Photo 78. M-W6 DWM; vE. Aug 2015

Photo 79. M-W6 HS; vS. Aug 2015

Photo 80. M-W6 HS; vSW. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 81. M-W6 WM; vNE. Aug 2015

Photo 82. M-W08 HS; vSW. Aug 2015

Photo 83. M-W9 WM; vNE. Aug 2015

Photo 84. M-W9 HS; vE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 85. M-W9 WM; vN. Aug 2015

Photo 86. M-W10 WM; vW. Aug 2015

Photo 87. M-W10 HS; vNW. Aug 2015

Photo 88. M-W11 ShM, SC, viewN. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 89. M-W11 ShM, SC; vSE. Aug 2015

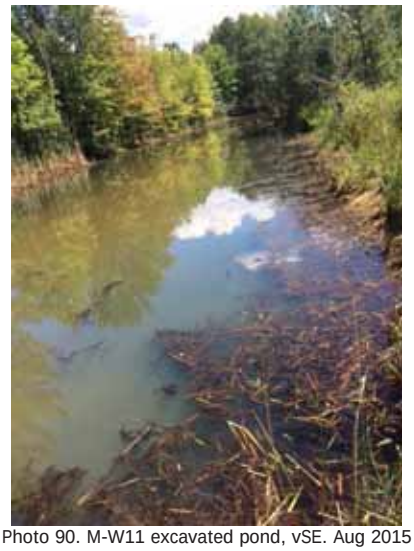


Photo 90. M-W11 excavated pond, vSE. Aug 2015

Photo 91. M-W11 HS; vNW. Aug 2015

Photo 92. M-W11 WM, vS. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 93. M-W12 HS; vSE. Aug 2015

Photo 94. M-W12 WM; vSE. Aug 2015

Photo 95. M-W13 WM in cleared ROW; vE. Aug 2015

Photo 96. M-W13 WM outside cleared ROW; vN. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

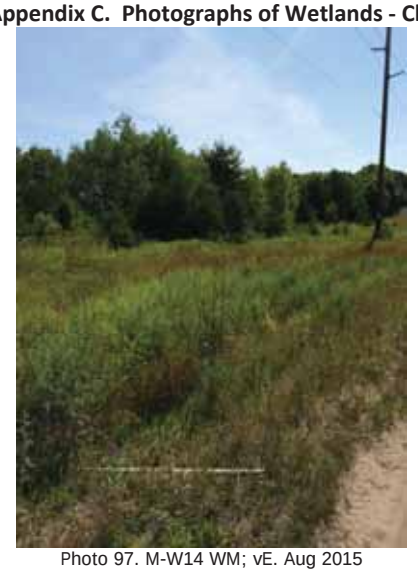


Photo 97. M-W14 WM; vE. Aug 2015

Photo 98. M-W15 WM; vNW. Aug 2015

Photo 99. M-W15 WM, SC; vSE. Aug 2015

Photo 100. K-W1 HS from DOT ROW; vS. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 101. K-W1 SC, vSE. Aug 2015

Photo 102. K-W1 SM in DOT ROW, vNW. Aug 2015

Photo 103. K-W2 WM, vNW. Aug 2015

Photo 104. K-W3, vSE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 105. K-W4, vNW. Aug 2015

Photo 106. K-W5 HS from DOT ROW; vW. Aug 2015

Photo 107. K-W5 SC from DOT ROW, vNW. Aug 2015

Photo 108. K-W5 nice WM in DOT ROW; vNW. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 109. K-W6a SC from DOT ROW, vW. Aug 2015

Photo 110. K-W6a, WM in DOT ROW and HS; vSE. Aug 2015

Photo 111. K-W6b HS; vSE. Aug 2015

Photo 112. K-W6c SM; vSE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 113. K-W6d WM; vN. Aug 2015

Photo 114. K-W6e, DWM in DOT ROW; vNE. Aug 2015

Photo 115. K-W6e, WM extending off DOT ROW; vS. Aug 2015

Photo 116. K-W6f DWM from DOT ROW vS. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 117. K-W6f ShM; vS. Aug 2015.

Photo 118. K-W7a DWM in DOT ROW; vN. Aug 2015

Photo 119. K-W7a HS; vSW. Aug 2015

Photo 120. K-W7b SC; vNE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

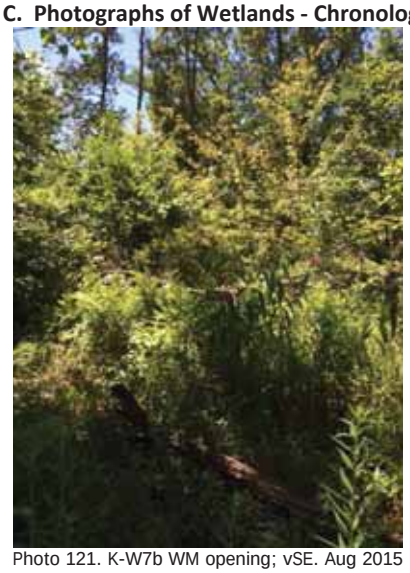


Photo 121. K-W7b WM opening; vSE. Aug 2015

Photo 122. J-W1a WM; vW. Aug 2015

Photo 123. J-W1a ShM; vNW. Aug 2015

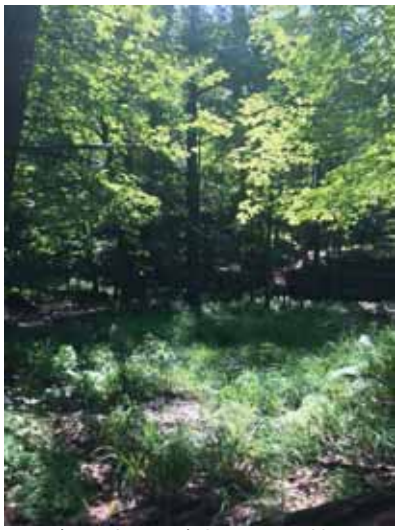


Photo 124. J-W1b SM; vE. Aug 2015

Appendix C. Photographs of Wetlands - Chronological from North to South

Photo 125. J-W1c; vE. Aug 2015

Waterway Photographs

Appendix C. Photographs of Waterways - Chronological from North to South

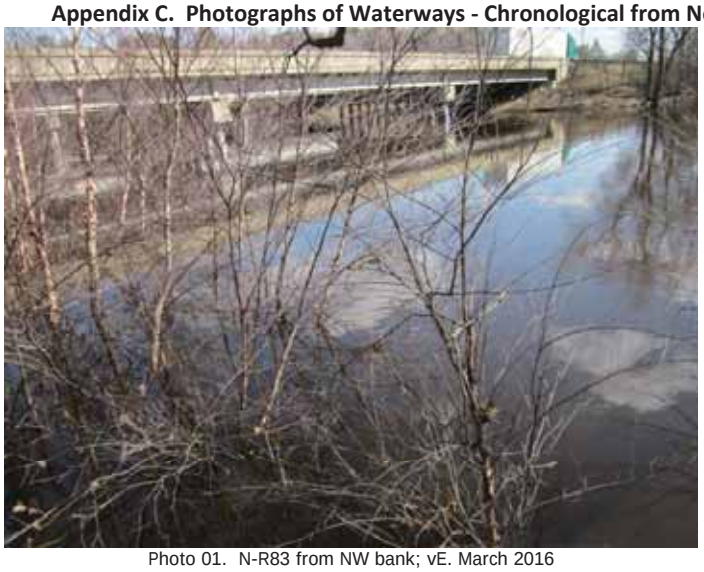


Photo 01. N-R83 from NW bank; vE. March 2016

Photo 02. N-R83 from SE bank ; vNW. March 2016

Photo 03. N-R83 upstream from SE bank; vW. March 2016

Photo 04. Seasonal channel of N-R83 to N-R84; vW. March 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 05. Seasonal channel of N-R83 looking towards N-R84; vSW. March 2016

Photo 06. N-R84; vW. March 2016

Photo 07. N-R85; vN. March 2016

Photo 08. N-R85a; vW. March 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 09. N-R85b from DOT ROW; vE. March 2016

Photo 10. N-R85c beyond DOT ROW; vW. March 2016

Photo 11. N-R85c-85d connection in DOT ROW; vE. March 2016

Photo 12. N-R85d downstream; vS. March 2016

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 13. N-R86 upstream from DOT culvert; vS. March 2016

Photo 14. N-R87; vS. Aug 2015

Photo 15. N-R88, spring water level overtopping bank; view NW. March 2016

Photo 16. N-R89 - banks heavily vegetated; vN. Aug 2015

Appendix C. Photographs of Waterways - Chronological from North to South

Photo 17. M-R1 - banks heavily vegetated; vN. Aug 2015

Photo 18. M-R2 - banks heavily vegetated; vSE. Aug 2015

Photo 19. M-R3 from S bank, vNW. Aug 2015

Photo 20. K-R1, vNW. Aug 2015

Appendix C. Photographs of Waterways - Chronological from North to South

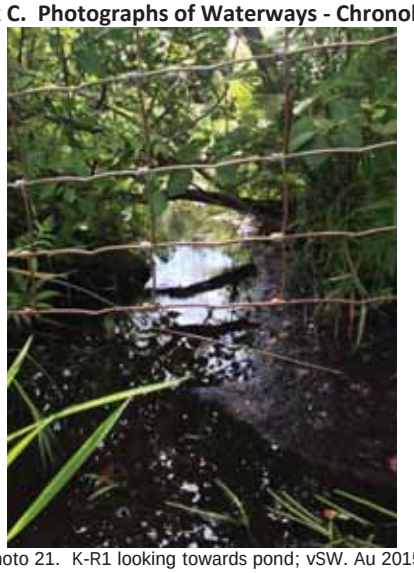


Photo 21. K-R1 looking towards pond; vSW. Au 2015

Photo 22. K-R2 from K-R3 juncture, vNW. Aug 2015

Photo 23. K-R3 looking towards I-94; vE. Aug 2015

Photo 24. J-R1; vSE. July 2015

Badger Coulee 345 kV Transmission Line Project

Segment 4 CMP

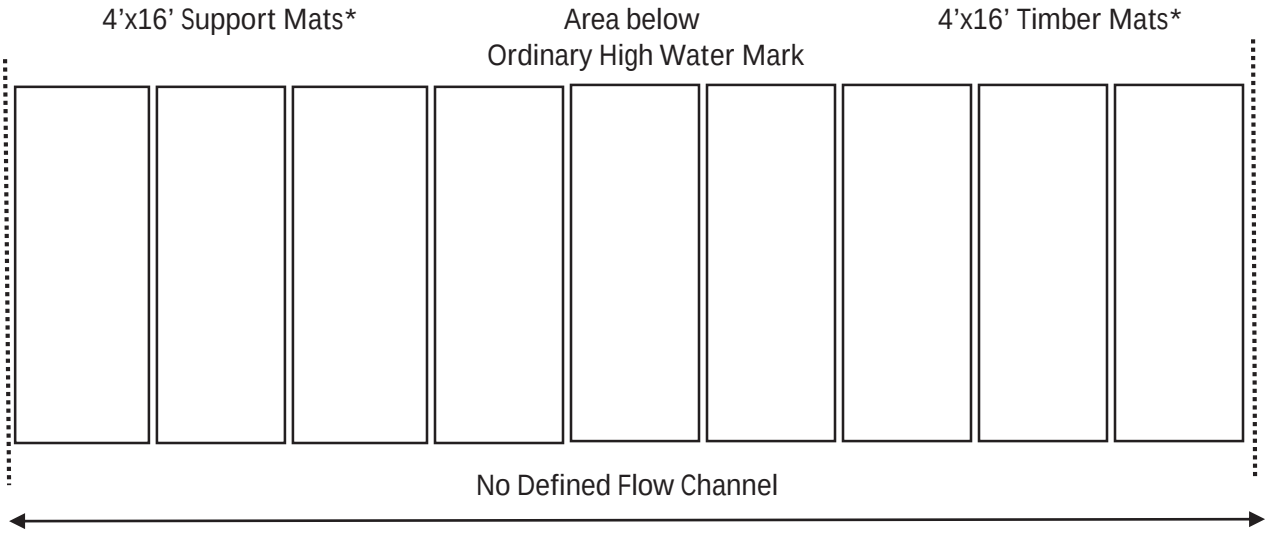
Appendix D

TCSB Plan and Profile Figures

Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: N-R84
Nearest Structure: 137415

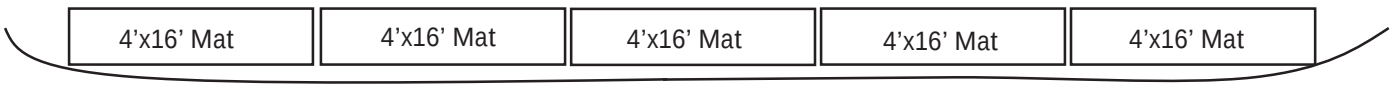
Plan View



Approximate width of waterbody at crossing point = 70'

Cross Sectional View

4'x16' Timber Mats are below OHWM



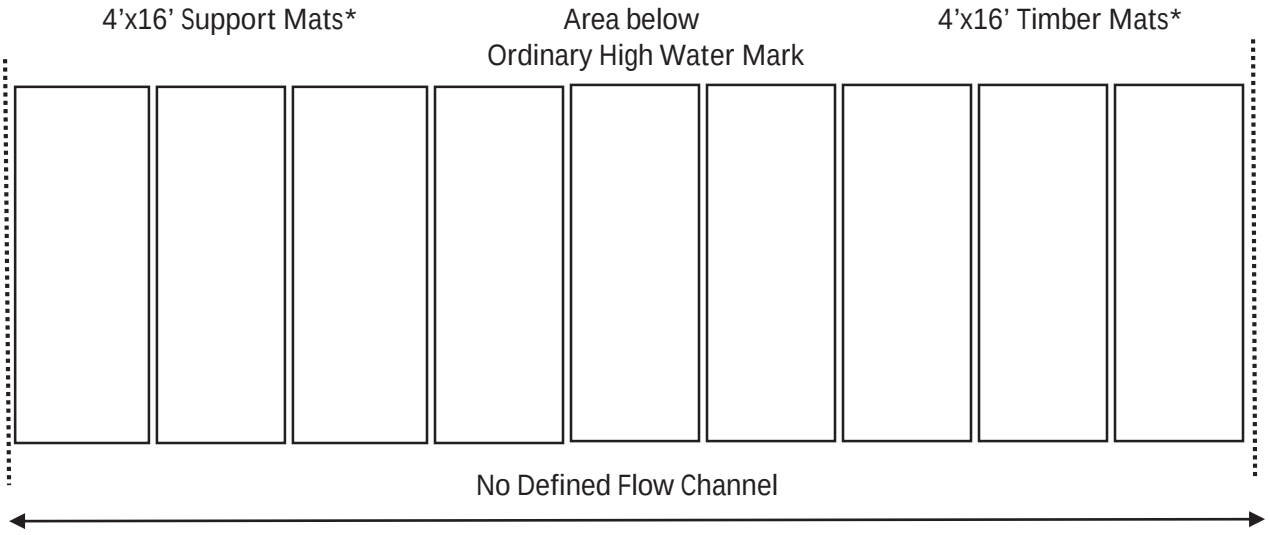
Depth of Water = 6" – 1' (Observed to be seasonally dry)
Clearance to Water = Mats will be set on bed of waterbody

- Drawings are not to scale
- It is estimated that 20-25 4'x16' timber mats will be used below the Ordinary High Water Mark (OHWM)
- These mats are expected to be used for clearing purposes only and will be in place for a shorter period of time (estimated as 2-4 weeks)
- All mats below the OHWM will be secured to a fixed anchor

Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: N-R85
Nearest Structure: 137415

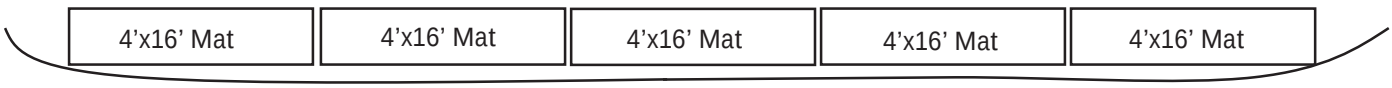
Plan View



Approximate width of waterbody at crossing point = 90'

Cross Sectional View

4'x16' Timber Mats are below OHWM



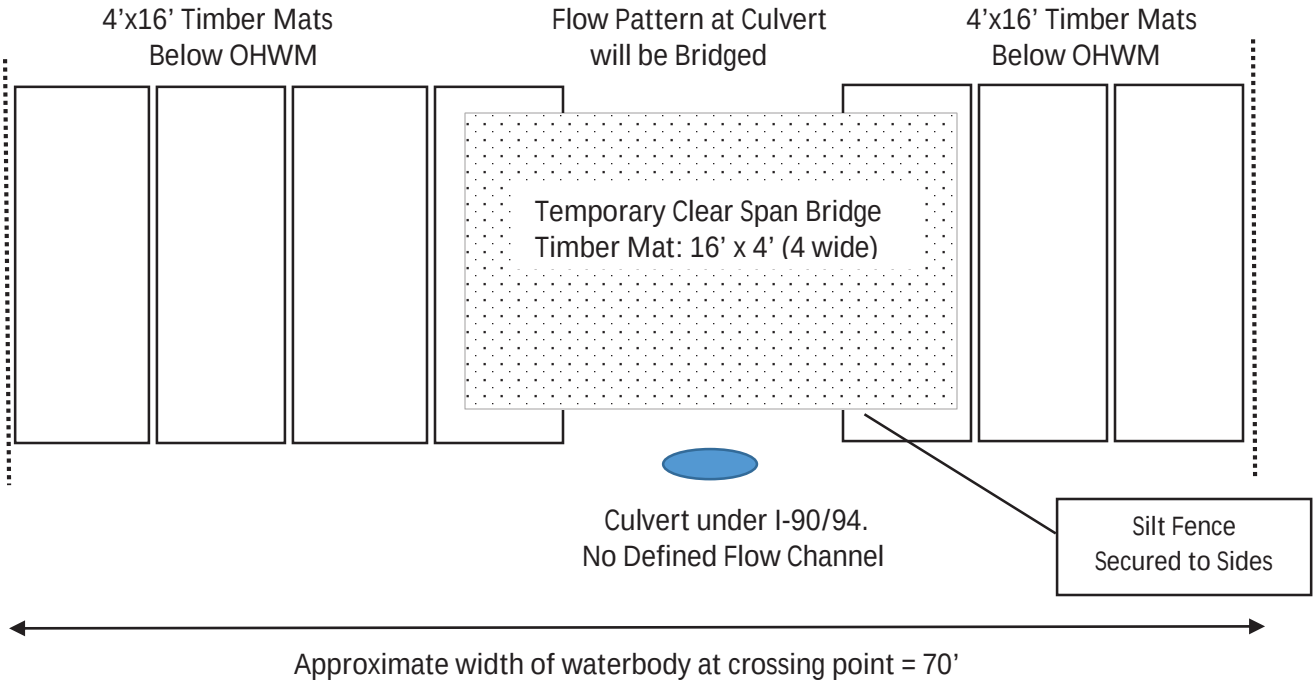
Depth of Water = 6" – 1' (Observed to be seasonally dry)
Clearance to Water = Mats will be set on bed of waterbody

