HoustonEngineering Inc.

Maple Grove, MN | HEI No. 6077- 024
August 3, 2017

NUSTAR PIPELINE

Case No. PU-17-51: Topsoil Inspection Report

Case No. PU-15-674: Reclamation Inspection Report

North Dakota LEGENDARY
Public Service Commission

23 PU-17-51 Filed 08/03/2017 Pages: 25
Topsoil Inspection Report
Houston Engineering, Inc.
Emmy Baskerville, Envir. Scientist

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1 EXECUTIVE SUMMARY

The North Dakota Public Services Commission (NDPSC) has contracted with Houston Engineering, Inc. (HEI) to perform permit compliance inspection services for the Nustar Pipeline Express, LLC project, (Case No. PU-15-674), an 8-inch pipeline spanning 7.3 miles near the city of Prosper in Cass County, North Dakota. Recently, an additional phase has been added to the project. This addition phase includes the construction of a new Mapleton Terminal, located near the south end of the pipeline project. This report documents the third inspection compliance site visit, which was conducted on June 8th and 9th, 2017. This site visit focused on the following activities:

- Observe contractor soil separation activities at the new Mapleton Terminal site; confirm that contractors are proficient identifying topsoil and that separation methodology is appropriate for the site;
- Inspect the restoration and regrading activities within the pipeline corridor and verify that topography has been restored;
- Observation of areas that have been revegetated at the finished pipeline;
- Photographic documentation of regraded/reseeded areas at pipeline; and
- Observation and identification of any erosion / sedimentation issues.

The site was inspected by Ashley Rolland, Civil Engineer from the HEI Fargo office. Ms. Rolland coordinated with Dale Smith and David McKinney, of NuStar Energy while on site. Construction observation occurred along the entire pipeline corridor to view the grading and restoration activities. Ms. Rolland also observed soil separation activities conducted at the new Mapleton Terminal.

Based on our observations during the June 8th and 9th 2017 construction site inspection, the contractors were observed to be proficient in topsoil separation, and HEI finds that the contractor was using appropriate procedures (**Figure 1**). Topsoil depths ranged from 8 – 12 inches, which was placed directly adjacent to the stripped areas for replacement and use, where appropriate, after construction of the new Mapleton Terminal is complete.

Additionally, the pipeline corridor, which was finished in the fall of 2016, was inspected in the field. No erosion issues, road rutting or settlement was observed. The entire pipeline has been installed, backfilled, and topsoil has been replaced at the ground surface. Topography has been restored throughout the pipeline corridor. Several areas within the pipeline corridor have not been seeded, however these areas were within or adjacent to active cultivation areas, so no seed in these areas is appropriate. No mulch was observed. There were no non-compliant issues observed.

2 INTRODUCTION AND PURPOSE

HEI was contracted by the NDPSC to complete construction inspection services for permit compliance for an 8-inch crude oil pipeline known as the NuStar Pipeline Project (*NDPSC. Case No. PU-15-674*). The purpose of the inspection service is to determine compliance with the permit issued on February 24, 2016 by the NDPSC. The following is a summary of the compliance inspections completed to date and the anticipated timeframe for the completion of the permit compliance review. Three permit compliance site visits have been completed to date. One additional site visit will be scheduled approximately one year after construction has been completed (sometime in 2018, depending on when construction is completed at the Mapleton Terminal) to observe final reclamation activities and vegetation growth.

This compliance inspection report summarizes the third construction observation site visit, which occurred on June 8th and 9th, 2017. The purpose of this inspection report is to document observed seeding, mulching, grading and restored topography, and erosion control features observed along the pipeline corridor. This report also documents any permit compliance issues, and additionally documents observations of topsoil separation activities at the new terminal site.

3 SITE VISIT SUMMARY AND CONCLUSION

HEI arrived on site at the Mapleton Terminal at 1:00 p.m. CDT on June 8, 2017 and met with Dale Smith, NuStar Energy. Upon arrival, HEI discussed plans for topsoil stripping and stockpiling at the new terminal site. Dale requested to use the topsoil for fill for the berm and under the roadway. Ms. Rolland confirmed with Dale that topsoil should remain for use on surface features, and that it can be used for slopes and in all areas where vegetation is to be reestablished. Dale confirmed that they will only use topsoil for these purposes.

While the contractors began preparing for topsoil separation activities, Ms. Rolland inspected the recently constructed pipeline corridor. Pipeline construction was completed in the fall of 2016. Pipeline construction was completed by open cut, with the exception of three directional drilling areas under the Maple River, the Rush River, and Interstate 94. The entire pipeline has been installed, backfilled, and topsoil has been replaced at the ground surface. Topography has been restored throughout the pipeline corridor. The pipeline corridor was not reseeded in active agriculture areas, however, it appears that mulching and other erosion control measures had been installed where appropraite. Based on our observations, these areas have been returned to active cultivation. Several erosion control features were observed near the Cenex Fargo Terminal on the north side of the pipeline corridor, including fiber matting, and biorolls. No erosion issues were observed along the corridor. In addition, roads have been returned to the pre-construction condition.

Topsoil separation activities began on June 9th, 2017. The contractor used an 80-foot corridor, maintained 30 feet on one side for vehicles and material storage, 30 feet in the center of the corridor, for stripping of topsoil, and 20-feet directly adjacent to the stripping area was used for the topsoil stockpile. See **Figure 1,** below for a graphic representation of the separation operation. The contractor was found to be competent in topsoil identification and separation.

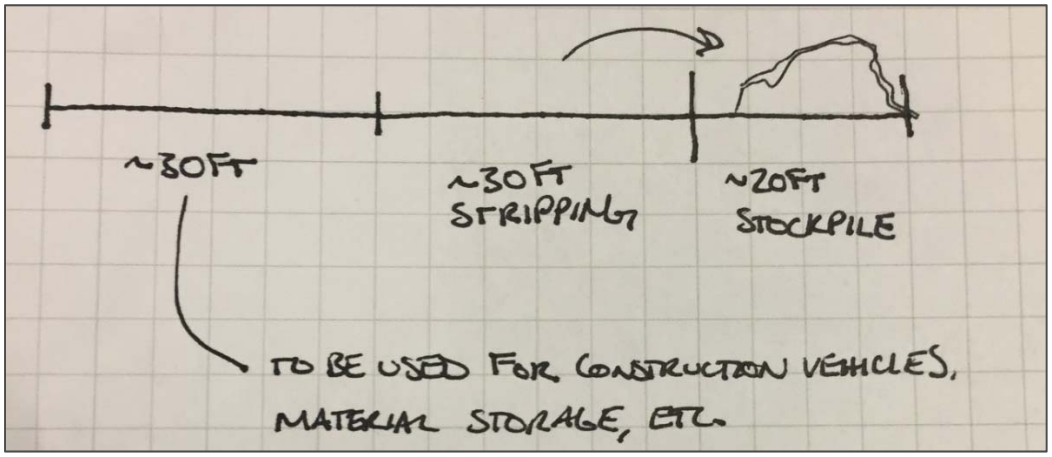

Figure 1: Field notes describing observed topsoil separation methodology.

Additionally, the completed pipeline corridor was inspected to observe post-construction conditions. Most of the pipeline alignment is located on agricultural lands that were regraded by the contractors, and immediately tilled and reworked by the private landowners. Reseeding had not been conducted at the time of the inspection, and it appears much of these areas are in agriculture production and will not require seeding with native vegetation.

Based on the construction observations on June 8th and 9th, 2017, HEI concludes that the contractor has successfully completed the following:

- Replaced topsoil in the pipeline construction areas. In all areas where backfilling had occurred, topsoil was observed on the ground surface and no subsoils were observed at the surface.
- Regraded areas and restored surficical topography within the pipeline corridor. The topography in all areas where backfill and regrading were complete were graded to match the adjacent undisturbed lands.
- Construction activities were performed in a manner to prevent erosion. No erosion problems were observed and appropriate erosion control measures were identified on site, including fiber matting and biorolls. No bare earth was observed within the pipeline corridor.
- Contractor for the Mapleton Terminal site is proficient in topsoil separation methods.