- Drawings are not to scale
- It is estimated that 25-30 4'x16' timber mats will be used below the Ordinary High Water Mark (OHWM)
- These mats are expected to be used for clearing purposes only and will be in place for a shorter period of time (estimated as 2-4 weeks)
- All mats below the OHWM will be secured to a fixed anchor

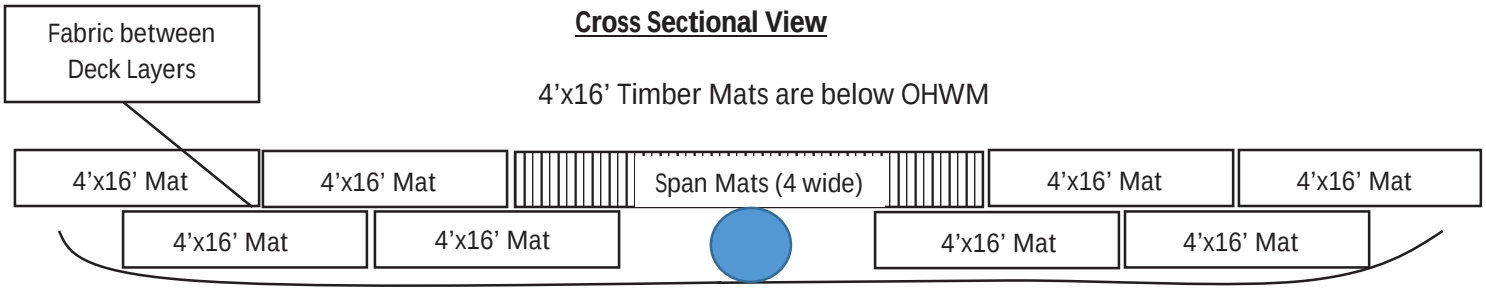
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: N-R85a
Nearest Structure: 137415

Plan View



Cross Sectional View



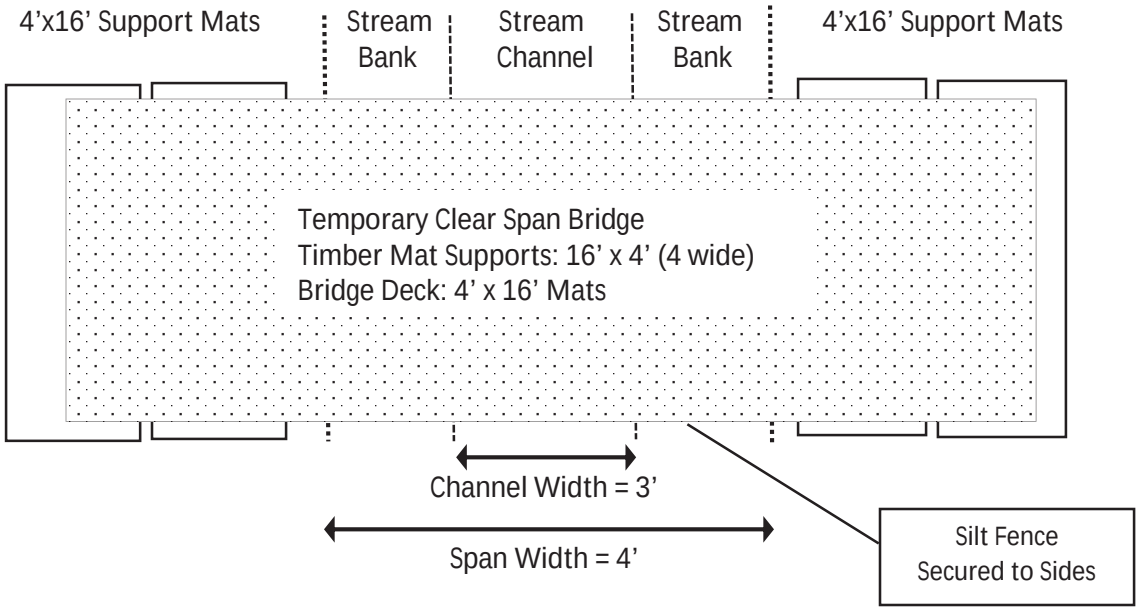
Depth of Water = 6" – 1' (Observed to be seasonally dry)
Clearance to Water = Mats will be set on bed of waterbody

- Drawings are not to scale
- It is estimated that 25-30 4'x16' timber mats will be used below the Ordinary High Water Mark (OHWM)
- All mats below the OHWM will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

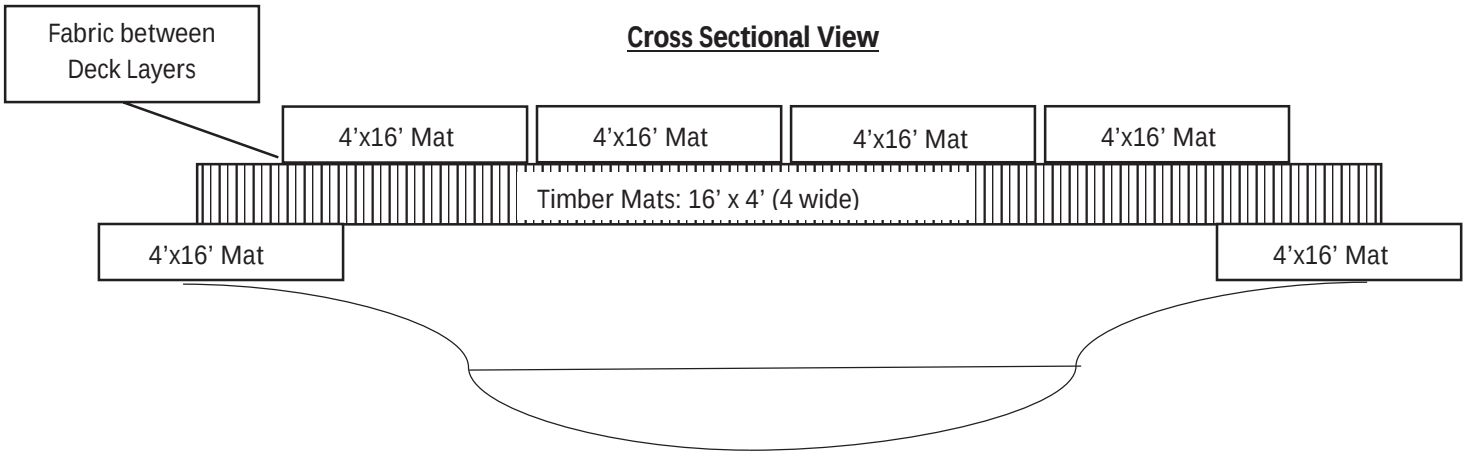
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: N-R85c
Nearest Structure: 137423

Plan View



Cross Sectional View



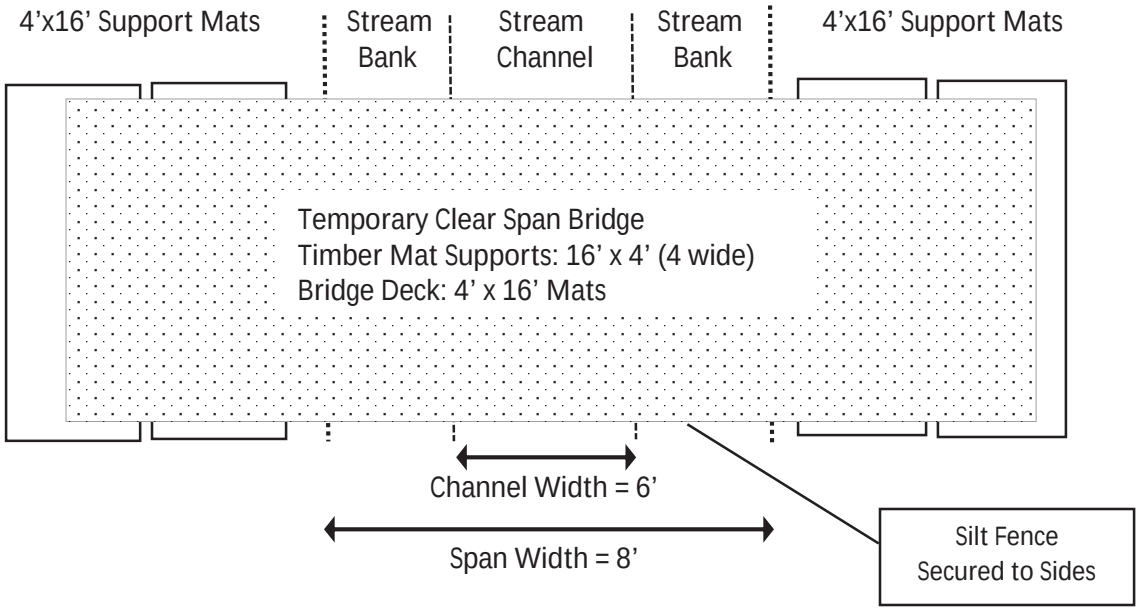
Depth of Water = 6"
Clearance to Water = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

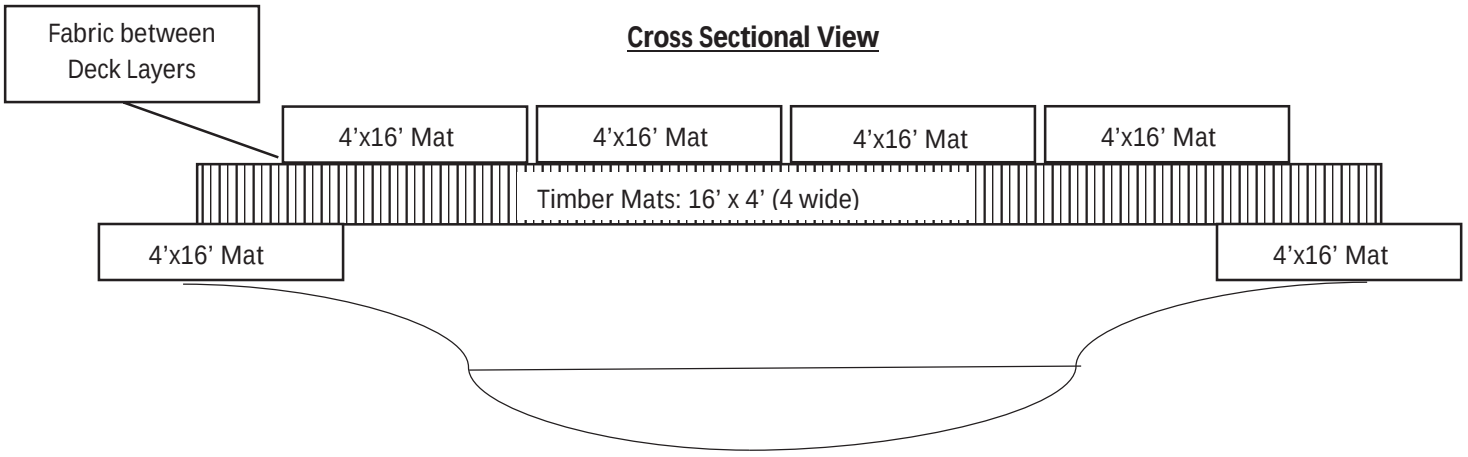
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: N-R85d
Nearest Structure: 137423

Plan View



Cross Sectional View



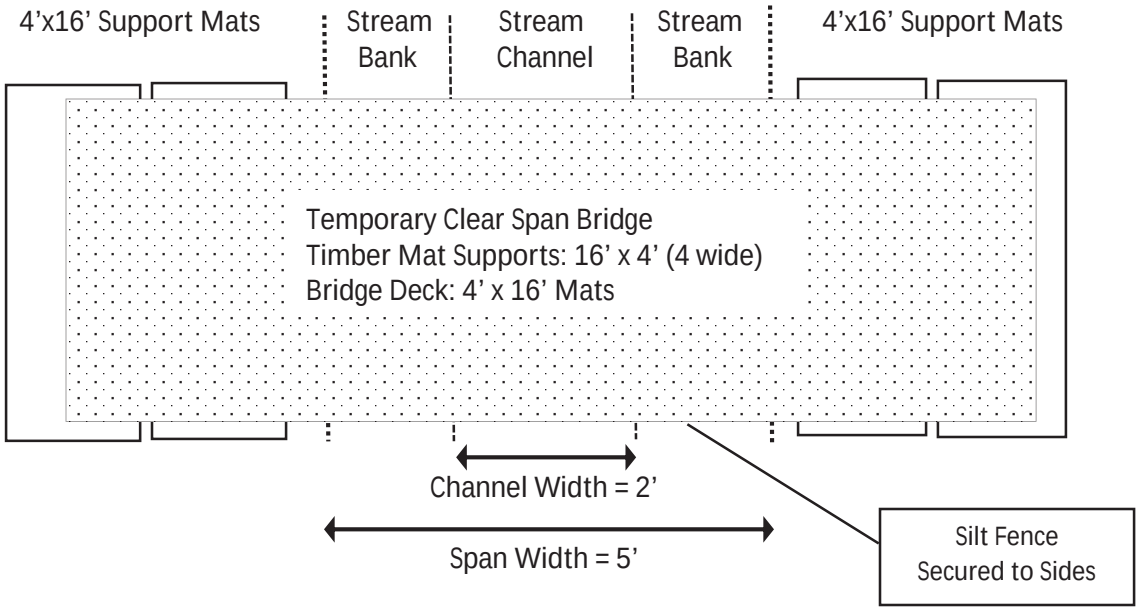
Depth of Water = 6"
Clearance to Water = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

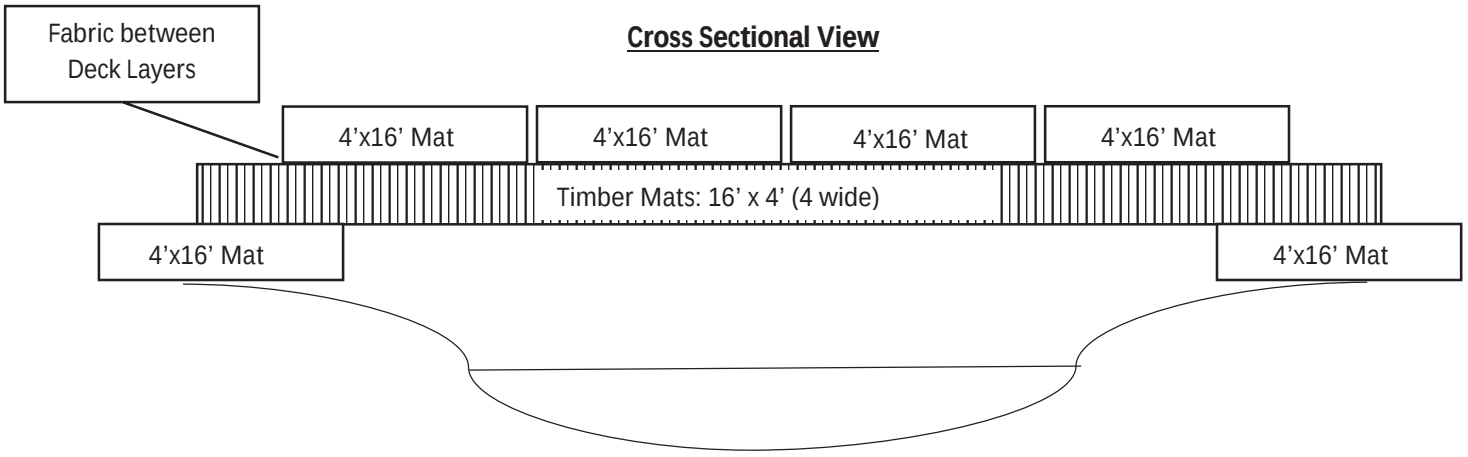
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: N-R86
Nearest Structure: 137425

Plan View



Cross Sectional View



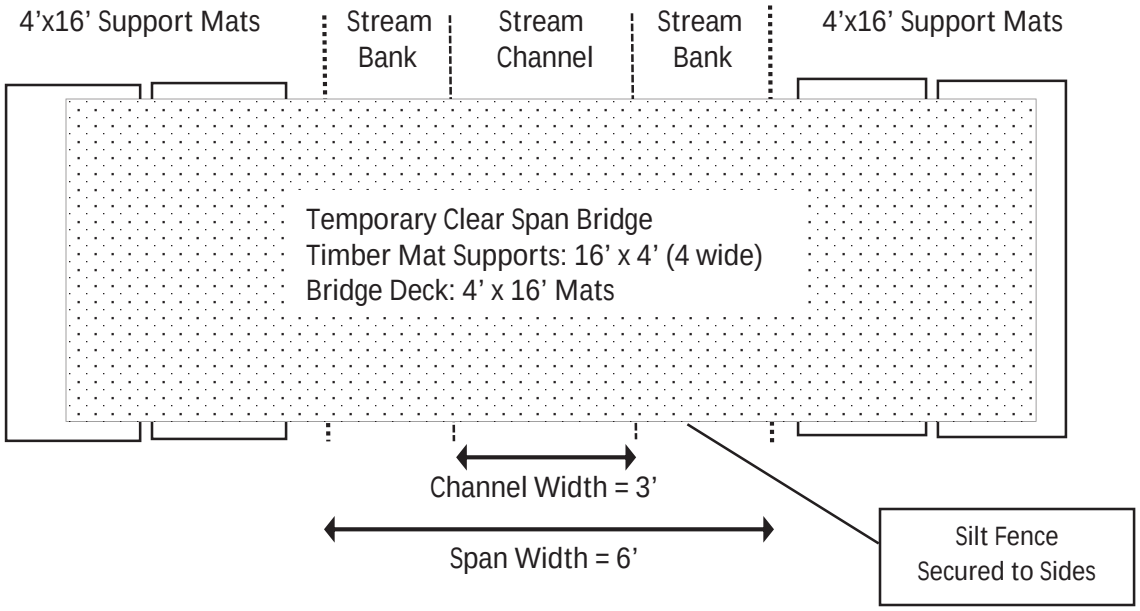
Depth of Water = 3"
Clearance to Water = 1'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

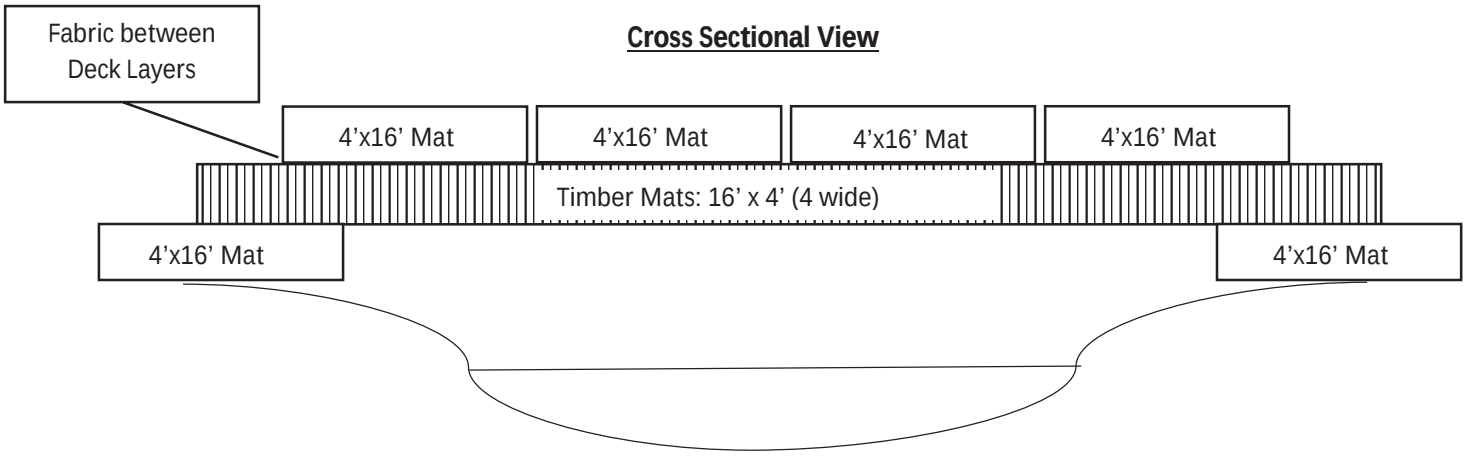
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: N-R88
Nearest Structure: 137434

Plan View



Cross Sectional View



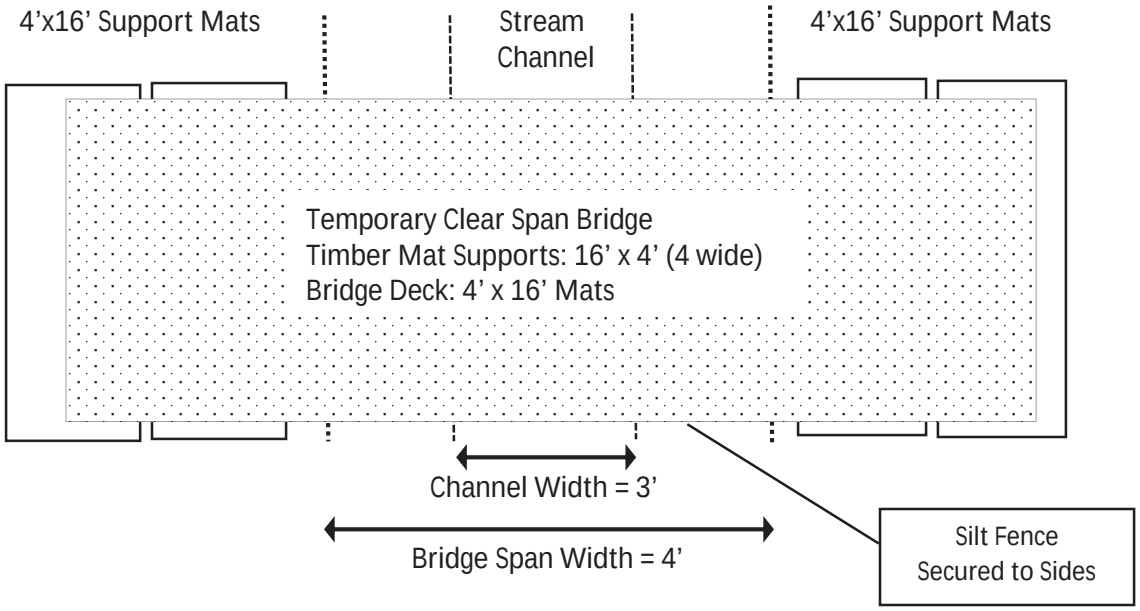
Depth of Water = 6"
Clearance to Water = 1'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

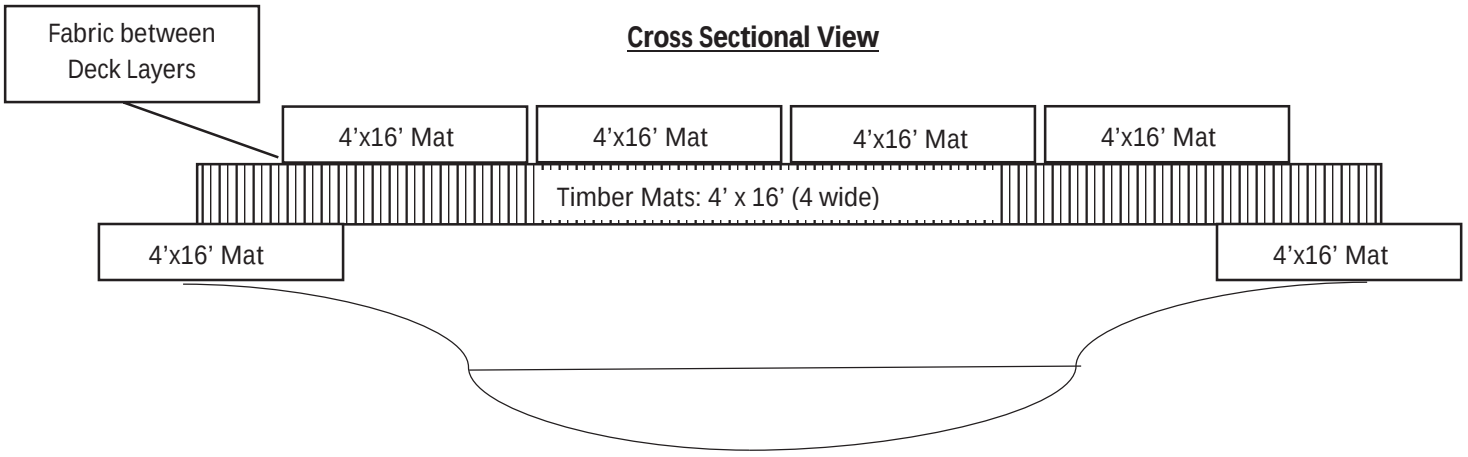
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: N-R89
Nearest Structure: 137453

Plan View



Cross Sectional View



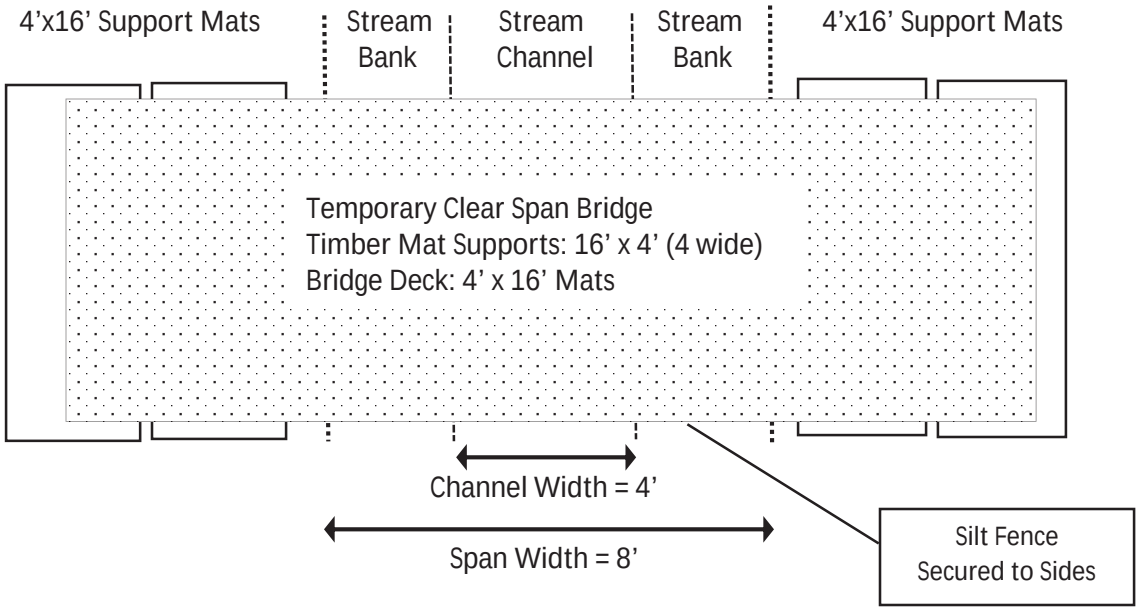
Depth of Water = 9"
Clearance to Water = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

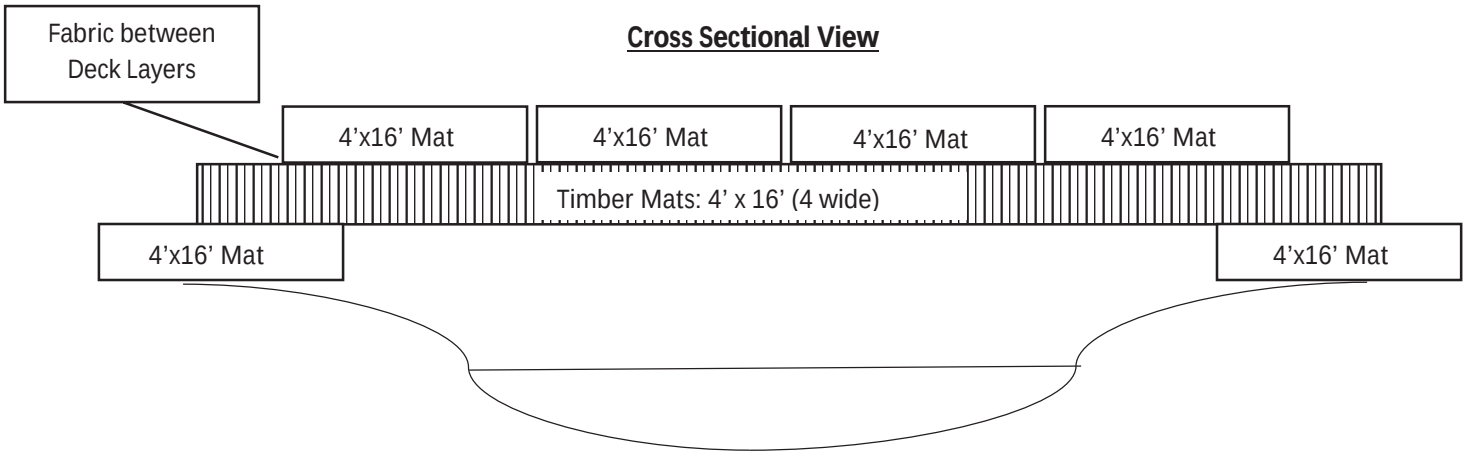
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: M-R1
Nearest Structure: 137462

Plan View



Cross Sectional View



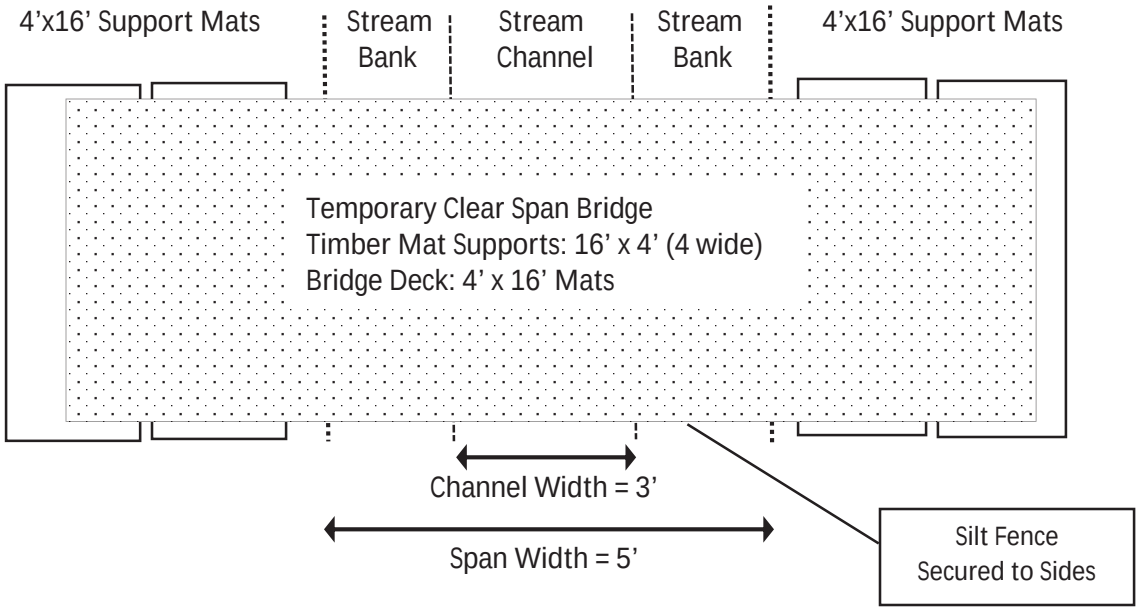
Depth of Water = 9"
Clearance to Water = 1'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

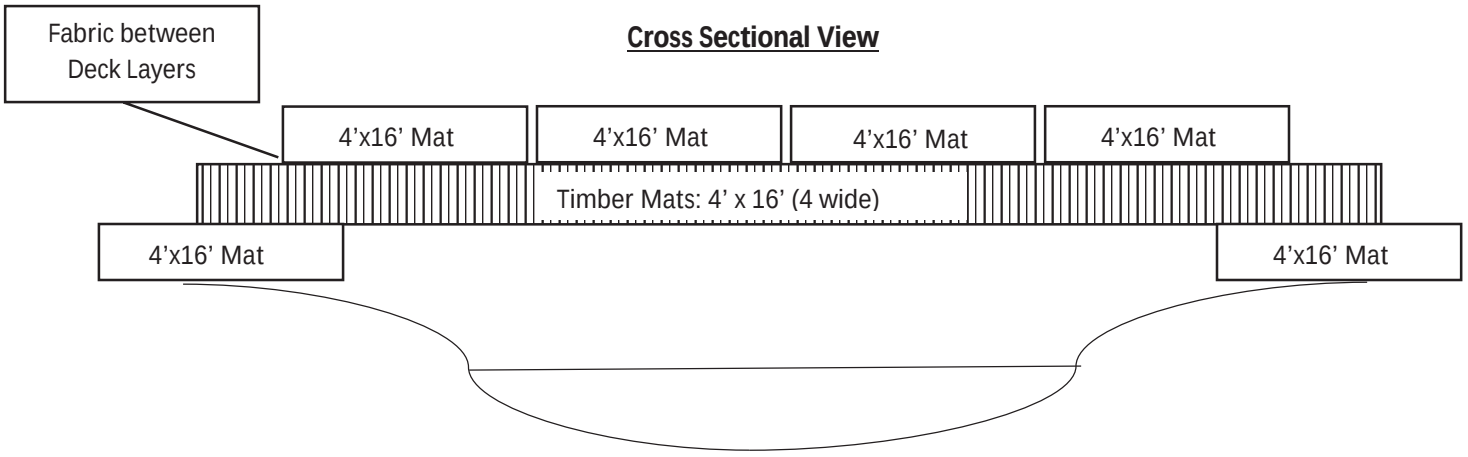
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: M-R2
Nearest Structure: 137465

Plan View



Cross Sectional View



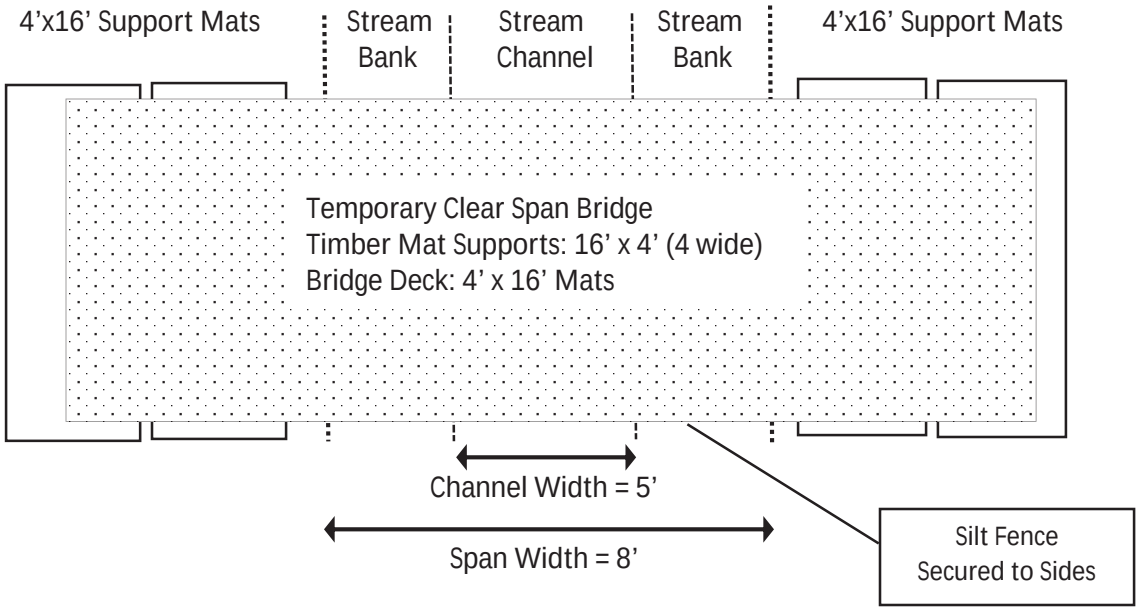
Depth of Water = 9"
Clearance to Water = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

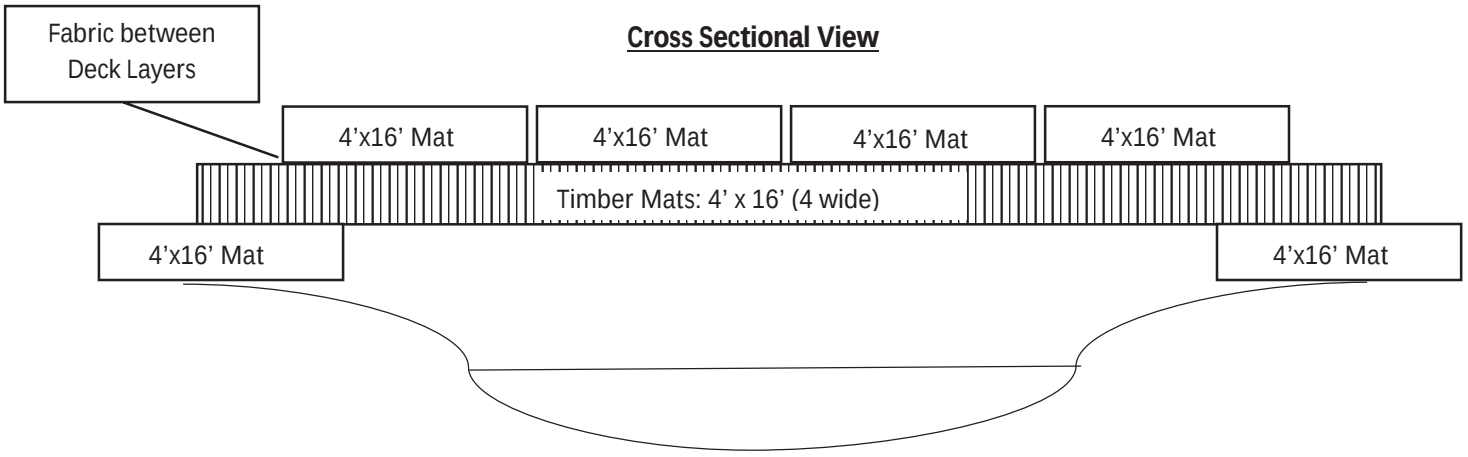
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: M-R3
Nearest Structure: 137471

Plan View



Cross Sectional View



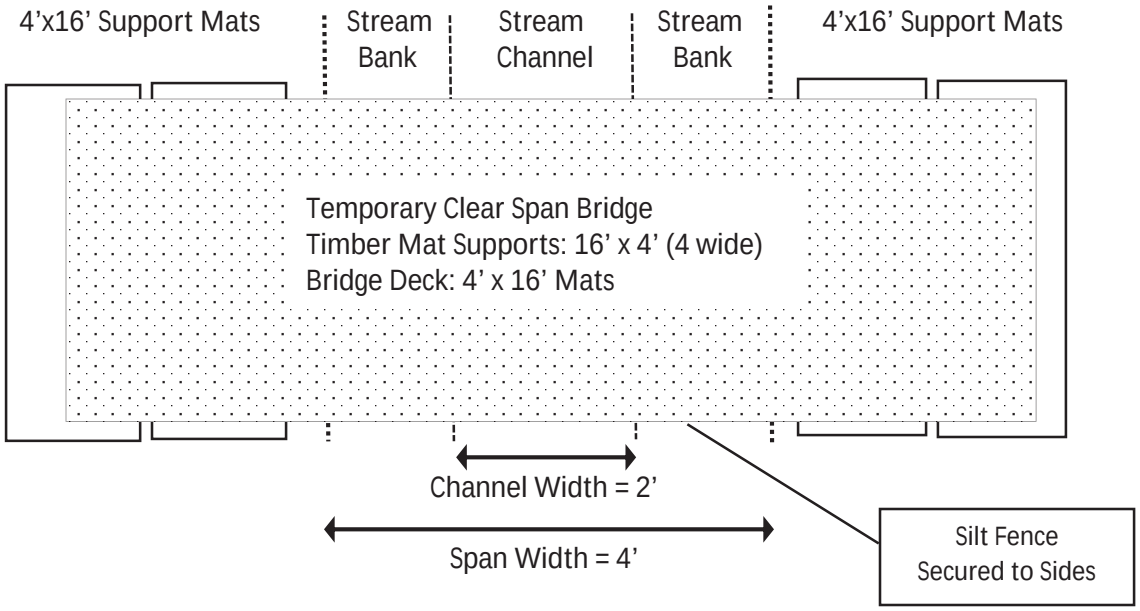
Depth of Water = 6"
Clearance to Water = 2'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

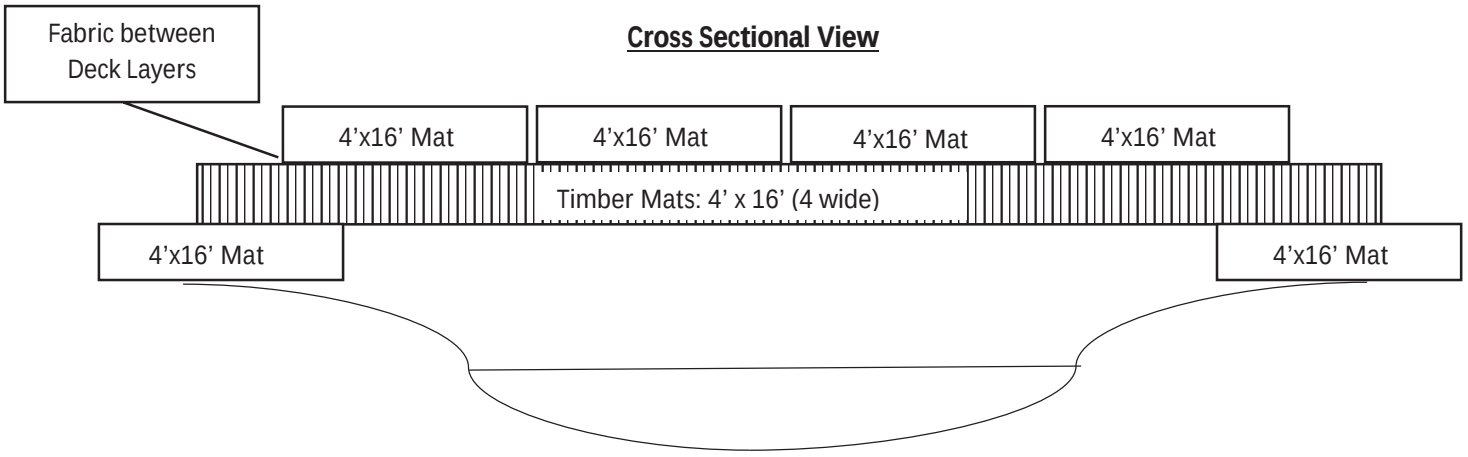
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: K-R1
Nearest Structure: 137490

Plan View



Cross Sectional View



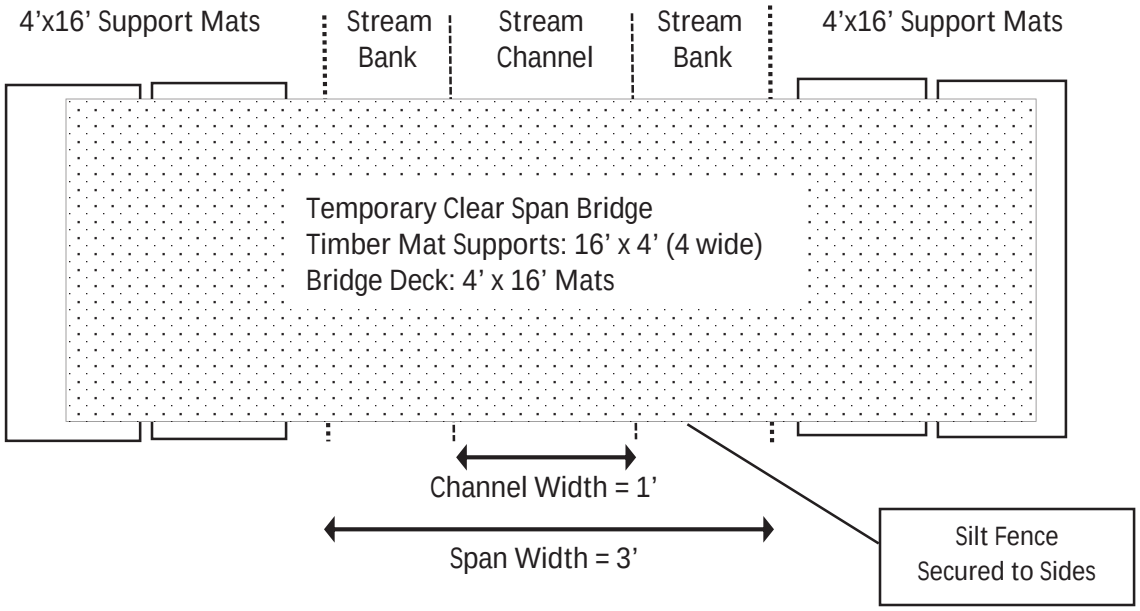
Depth of Water = 3"
Clearance to Water = 1'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

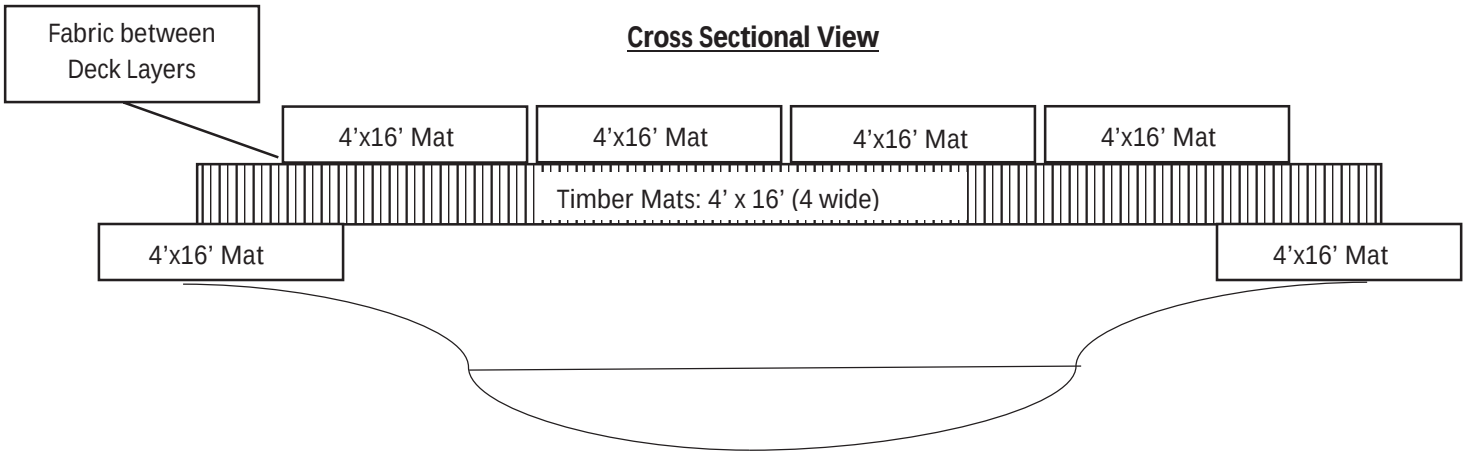
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: K-R2
Nearest Structure: 137491

Plan View



Cross Sectional View



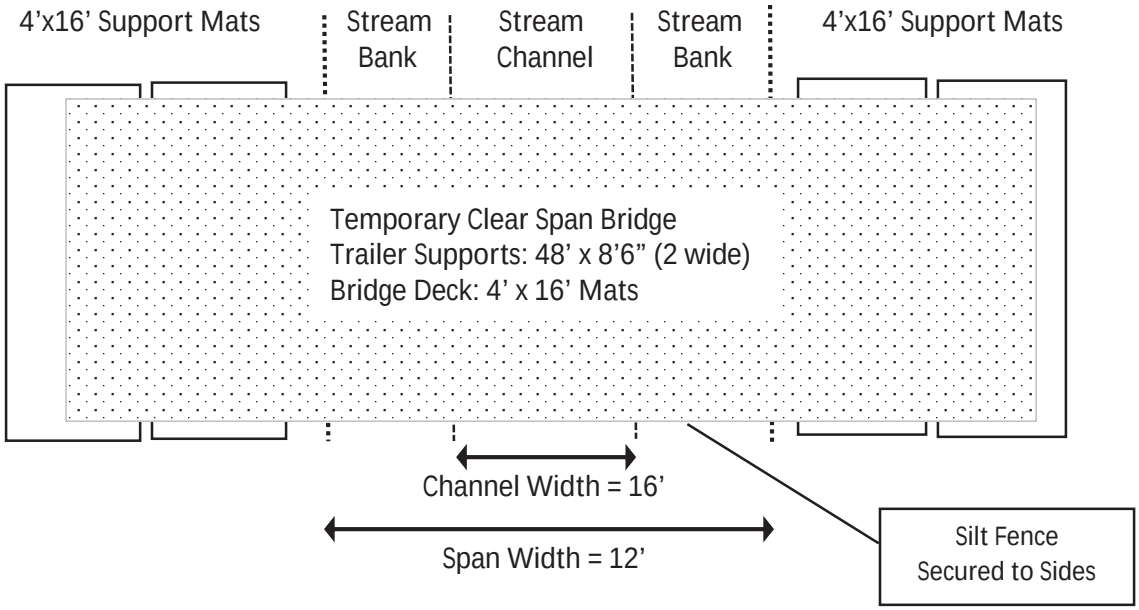
Depth of Water = 6"
Clearance to Water = 3'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

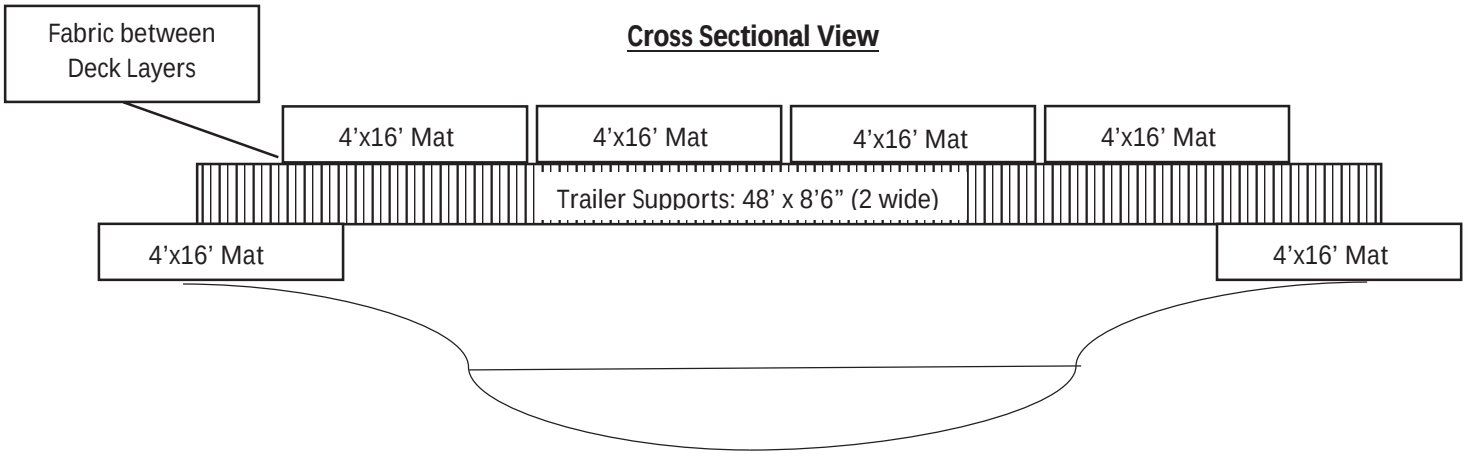
Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: K-R3
Nearest Structure: 137491

Plan View



Cross Sectional View



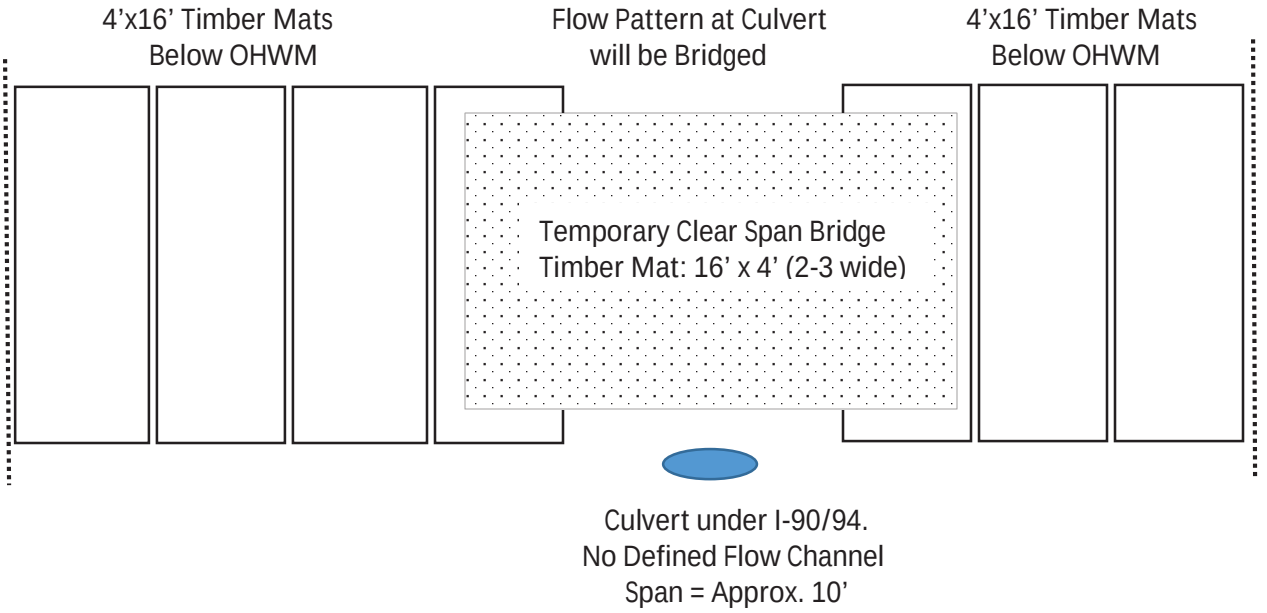
Depth of Water = 6"
Clearance to Water = 3'

- Drawings are not to scale
- TCSB will be secured to a fixed anchor
- Sediment Controls: Silt fence shall be attached to the bridge sides and fabric laid between the deck layers.

Badger Coulee
Temporary Clear Span Bridge Typical Drawing

Segment: 4
Waterway: J-R1
Nearest Structure: 137515

Plan View

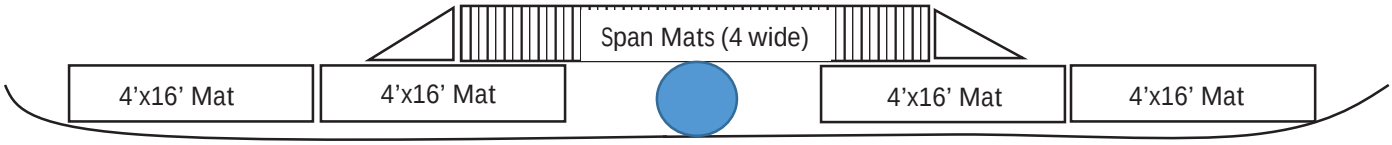


Culvert under I-90/94.
No Defined Flow Channel
Span = Approx. 10'

Approximate width of waterbody at crossing point = 60'

Cross Sectional View

4'x16' Timber Mats are below OHWM



Depth of Water = 6" – 1' (Observed to be seasonally dry)
Clearance to Water = Mats will be set on bed of waterbody

- Drawings are not to scale
- It is estimated that 20-25 4'x16' timber mats will be used below the Ordinary High Water Mark (OHWM)
- These mats are expected to be used for clearing purposes only and will be in place for a shorter period of time (estimated as 2-4 weeks)
- All mats below the OHWM will be secured to a fixed anchor

Badger Coulee 345 kV Transmission Line Project

Segment 4 CMP

Appendix E

Photographs of Waterways Requiring a Navigability Decision

Appendix E. Photographs of Mapped Waterways Requiring a Navigability Concurrence - Chronological from North to South

Photo 01. Feature E of STR 137422; vS. March 2016

Photo 02. Feature E of STR 137443; vN. Aug 2015

Photo 03. Feature W of STR 137454; vN. Aug 2015 (WDNR Concurrence Received)

Photo 04. Feature E of STR 137474; vS. Aug 2015

Appendix E. Photographs of Mapped Waterways Requiring a Navigability Concurrence - Chronological from North to South

Photo 05. Feature E of STR 137495 from culvert; vS. Aug 2015

Photo 06. Feature W of STR 137499; vS. Aug 2015

Badger Coulee 345 kV Transmission Line Project

Segment 4 CMP

Appendix F

Approved Waivers of Seasonal Limitations for TCSBs

AMERICAN TRANSMISSION COMPANY®

MAILING ADDRESS: P.O. BOX 47 ▪ WAUKESHA, WI 53187-0047
STREET ADDRESS: N234 W2000 RIDGEVIEW PARKWAY COURT ▪ WAUKESHA, WI 53188-1022
262-506-6700 ▪ Toll Free: 866-899-3204 ▪ Fax: 262-506-6124 ▪ www.atcllc.com

May 2, 2016

Mr. Nathan Nye
Fisheries Biologist – Columbia and Sauk Counties
Wisconsin Dept. of Natural Resources
N3344 Stebbins Road
Poynette, WI 53955

RE: Request for Seasonal Waiver – Temporary Bridge Construction
Badger Coulee 345 kV Transmission Line Project, Segment 4
Utility Permit #IP-WC/SC-2015-N20001through N20273

Dear Mr. Nye:

American Transmission Company LLC, by its corporate manager, ATC Management Inc. (ATC); Dairyland Power Cooperative (DPC); Northern States Power Company, a Wisconsin corporation (NSPW); SMMPA Wisconsin, LLC (SMMPA Wisconsin), and WPPI Energy (WPPI) (the Applicants) respectfully requests your review and consideration of granting a waiver of the seasonal restrictions normally associated with construction and removal of timber construction matting below the OHWM of an unnamed tributary to the Wisconsin River (J-R1 / J-W1a) along Segment 4 of the Badger Coulee 345 kV Transmission Line Project. A completed Waiver Request Form is attached for your convenience.

Construction activities along Segment 4 of this project are preliminarily scheduled to begin in August 2016 and extend through approximately November 2017; however this bridge and matting are anticipated to only be utilized for about a month during clearing activities (August 2016-November 2016). J-W1a is an emergent marsh adjacent to waterway J-R1 and may be considered to be below the OHWM of this waterway. The proposed bridge will be comprised of timber mat spans and supports within the J-R1 / J-W1a complex. This crossing is located in Sauk County, as outlined in Table 1.

A Chapter 30 permit for a temporary clear span bridge over J-R1 was received from the Department; however, after further evaluation it was determined the shallow marsh (J-W1a) contiguous to this waterway may be considered below the OHWM of this waterway. We have subsequently requested Department approval for placement of construction matting below the OHWM of this waterway due to the width of the crossing. Characteristics of this waterway are listed in Table 1 and the location is indicated on the attached figure. A photograph of this feature is also attached. This feature is classified as a warm water stream.

A seasonal waiver is being requested to minimize limitations on the contractor and maximize flexibility so the contractor will be able to adequately address construction limitations in the most sensitive areas of the project.

Should you have questions or concerns, please feel free to contact me at (262) 506-6788.

Sincerely,

Nayo Parrett
Sr. Environmental Project Manager

Enclosures
Cc: Ben Callan

Table 1. Waterways in Sauk County For Which a Waiver of Seasonal Restrictions is Requested
Segment 4 - Badger Coulee 345 kV Tranmission Line Project

Permit #IP-WC/SC-2015-	Stream Designation	Waterway (UnNamed Tributary)	Appears on WDNR 24K hydro layer? (Y/N)	Location						Morphometry
				County	Town	T / R	QQ	Q	Sect.	
N20223	J-R1 / J-W1a	UNT to Wisconsin River	Y	Sauk	City of Wisconsin Dells	13N / 6E	NE NW	SW SE	5	water depth = 1 ft bank height = -- top of bank width = 60 ft

WAIVER REQUEST FORMS

APPENDIX 1

Request for Waiver of Construction Season Limits in Waterway General Permits

This checklist shall be used to request a waiver from the time period restrictions and/or fish passage requirements for applicable projects that qualify for WDNR-GP12-2015. The completed waiver request may be submitted with the application where the applicant seeks a waiver from the applicable statewide general permit conditions that place fisheries based restrictions on the project. The signature of the Department Fisheries Biologist on this checklist only waives the time period and/or fish passage restrictions and does not constitute a permit, approval, or other concurrence with the proposed project.

Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: NE NW ¼, SW SE ¼, Section 5, Town 13 N, Range 6E

Name of Waterbody: J-R1 (UNT to Wisconsin River)

County of Waterbody: Sauk

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

Consequently, the time period restrictions of the applicable statewide general permit are/are not (circle one) necessary to protect fish spawning for the proposed project and I approve/disapprove (circle one) this waiver.

Signed by:

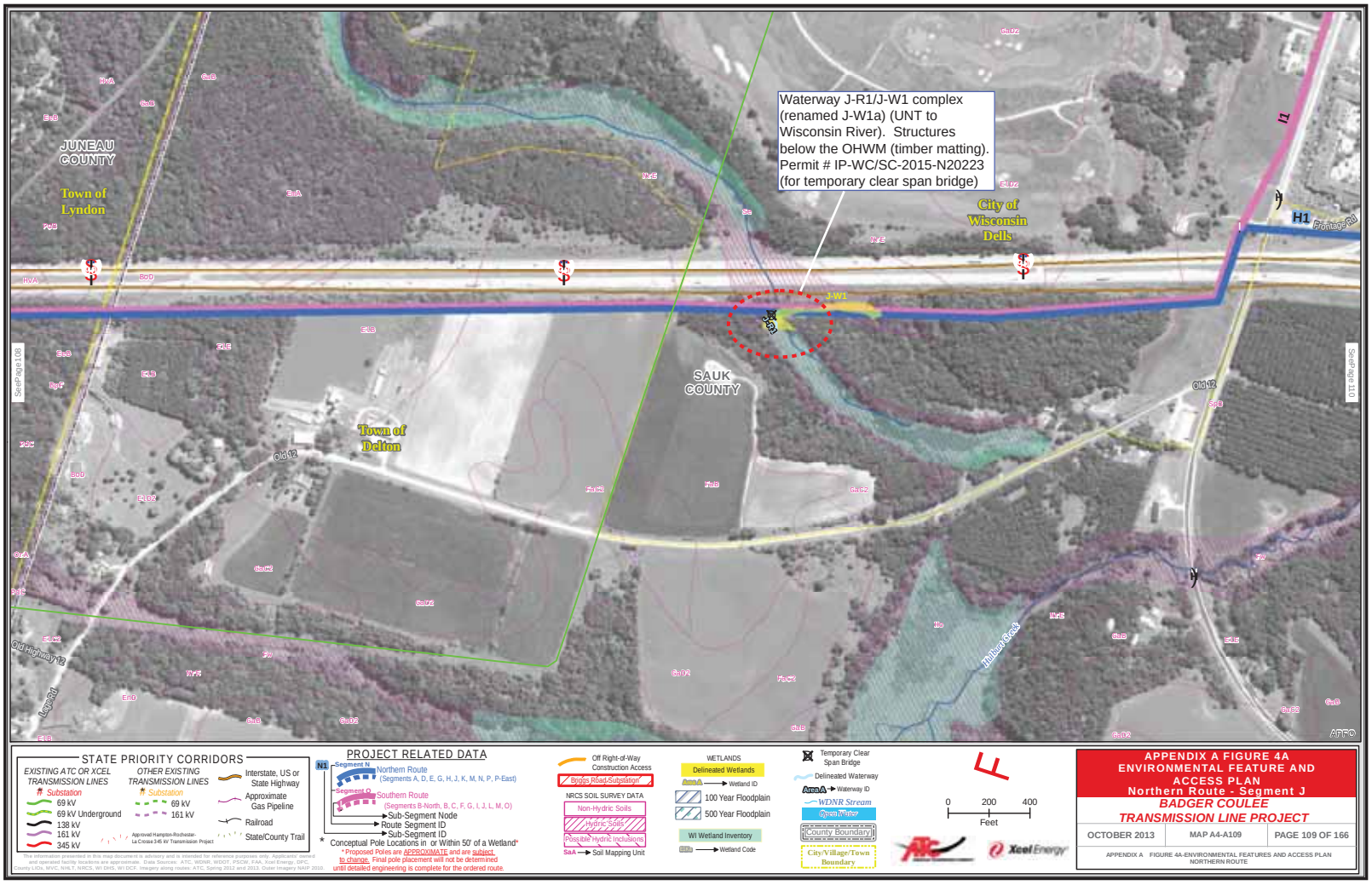
_____ _____

Department Fisheries Biologist Date

FIGURES

PHOTO LOG

Photo-1
Date: July 2015
Location: J-R1 / J-W1a complex (UNT to Wisconsin River), view southeast of pool and adjacent shallow marsh near interstate culvert.



STATE PRIORITY CORRIDORS

EXISTING ATC OR XCEL TRANSMISSION LINES
- Substation
- 69 kV
- 69 kV Underground
- 138 kV
- 161 kV
- 345 kV

OTHER EXISTING TRANSMISSION LINES
- Substation
- 69 kV
- 161 kV
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

- Interstate, US or State Highway
- Approximate Gas Pipeline
- Railroad
- State/County Trail

PROJECT RELATED DATA

N1 – Segment N: Northern Route (Segments A, D, E, G, H, J, K, M, N, P, P-East)
Segment O: Southern Route (Segments B-North, B, C, F, G, I, J, L, M, O)
- Sub-Segment Node
- Route Segment ID
- Sub-Segment ID
- Conceptual Pole Locations in or Within 50' of a Wetland*

* Proposed Poles are APPROXIMATE and are subject to change. Final pole placement will not be determined until detailed engineering is complete for the ordered route.

- Off Right-of-Way Construction Access
- Bridge Road-Substation*

NRCS SOIL SURVEY DATA
- Non-Hydric Soils
- Hydric Soils
- Possible Hydric Inclusions
- SaA – Soil Mapping Unit

WETLANDS
- Delineated Wetlands
- AreaA – Wetland ID
- 100 Year Floodplain
- 500 Year Floodplain
- WI Wetland Inventory
- Wetland Code

- Temporary Clear Span Bridge
- Delineated Waterway
- AreaA – Waterway ID
- WDNR Stream
- Open Water
- County Boundary
- City/Village/Town Boundary

0 200 400 Feet

The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate. Data Sources: ATC, WDNR, WDOT, PSCW, FAA, Xcel Energy, DPC, County LIOs, MVC, NNLT, NRCS, WI DHS, WI DCF. Imagery along routes: ATC, Spring 2012 and 2013. Outer Imagery NAIP 2010.

APPENDIX A FIGURE 4A
ENVIRONMENTAL FEATURE AND ACCESS PLAN
Northern Route - Segment J
BADGER COULEE TRANSMISSION LINE PROJECT

OCTOBER 2013	MAP A4-A109	PAGE 109 OF 166

AMERICAN TRANSMISSION COMPANY®

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262-506-6700 ▪ Toll Free: 866-899-3204 ▪ Fax: 262-506-6124 ▪ www.atcllc.com

May 2, 2016

Ms. Jennifer Bergman
Fisheries Biologist – Juneau County
Wisconsin Dept. of Natural Resources
473 Griffith Avenue
Wisconsin Rapids, WI 54494

RE: Request for Seasonal Waivers – Temporary Bridge Construction
Badger Coulee 345 kV Transmission Line Project, Segment 4
Utility Permit #IP-WC/SC-2015-N20001through N20273

Dear Ms. Bergman:

American Transmission Company LLC, by its corporate manager, ATC Management Inc. (ATC); Dairyland Power Cooperative (DPC); Northern States Power Company, a Wisconsin corporation (NSPW); SMMPA Wisconsin, LLC (SMMPA Wisconsin), and WPPI Energy (WPPI) (the Applicants) respectfully requests your review and consideration of granting waivers for the seasonal restrictions normally associated with construction and removal of eleven temporary clear span bridges (TCSB); and timber construction matting below the OHWM of three Lemonweir River oxbows along Segment 4 of the Badger Coulee 345 kV Transmission Line Project. Completed Waiver Request Forms are attached for your convenience.

Construction activities along Segment 4 of this project are preliminarily scheduled to begin in August 2016 and extend through approximately November 2017. Restoration will follow during the late fall and spring/summer months, and the bridges and matting will be removed once restoration is complete. During this time, the Applicant's contractor will need to construct and utilize eleven TCSBs. Three other crossings (N-R84, N-R85 and N-R85a) will be comprised of timber mat spans and supports below the OHWM of Lemonweir River oxbows. The timber matting placed within two of the waterways (N-R84 and N-R85) is anticipated to only be required for about a month during clearing activities (August 2016 through November 2016). The crossings are located in Juneau County, as outlined in Table 1.

These TCSBs and the temporary supports and matting below the OHWM have received a Ch. 30 permit from the Department. Characteristics of these waterways are listed in Table 1 and their locations are indicated on the attached figure. Photographs of each feature are also attached. Waterways M-R1, M-R2, M-R3, K-R1, K-R2 and K-R3 are trout streams or tributaries to a trout stream, and the remaining waterways requiring a bridge crossing along this segment are classified as warm water streams.

Seasonal waivers are being requested to minimize limitations on the contractor and maximize flexibility so the contractor will be able to adequately address construction limitations in the most sensitive areas of the project.

Should you have questions or concerns, please feel free to contact me at (262) 506-6788.

Sincerely,

Nayo Parrett
Sr. Environmental Project Manager

Enclosures
Cc: Ben Callan

Table 1. Waterways in Juneau County For Which a Waiver of Seasonal Restrictions is Requested
Segment 4 - Badger Coulee 345 kV Tranmission Line Project

Permit #IP-WC/SC-2015-	Stream Designation	Waterway (UnNamed Tributary)	Appears on WDNR 24K hydro layer? (Y/N)	Location						Morphometry
				County	Town	T / R	QQ	Q	Sect.	
N20188	N-R84	Lemonweir River oxbow	Y	Juneau	Lemonweir	15N / 4E	NW	NW	17	water depth = 1 ft bank height = -- top of bank width = 70 ft
N20189	N-R85	Lemonweir River oxbow	Y	Juneau	Lemonweir	15N / 4E	NE	NW	17	water depth = 1 ft bank height = -- top of bank width = 90 ft
N20190	N-R85a	Lemonweir River oxbow	Y	Juneau	Lemonweir	15N / 4E	NE	NW	17	water depth = 1 ft bank height = -- top of bank width = 70 ft
N20194	N-R85c	UNT to Lemonweir River	N	Juneau	Lemonweir	15N / 4E	SE	SW	16	water depth = 0.5 ft bank height = 3 ft top of bank width = 4 ft
N20195	N-R85d	UNT to Lemonweir River	N	Juneau	Lemonweir	15N / 4E	SE	SW	16	water depth = 0.5 ft bank height = 3 ft top of bank width = 8 ft
N20196	N-R86	UNT to Lemonweir River	Y	Juneau	Lemonweir	15N / 4E	SE SW	SE SE	16	water depth = 0.5 ft bank height = 2 ft top of bank width = 5 ft
N20197	N-R88	UNT to Lemonweir River	Y	Juneau	Lemonweir	15N / 4E	SW	NW	23	water depth = 0.5 ft bank height = 2 ft top of bank width = 6 ft
N20202	N-R89	UNT to Lemonweir River	Y	Juneau	Kildare	15N / 5E	NE	NE	31	water depth = 1 ft bank height = 3 ft top of bank width = 4 ft

Table 1. Waterways in Juneau County For Which a Waiver of Seasonal Restrictions is Requested
Segment 4 - Badger Coulee 345 kV Tranmission Line Project

Permit #IP-WC/SC-2015-	Stream Designation	Waterway (UnNamed Tributary)	Appears on WDNR 24K hydro layer? (Y/N)	Location						Morphometry
				County	Town	T / R	QQ	Q	Sect.	
N20205	M-R1	Holtzlander Creek	Y	Juneau	Kildare	14N / 5E	NE NW	NE NW	5 4	water depth = 1 ft bank height = 2 ft top of bank width = 8 ft
N20207	M-R2	Tracy Creek	Y	Juneau	Kildare	14N / 5E	NE	NW	4	water depth = 1 ft bank height = 3 ft top of bank width = 5 ft
N20211	M-R3	Lyndon Creek	Y	Juneau	Village of Lyndon Station	14N / 5E	SW	SW	3	water depth = 0.5 ft bank height = 3 ft top of bank width = 8 ft
N20219	K-R1	UNT to Gilmore Creek	Y	Juneau	Lyndon	14N / 5E	SW	SE	13	water depth = 0.5 ft bank height = 2 ft top of bank width = 4 ft
N20221	K-R2	UNT to Gilmore Creek	N	Juneau	Lyndon	14N / 5E	NE SE	NE SE	24 13	water depth = 0.5 ft bank height = 4 ft top of bank width = 3 ft
N20222	K-R3	Gilmore Creek	Y	Juneau	Lyndon	14N / 5E	NE	NE	24	water depth = 0.5 ft bank height = 4 ft top of bank width = 12 ft

WAIVER REQUEST FORMS

APPENDIX 1

Request for Waiver of Construction Season Limits in Waterway General Permits

This checklist shall be used to request a waiver from the time period restrictions and/or fish passage requirements for applicable projects that qualify for WDNR-GP12-2015. The completed waiver request may be submitted with the application where the applicant seeks a waiver from the applicable statewide general permit conditions that place fisheries based restrictions on the project. The signature of the Department Fisheries Biologist on this checklist only waives the time period and/or fish passage restrictions and does not constitute a permit, approval, or other concurrence with the proposed project.

Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: NW ¼, NW ¼, Section 17, Town 15 N, Range 4E

Name of Waterbody: N-R84 (Lemonweir River oxbow)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

Consequently, the time period restrictions of the applicable statewide general permit are/are not (circle one) necessary to protect fish spawning for the proposed project and I approve/disapprove (circle one) this waiver.

Signed by:

_____ _____

Department Fisheries Biologist Date

APPENDIX 1

Request for Waiver of Construction Season Limits in Waterway General Permits

This checklist shall be used to request a waiver from the time period restrictions and/or fish passage requirements for applicable projects that qualify for WDNR-GP12-2015. The completed waiver request may be submitted with the application where the applicant seeks a waiver from the applicable statewide general permit conditions that place fisheries based restrictions on the project. The signature of the Department Fisheries Biologist on this checklist only waives the time period and/or fish passage restrictions and does not constitute a permit, approval, or other concurrence with the proposed project.

Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: NE ¼, NW ¼, Section 17, Town 15 N, Range 4E

Name of Waterbody: N-R85 (Lemonweir River oxbow)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

Consequently, the time period restrictions of the applicable statewide general permit are/are not (circle one) necessary to protect fish spawning for the proposed project and I approve/disapprove (circle one) this waiver.

Signed by:

_____ _____

Department Fisheries Biologist Date

APPENDIX 1

Request for Waiver of Construction Season Limits in Waterway General Permits

This checklist shall be used to request a waiver from the time period restrictions and/or fish passage requirements for applicable projects that qualify for WDNR-GP12-2015. The completed waiver request may be submitted with the application where the applicant seeks a waiver from the applicable statewide general permit conditions that place fisheries based restrictions on the project. The signature of the Department Fisheries Biologist on this checklist only waives the time period and/or fish passage restrictions and does not constitute a permit, approval, or other concurrence with the proposed project.

Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: NE ¼, NW ¼, Section 17, Town 15 N, Range 4E

Name of Waterbody: N-R85a (Lemonweir River oxbow)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

Consequently, the time period restrictions of the applicable statewide general permit are/are not (circle one) necessary to protect fish spawning for the proposed project and I approve/disapprove (circle one) this waiver.

Signed by:

_____ _____

Department Fisheries Biologist Date

APPENDIX 1

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: SE ¼, SW ¼, Section 16, Town 15 N, Range 4E

Name of Waterbody: N-R85c (UNT to Lemonweir River)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

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Signed by:

_____ _____

Department Fisheries Biologist Date

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This checklist shall be used to request a waiver from the time period restrictions and/or fish passage requirements for applicable projects that qualify for WDNR-GP12-2015. The completed waiver request may be submitted with the application where the applicant seeks a waiver from the applicable statewide general permit conditions that place fisheries based restrictions on the project. The signature of the Department Fisheries Biologist on this checklist only waives the time period and/or fish passage restrictions and does not constitute a permit, approval, or other concurrence with the proposed project.

Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: SE ¼, SW ¼, Section 16, Town 15 N, Range 4E

Name of Waterbody: N-R85d (UNT to Lemonweir River)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

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Signed by:

_____ _____

Department Fisheries Biologist Date

APPENDIX 1

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: SE SW ¼, SE SE ¼, Section 16, Town 15 N, Range 4E

Name of Waterbody: N-R86 (UNT to Lemonweir River)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

Consequently, the time period restrictions of the applicable statewide general permit are/are not (circle one) necessary to protect fish spawning for the proposed project and I approve/disapprove (circle one) this waiver.

Signed by:

_____ _____

Department Fisheries Biologist Date

APPENDIX 1

Request for Waiver of Construction Season Limits in Waterway General Permits

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: SW ¼, NW ¼, Section 23, Town 15 N, Range 4E

Name of Waterbody: N-R88 (UNT to Lemonweir River)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

Consequently, the time period restrictions of the applicable statewide general permit are/are not (circle one) necessary to protect fish spawning for the proposed project and I approve/disapprove (circle one) this waiver.

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_____ _____

Department Fisheries Biologist Date

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: NE ¼, NE ¼, Section 31, Town 15 N, Range 5E

Name of Waterbody: N-R89 (UNT to Lemonweir River)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

Consequently, the time period restrictions of the applicable statewide general permit are/are not (circle one) necessary to protect fish spawning for the proposed project and I approve/disapprove (circle one) this waiver.

Signed by:

_____ _____

Department Fisheries Biologist Date

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: NE NW ¼, NE NW ¼, Section 5 4, Town 14 N, Range 5E

Name of Waterbody: M-R1 (Holtzlander Creek)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

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_____ _____

Department Fisheries Biologist Date

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: NE ¼, NW ¼, Section 4, Town 14 N, Range 5E

Name of Waterbody: M-R2 (Tracy Creek)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
- ☐ there will be no impact on spawning fish or spawning activities.

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Signed by:

_____ _____

Department Fisheries Biologist Date

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: SW ¼, SW ¼, Section 3, Town 14 N, Range 5E

Name of Waterbody: M-R3 (Lyndon Creek)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

- ☐ there is no suitable habitat at or near the proposed project, or
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_____ _____

Department Fisheries Biologist Date

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: SW ¼, SE ¼, Section 13, Town 14 N, Range 5E

Name of Waterbody: K-R1 (UNT to Gilmore Creek)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

Or

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Department Fisheries Biologist Date

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: NE SE ¼, NE SE ¼, Section 24 13, Town 14 N, Range 5E

Name of Waterbody: K-R2 (UNT to Gilmore Creek)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

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Department Fisheries Biologist Date

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Applicant Name: ATC; NSPW; DPC; SMMPA WI, LLC and WPPI Energy

Proposed Project: Badger Coulee 345 kV Transmission Line Project

Project Location: NE ¼, NE ¼, Section 24, Town 14 N, Range 5E

Name of Waterbody: K-R3 (Gilmore Creek)

County of Waterbody: Juneau

FOR DNR USE ONLY

The applicant listed above has consulted with me about their proposed project in navigable waters. Based on their project description, plans and other existing information available to me, I find that:

- ☐ there is suitable habitat at or near the proposed project, or
- ☐ there may be an impact on spawning fish or spawning activities.

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Signed by:

_____ _____

Department Fisheries Biologist Date

FIGURES

PHOTO LOG

Photo-1
Date: March 2016
Location: N-R84 (Lemonweir River oxbow), view west of feature during high water conditions. Water levels fluctuate in this feature, which has been observed to be dry at other times of the year.

Photo-2
Date: March 2016
Location: N-R85 (Lemonweir River oxbow), view north of feature. Photo taken during high water levels. Water levels fluctuate in this feature, which has been observed to be dry at other times of the year.

Photo-3
Date: March 2016
Location: N-R85a (Lemonweir River oxbow), view west of feature showing high water conditions. Water levels fluctuate in this feature, which has been observed to be dry at other times of the year.

Photo-4
Date: March 2016
Location: N-R85c UNT to Lemonweir River view west.

Photo-5
Date: March 2016
Location: N-R85d UNT to Lemonweir River, view south.

Photo-6
Date: March 2016
Location: N-R86 UNT to Lemonweir River, view south.

Photo-7
Date: March 2016
Location: N-R88 UNT to Lemonweir River, view northwest (high water after rain overtopping banks).

Photo-8
Date: August 2015
Location: N-R89 UNT to Lemonweir River, view north of densely vegetated banks.

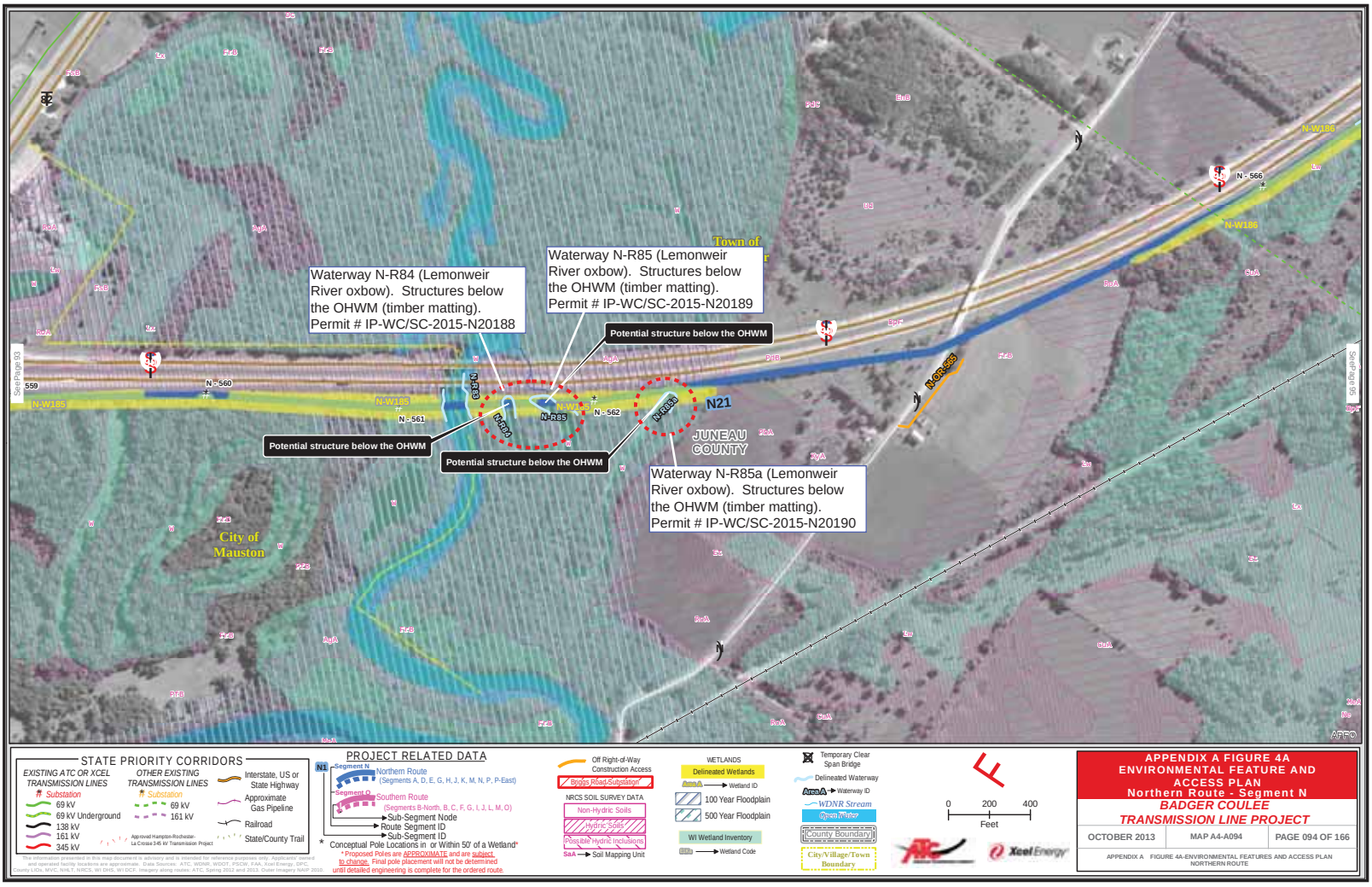
Photo-9
Date: August 2015
Location: M-R1 Holtzlander Creek, view north of heavily vegetated banks.

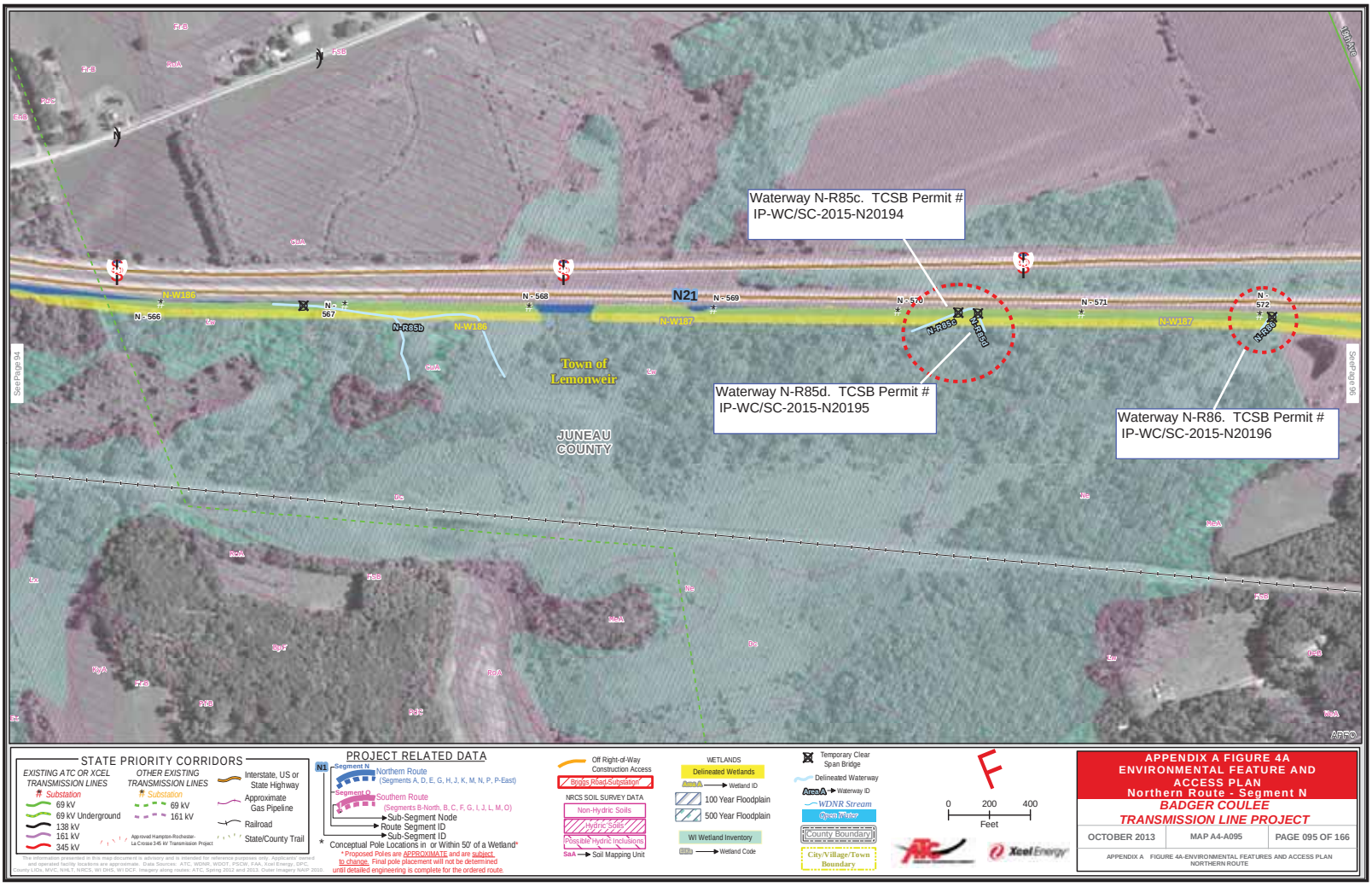
Photo-10
Date: August 2015
Location: M-R2 Tracy Creek, view southeast of densely vegetated banks.

Photo-11
Date: August 2015
Location: M-R3 Lyndon Creek, view northwest.

Photo-12
Date: August 2015
Location: K-R1 UNT to Gilmore Creek, view northwest.

	
Photo-13 **Date:** August 2015 **Location:** K-R2 UNT to Gilmore Creek, view northwest.	**Photo-14** **Date:** August 2015 **Location:** K-R3 Gilmore Creek, view east.


Waterway N-R84 (Lemonweir River oxbow). Structures below the OHWM (timber matting). Permit # IP-WC/SC-2015-N20188
Waterway N-R85 (Lemonweir River oxbow). Structures below the OHWM (timber matting). Permit # IP-WC/SC-2015-N20189
Potential structure below the OHWM
Potential structure below the OHWM
Potential structure below the OHWM
Waterway N-R85a (Lemonweir River oxbow). Structures below the OHWM (timber matting). Permit # IP-WC/SC-2015-N20190
Town of
City of Mauston
JUNEAU COUNTY
N21
N-R84
N-R85
N-R85a
N-R86
N-R83
N-W185
N-W186
N - 560
N - 561
N - 562
N - 566
See Page 93
See Page 95
STATE PRIORITY CORRIDORS
EXISTING ATC OR XCEL TRANSMISSION LINES
Substation
69 kV
69 kV Underground
138 kV
161 kV
345 kV
OTHER EXISTING TRANSMISSION LINES
Substation
69 kV
161 kV
Approved Hampton-Rochester-La Crosse 345 kV Transmission Project
Interstate, US or State Highway
Approximate Gas Pipeline
Railroad
State/County Trail
PROJECT RELATED DATA
N1
Segment N
Northern Route
(Segments A, D, E, G, H, J, K, M, N, P, P-East)
Segment O
Southern Route
(Segments B-North, B, C, F, G, I, J, L, M, O)
Sub-Segment Node
Route Segment ID
Sub-Segment ID
Conceptual Pole Locations in or Within 50' of a Wetland*
* Proposed Poles are APPROXIMATE and are subject to change. Final pole placement will not be determined until detailed engineering is complete for the ordered route.
Off Right-of-Way Construction Access
Briggs Road Substation
NRCS SOIL SURVEY DATA
Non-Hydric Soils
Hydric Soils
Possible Hydric Inclusions
SaA Soil Mapping Unit
WETLANDS
Delineated Wetlands
AmcA Wetland ID
100 Year Floodplain
500 Year Floodplain
WI Wetland Inventory
Wetland Code
Temporary Clear Span Bridge
Delineated Waterway
AmcA Waterway ID
WDNR Stream
Open Water
County Boundary
City/Village/Town Boundary
0 200 400
Feet
APPENDIX A FIGURE 4A
ENVIRONMENTAL FEATURE AND ACCESS PLAN
Northern Route - Segment N
BADGER COULEE
TRANSMISSION LINE PROJECT
OCTOBER 2013
MAP A4-A094
PAGE 094 OF 166
APPENDIX A FIGURE 4A-ENVIRONMENTAL FEATURES AND ACCESS PLAN NORTHERN ROUTE



STATE PRIORITY CORRIDORS

EXISTING ATC OR XCEL TRANSMISSION LINES
- Substation
- 69 kV
- 69 kV Underground
- 138 kV
- 161 kV
- 345 kV

OTHER EXISTING TRANSMISSION LINES
- Substation
- 69 kV
- 161 kV
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

- Interstate, US or State Highway
- Approximate Gas Pipeline
- Railroad
- State/County Trail

PROJECT RELATED DATA

N1
- Segment N — Northern Route (Segments A, D, E, G, H, J, K, M, N, P, P-East)
- Segment O — Southern Route (Segments B-North, B, C, F, G, I, J, L, M, O)
- Sub-Segment Node
- Route Segment ID
- Sub-Segment ID
- Conceptual Pole Locations in or Within 50' of a Wetland*

* Proposed Poles are APPROXIMATE and are subject to change. Final pole placement will not be determined until detailed engineering is complete for the ordered route.

- Off Right-of-Way Construction Access
- Briggs Road Substation
- Temporary Clear Span Bridge
- Delineated Waterway
- AmoA — Waterway ID
- WDNR Stream
- Open Water
- County Boundary
- City/Village/Town Boundary

NRCS SOIL SURVEY DATA
- Non-Hydric Soils
- Hydric Soils
- Possible Hydric Inclusions
- SaA — Soil Mapping Unit

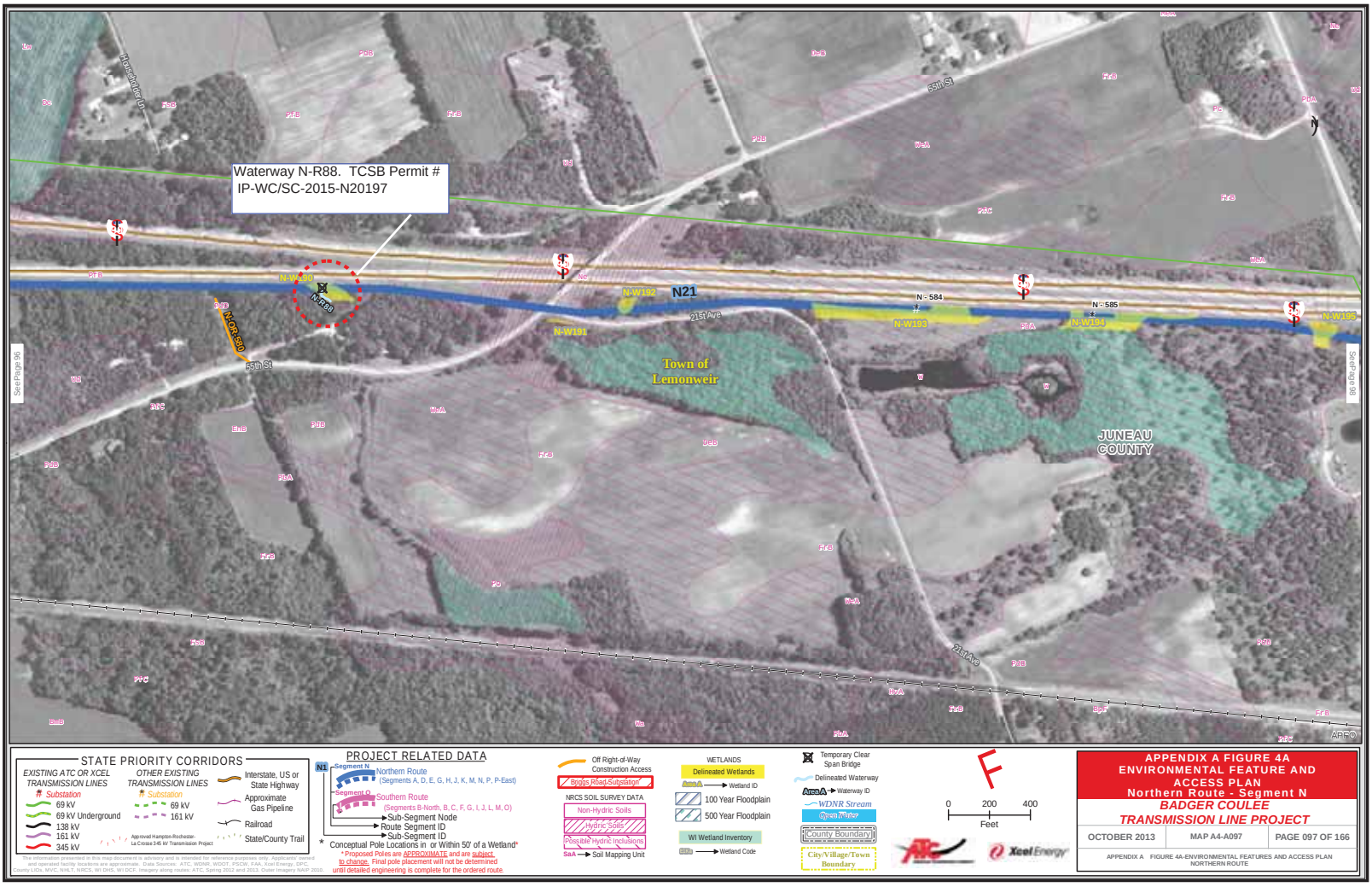
WETLANDS
- Delineated Wetlands
- AmoA — Wetland ID
- 100 Year Floodplain
- 500 Year Floodplain
- WI Wetland Inventory
- Wetland Code

0 200 400 Feet

The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate. Data Sources: ATC, WDNR, WDOT, PSCW, FAA, Xcel Energy, DPC, County LIOs, MVC, NHLT, NRCS, WI DHS, WI DCF. Imagery along routes: ATC, Spring 2012 and 2013. Outer Imagery NAIP 2010.

APPENDIX A FIGURE 4A
ENVIRONMENTAL FEATURE AND ACCESS PLAN
Northern Route - Segment N
BADGER COULEE TRANSMISSION LINE PROJECT

OCTOBER 2013	MAP A4-A095	PAGE 095 OF 166



STATE PRIORITY CORRIDORS

EXISTING ATC OR XCEL TRANSMISSION LINES
- Substation
- 69 kV
- 69 kV Underground
- 138 kV
- 161 kV
- 345 kV

OTHER EXISTING TRANSMISSION LINES
- Substation
- 69 kV
- 161 kV
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

- Interstate, US or State Highway
- Approximate Gas Pipeline
- Railroad
- State/County Trail

PROJECT RELATED DATA

- Segment N — Northern Route (Segments A, D, E, G, H, J, K, M, N, P, P-East)
- Segment O — Southern Route (Segments B-North, B, C, F, G, I, J, L, M, O)
- Sub-Segment Node
- Route Segment ID
- Sub-Segment ID
- Conceptual Pole Locations in or Within 50' of a Wetland*

* Proposed Poles are APPROXIMATE and are subject to change. Final pole placement will not be determined until detailed engineering is complete for the ordered route.

- Off Right-of-Way Construction Access
- Briggs Road Substation

NRCS SOIL SURVEY DATA
- Non-Hydric Soils
- Hydric Soils
- Possible Hydric Inclusions
- SaA — Soil Mapping Unit

WETLANDS
- Delineated Wetlands
- AmoA — Wetland ID
- 100 Year Floodplain
- 500 Year Floodplain
- WI Wetland Inventory
- Wetland Code

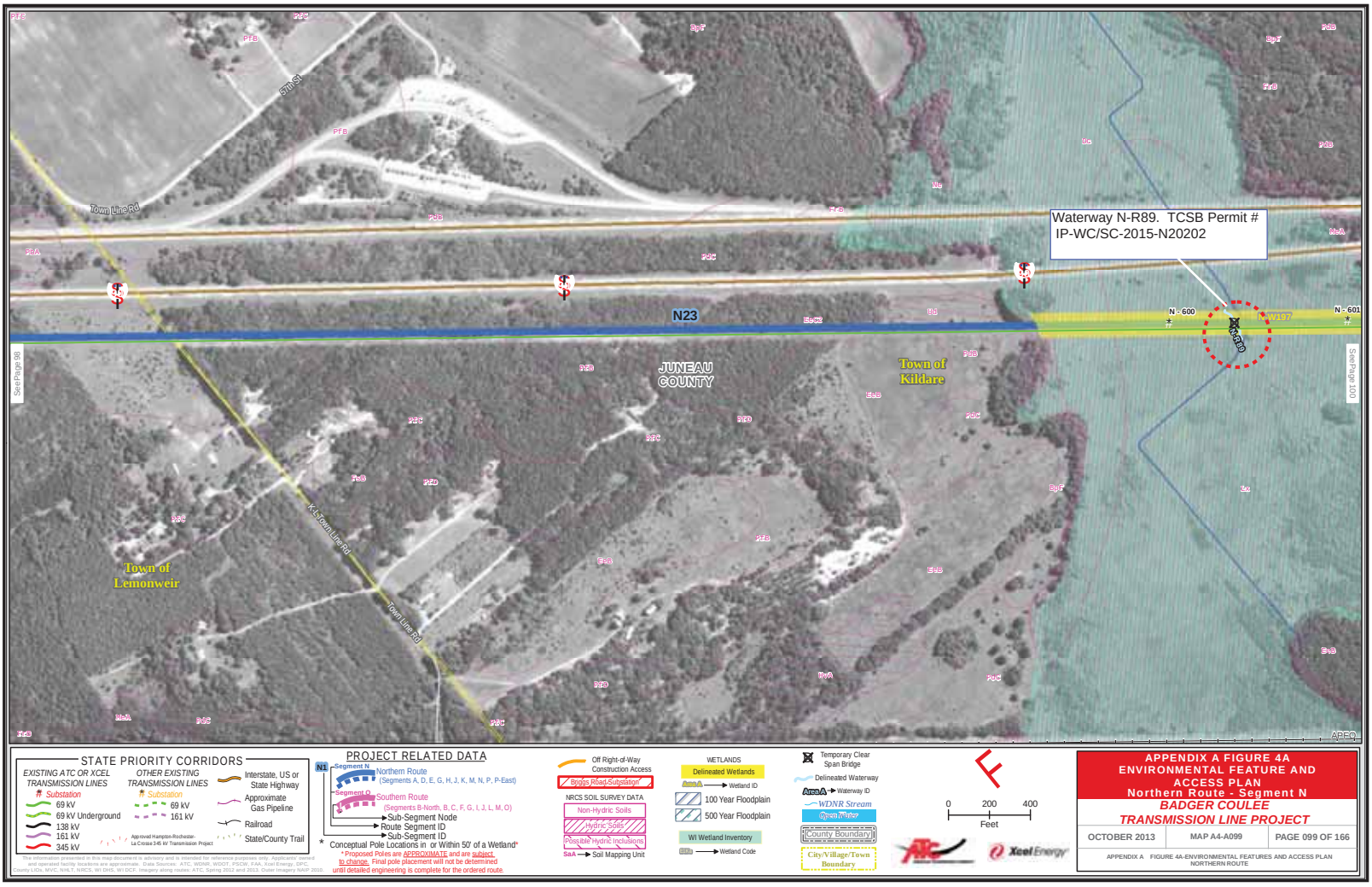
- Temporary Clear Span Bridge
- Delineated Waterway
- AmoA — Waterway ID
- WDNR Stream
- Open Water
- County Boundary
- City/Village/Town Boundary

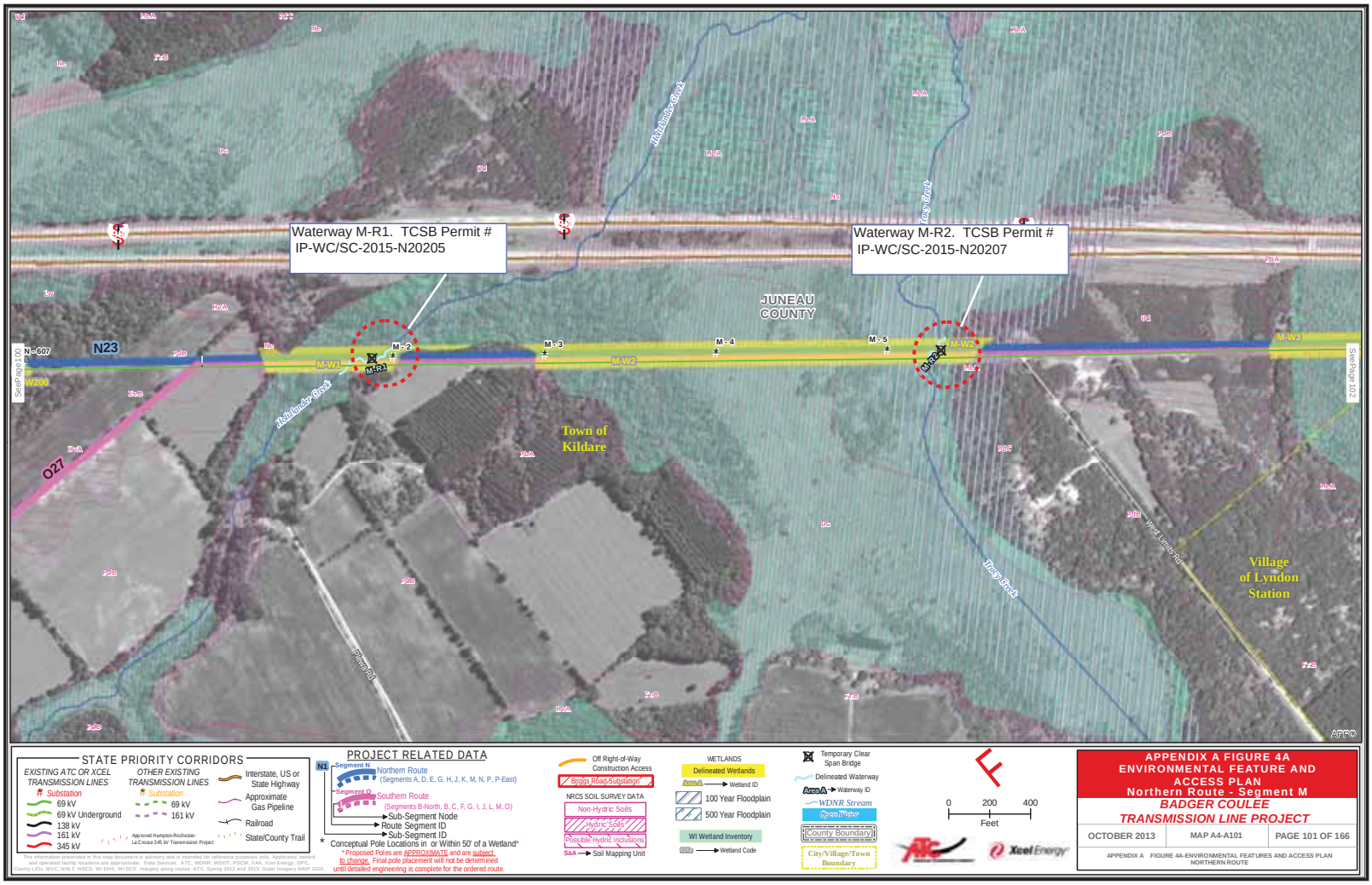
0 200 400 Feet

The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate. Data Sources: ATC, WDNR, WDOT, PSCW, FAA, Xcel Energy, DPC, County LIOs, MVC, NHLT, NRCS, WI DHS, WI DCF. Imagery along routes: ATC, Spring 2012 and 2013. Outer Imagery NAIP 2010.

APPENDIX A FIGURE 4A
ENVIRONMENTAL FEATURE AND ACCESS PLAN
Northern Route - Segment N
BADGER COULEE TRANSMISSION LINE PROJECT

OCTOBER 2013	MAP A4-A097	PAGE 097 OF 166


Waterway N-R89. TCSB Permit # IP-WC/SC-2015-N20202
N23
JUNEAU COUNTY
Town of Kildare
Town of Lemonweir
Town Line Rd
51st St
K-L Town Line Rd
N - 600
N - 601
W197
R-R89
See Page 98
See Page 100
APEO
STATE PRIORITY CORRIDORS
EXISTING ATC OR XCEL TRANSMISSION LINES
Substation
69 kV
69 kV Underground
138 kV
161 kV
345 kV
OTHER EXISTING TRANSMISSION LINES
Substation
69 kV
161 kV
Approved Hampton-Rochester-La Crosse 345 kV Transmission Project
Interstate, US or State Highway
Approximate Gas Pipeline
Railroad
State/County Trail
PROJECT RELATED DATA
N1
Segment N
Northern Route
(Segments A, D, E, G, H, J, K, M, N, P, P-East)
Segment O
Southern Route
(Segments B-North, B, C, F, G, I, J, L, M, O)
Sub-Segment Node
Route Segment ID
Sub-Segment ID
Conceptual Pole Locations in or Within 50' of a Wetland*
* Proposed Poles are APPROXIMATE and are subject to change. Final pole placement will not be determined until detailed engineering is complete for the ordered route.
Off Right-of-Way Construction Access
Briggs Road Substation
NRCS SOIL SURVEY DATA
Non-Hydric Soils
Hydric Soils
Possible Hydric Inclusions
SaA → Soil Mapping Unit
WETLANDS
Delineated Wetlands
AmoA → Wetland ID
100 Year Floodplain
500 Year Floodplain
WI Wetland Inventory
Wetland Code
Temporary Clear Span Bridge
Delineated Waterway
AmoA → Waterway ID
WDNR Stream
Open Water
County Boundary
City/Village/Town Boundary
0 200 400
Feet
APPENDIX A FIGURE 4A
ENVIRONMENTAL FEATURE AND ACCESS PLAN
Northern Route - Segment N
BADGER COULEE TRANSMISSION LINE PROJECT
OCTOBER 2013
MAP A4-A099
PAGE 099 OF 166
APPENDIX A FIGURE 4A-ENVIRONMENTAL FEATURES AND ACCESS PLAN NORTHERN ROUTE



STATE PRIORITY CORRIDORS

EXISTING ATC OR XCEL TRANSMISSION LINES
- Substation
- 69 kV
- 69 kV Underground
- 138 kV
- 161 kV
- 345 kV

OTHER EXISTING TRANSMISSION LINES
- Substation
- 69 kV
- 161 kV
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

- Interstate, US or State Highway
- Approximate Gas Pipeline
- Railroad
- State/County Trail

PROJECT RELATED DATA

N1 Segment N — Northern Route (Segments A, D, E, G, H, J, K, M, N, P, P-East)
Segment O — Southern Route (Segments B-North, B, C, F, G, I, J, L, M, O)
- Sub-Segment Node
- Route Segment ID
- Sub-Segment ID
- Conceptual Pole Locations in or Within 50' of a Wetland*

* Proposed Poles are APPROXIMATE and are subject to change. Final pole placement will not be determined until detailed engineering is complete for the ordered route.

- Off Right-of-Way Construction Access
- Briggs Road Substation

NRCS SOIL SURVEY DATA
- Non-Hydric Soils
- Hydric Soils
- Possible Hydric Inclusions
- SaA → Soil Mapping Unit

WETLANDS
- Delineated Wetlands
- AmcA → Wetland ID
- 100 Year Floodplain
- 500 Year Floodplain
- WI Wetland Inventory
- WWb → Wetland Code

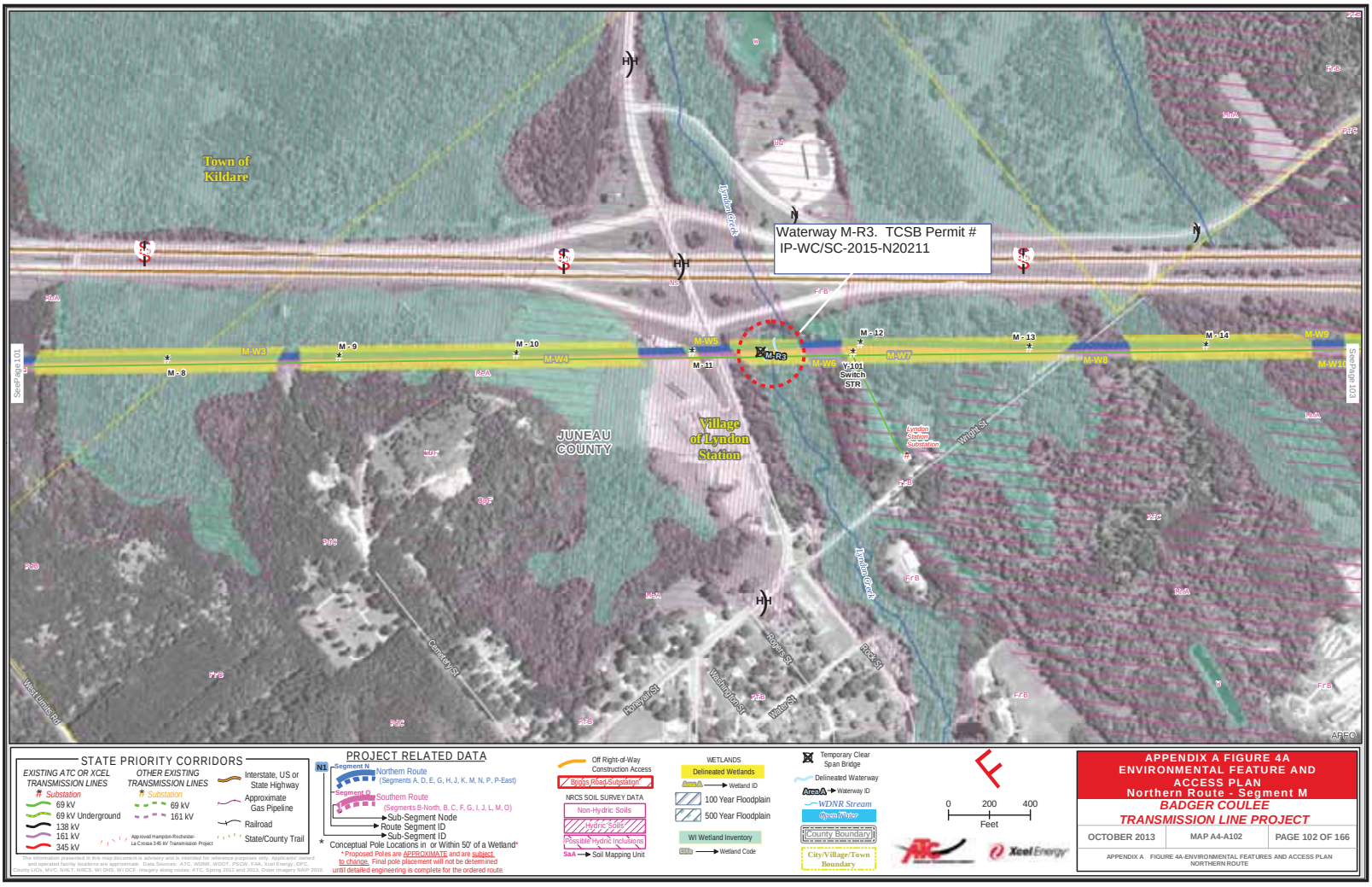
- Temporary Clear Span Bridge
- Delineated Waterway
- AmcA → Waterway ID
- WDNR Stream (Open Water)
- County Boundary
- City/Village/Town Boundary

0 200 400 Feet

The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate. Data Sources: ATC, WDNR, WDOT, PSCW, FAA, Xcel Energy, DPC, County LIOs, MVC, NH&T, NRCS, WI DHS, WI DCF. Imagery along routes: ATC, Spring 2012 and 2013. Outer Imagery NAIP 2010.

APPENDIX A FIGURE 4A
ENVIRONMENTAL FEATURE AND ACCESS PLAN
Northern Route - Segment M
BADGER COULEE TRANSMISSION LINE PROJECT

OCTOBER 2013	MAP A4-A101	PAGE 101 OF 166



STATE PRIORITY CORRIDORS

EXISTING ATC OR XCEL TRANSMISSION LINES
- Substation
- 69 kV
- 69 kV Underground
- 138 kV
- 161 kV
- 345 kV

OTHER EXISTING TRANSMISSION LINES
- Substation
- 69 kV
- 161 kV
- Approved Hampton-Rochester-La Crosse 345 kV Transmission Project

- Interstate, US or State Highway
- Approximate Gas Pipeline
- Railroad
- State/County Trail

PROJECT RELATED DATA

- Segment N — Northern Route (Segments A, D, E, G, H, J, K, M, N, P, P-East)
- Segment O — Southern Route (Segments B-North, B, C, F, G, I, J, L, M, O)
- Sub-Segment Node
- Route Segment ID
- Sub-Segment ID
- Conceptual Pole Locations in or Within 50' of a Wetland*

* Proposed Poles are APPROXIMATE and are subject to change. Final pole placement will not be determined until detailed engineering is complete for the ordered route.

- Off Right-of-Way Construction Access
- Bridge Road Substation*

NRCS SOIL SURVEY DATA
- Non-Hydric Soils
- Hydric Soils
- Possible Hydric Inclusions
- SaA — Soil Mapping Unit

WETLANDS
- Delineated Wetlands
- AreaA — Wetland ID
- 100 Year Floodplain
- 500 Year Floodplain
- WI Wetland Inventory
- Wetland Code

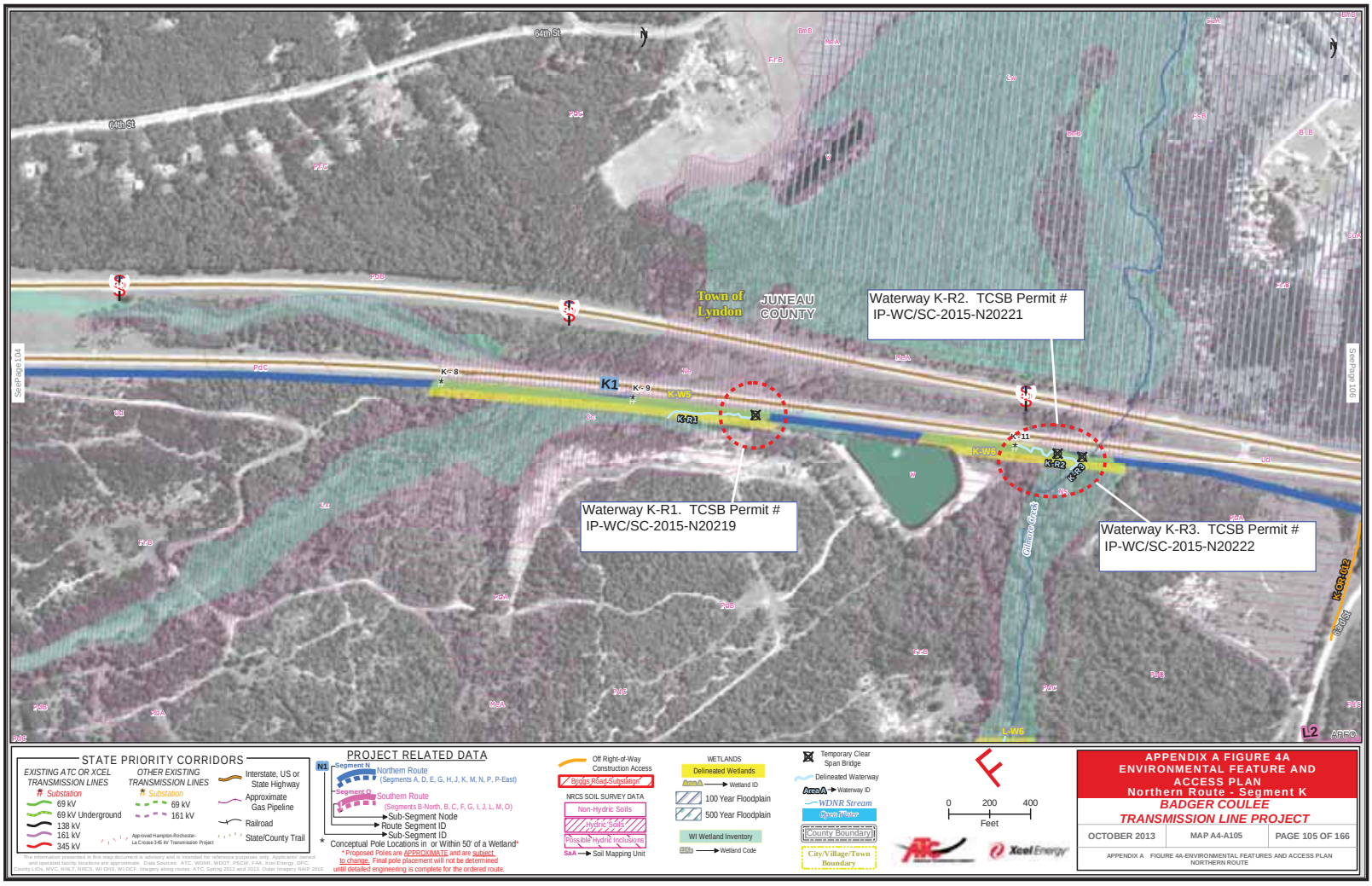
- Temporary Clear Span Bridge
- Delineated Waterway
- AreaA — Waterway ID
- WDNR Stream
- Open Water
- County Boundary
- City/Village/Town Boundary

0 200 400 Feet

The information presented in this map document is advisory and is intended for reference purposes only. Applicants' owned and operated facility locations are approximate. Data Sources: ATC, WDNR, WDOT, PSCW, FAA, Xcel Energy, DPC, County LIOs, MVC, NNLT, NRCS, WI DHS, WI DCF. Imagery along routes: ATC, Spring 2012 and 2013. Outer Imagery NAIP 2010.

APPENDIX A FIGURE 4A
ENVIRONMENTAL FEATURE AND ACCESS PLAN
Northern Route - Segment M
BADGER COULEE TRANSMISSION LINE PROJECT

OCTOBER 2013	MAP A4-A102	PAGE 102 OF 166


64th St
Town of Lyndon
JUNEAU COUNTY
Waterway K-R2. TCSB Permit # IP-WC/SC-2015-N20221
Waterway K-R1. TCSB Permit # IP-WC/SC-2015-N20219
Waterway K-R3. TCSB Permit # IP-WC/SC-2015-N20222
K1
K-W5
K-R1
K-W6
K-R2
K-R3
K-W7
K-W8
L-W6
Chimney Creek
See Page 104
See Page 106
STATE PRIORITY CORRIDORS
EXISTING ATC OR XCEL TRANSMISSION LINES
Substation
69 kV
69 kV Underground
138 kV
161 kV
345 kV
OTHER EXISTING TRANSMISSION LINES
Substation
69 kV
161 kV
Approved Hampton-Rochester-La Crosse 345 kV Transmission Project
Interstate, US or State Highway
Approximate Gas Pipeline
Railroad
State/County Trail
PROJECT RELATED DATA
Segment N
Northern Route
(Segments A, D, E, G, H, J, K, M, N, P, P-East)
Segment O
Southern Route
(Segments B-North, B, C, F, G, I, J, L, M, O)
Sub-Segment Node
Route Segment ID
Sub-Segment ID
Conceptual Pole Locations in or Within 50' of a Wetland*
* Proposed Poles are APPROXIMATE and are subject to change. Final pole placement will not be determined until detailed engineering is complete for the ordered route.
Off Right-of-Way Construction Access
Bridge Road Substation
NRCS SOIL SURVEY DATA
Non-Hydric Soils
Hydric Soils
Possible Hydric Inclusions
Soil Mapping Unit
WETLANDS
Delineated Wetlands
Wetland ID
100 Year Floodplain
500 Year Floodplain
WI Wetland Inventory
Wetland Code
Temporary Clear Span Bridge
Delineated Waterway
Waterway ID
WDNR Stream
Open Water
County Boundary
City/Village/Town Boundary
0 200 400
Feet
APPENDIX A FIGURE 4A
ENVIRONMENTAL FEATURE AND ACCESS PLAN
Northern Route - Segment K
BADGER COULEE TRANSMISSION LINE PROJECT
OCTOBER 2013
MAP A4-A105
PAGE 105 OF 166
APPENDIX A FIGURE 4A-ENVIRONMENTAL FEATURES AND ACCESS PLAN NORTHERN ROUTE

Badger Coulee 345 kV Transmission Line Project

Segment 4 CMP

Appendix G

Project Wetland Impacts and Compensatory Mitigation Acres

Summary of Wetland Impacts and Compensatory Mitigation Acres - Segment 4

Badger Coulee 345 kV Transmission Line Project

Watershed (BSA)[1]	Wetland Cover Types[2]	Permanent Impacts (acre)[3]					Temporary Impacts (acre)[4]					Total Credits[5] Permanent + Temporary Impacts
		Structure Impacts [A]	Conversion [A,B]	Mitigation Ratio (structure)	Mitigation Ratio (conversion)	Total Credits Needed	Matting (ROW)	Matting (off-ROW)	Conversion (off-ROW)	Mitigation Ratio	Total Credits Needed	
Lower Wisconsin (LW)	Shallow Marsh	0.004	na	1.45	na	0.005	na	na	na	na	0.000	0.01
	Sedge Meadow	0.010	na	1.45	na	0.015	1.759	0.000	na	0.25	0.440	0.45
	Sedge Meadow (Degraded)	0.004	na	1.45	na	0.005	na	na	na	na	0.000	0.01
	Wet Meadow	0.012	na	1.45	na	0.018	na	na	na	na	0.000	0.02
	Wet Meadow (Degraded)	0.012	na	1.45	na	0.017	na	na	na	na	0.000	0.02
	Shrub-Carr / Alder Thicket	0.009	10.176	1.45	0.50	5.101	na	na	0.000	0.25	0.000	5.10
	Hardwood Swamp	0.008	18.131	1.45	0.50	9.077	na	na	0.000	0.25	0.000	9.08
	Floodplain Forest	0.000	3.749	1.45	0.50	1.875	na	na	0.000	0.25	0.000	1.87
	TOTAL	**0.058**	**32.056**			**16.112**	**1.759**	**0.000**	**0.000**		**0.440**	**16.55**

Notes/Assumptions:

1 Bank Service Areas are based on Guidelines for Wetland Compensatory Mitigation in Wisconsin, Version 1, August 2013.

2 Wetland cover types are based on Eggers and Reed, 2011, Wetland Plants and Plant Communities of Minnesota and Wisconsin, Third Edition.

3 Permanent wetland impacts include transmission structure placement in wetlands and permanent conversion of shrub or forested wetlands.

4 Mitigation is required for temporary matting within high-quality or difficult to replace (DTR) herbaceous wetlands, specifically non-degraded sedge meadow. There are no temporary wetland impacts associated with the temporary clearing of forested or shrub wetlands along off-ROW access routes for Segment 4.

5 The ILF program will be used for mitigation. Total wetland credits are based on replacement ratios of 0.25:1 for temporary clearing of wooded wetland, 0.25:1 for temporary matting of non-degraded sedge meadow, 1.45:1 for permanent structure impacts, and 0.5:1 for permanently converted shrub and forested wetlands. Total credits are rounded to the nearest 0.01, as this is the minimum amount of credits that can be purchased.

A Impact acreages provided by Stantec Consulting Services Inc.

B Structure impacts within forested and shrub wetlands additionally account for conversion. Acreage within the structure impacts column was not included within the conversion column so that the impacted acreage was only accounted for once.