See **Table 1** for a summary of permit conditions and compliance information to date:

Table 1: Permit Conditions and Order Provisions – Compliance Inspection

Permit Conditions/Order Provisions	Compliance	Discussion
Order Provision 11: Pipeline Depth *"…pipeline buried to a minimum depth from the ground surface to the top of the pipe of 48 inches in range land, 48 inches for cultivated land, 48 inches at the bottom of the ditch for road crossings, and 72 inches across undeveloped section lines"*	Yes	As discussed and observed previously, pipeline depth is at or greater than 48".
Order Provision 12: Topsoil Replacement *"…all topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas where cuts will be made, must be carefully stripped and segregated from the subsoil. Any area on which excavated subsoil will be placed must also be stripped of topsoil. The stripped topsoil must not be stockpiled in natural drainages, and must be protected from water erosion. Care must be taken to protect topsoil from unnecessary compaction by heavy machinery. Unless otherwise approved by the Commission, topsoil must be removed before topsoil freezed in the late fall/early winter to the point that frost inhibits propoer soil segregation. After backfilling with subsoil is completed, any excess subsoil must be placed over the excavation area, blending the grade into existing topography. Topsoil must be replaced over areas from which it was stripped only after the subsoil is replaced."*	Yes	Topsoil was observed to be proficiently segragated during the first compliance inspection (August 23, 2016). Subsoil and topsoil have since been properly reclaimed and regraded at the pipeline site, restoring the topography across the alignment. Topsoil was observed to be replaced at the ground surface. Additional topsoil separation observations took place at the Mapleton Terminal site on June 9, 2017. Total topsoil separation depths ranged from 8-12" The contractors were found to be competent in topsoil separation.
Order Provision 13: Boring Across Roadways *" …all buried facility crossings of graded roads must be bored unless the the responsible governing agency specifically permits Company to open cut the road."*	Yes	HEI inspected the entire 7.3-mile pipeline. No road cuts were observed.
Order Provision 16: Construction conditions *"…construction must be suspended when weather conditions are such that construction activities will cause irreparable damage to roads or land, unless adequate protection measures are taken by Company."*	Yes	No irreparable construction damage was observed.
Order Provision 18: Restoration *"…as soon as practicable upon the completion of the construction of the transmission facility, restore the area affected by the activities to as near as is practicable to the condition as it existed prior to the beginning of construction."*	Yes	Grading, topsoil replacement, and regrading activities are complete within the pipeline corridor. Restoration of the Mapleton Terminal site will be observed in subsequent compliance inspections.
Order Provision 19: "*…all pre-existing townshp and county roads and lanes used during construction must be repaired or restored to a condition that is equal to or better than the condition prior to the construction of the facility…"*	Yes	No road rutting, settlement or road degradation was observed on roads adjacent to the pipeline corridor. These roads have been returend to pre-construction condition. Roads near the Mapleton Terminal will be observed in subsequent compliance inspections.

4 FUTURE PLANNED ACTIVITIES

HEI will perform the final permit compliance site visit approximately one year after construction completion at the Mapleton Terminal. HEI will monitor the construction timeline and schedule our final site visits with Nustar Energy. Based on the current conditions, HEI anticipates that the next site visit will occur late November or December 2018. If as-built conditions and restoration activites cannot be complete or observed due to weather conditions, the final site visit will occur in the spring of 2019.

5 SITE PHOTOGRAPHY

Photo 1: Pipeline corridor adjacent to 165th Avenue NE, facing north.

Photo 2: Pipeline corridor adjacent to 165th Avenue NE, facing south.

Photo 3: Pipeline corridor perpendicular to 165th Avenue NE, facing east.

Photo 4: Pipeline corridor perpendicular to 165th Avenue NE, facing east showing minor bare area.

Photo 5: Pipeline corridor adjacent to 165th Avenue SE, facing south.

Photo 6 / 7: Pipeline corridor at County Road 20 and 116th Avenue SE, facing south. Pipeline corridor is on the right side of the township road in this photo.

Photo 8/9: Pipeline corridor from County Road 20, facing northeast. Pipeline runs parallel to ditch on the left side of the photo.

Photo 10: Pipeline corridor near Fargo Terminal at the intersection of 32nd St SE and 166th Avenue SE. Facing southeast.

Photo 11: Pipeline corridor near Fargo Terminal at the intersection of 32nd St SE and 166th Avenue SE. Facing north.

Photo 12/13: Pipeline corridor at Fargo Terminal at the intersection of 32nd St SE and 166th Avenue SE. Facing south. Erosion control features can be seen in the foreground near the newly installed culvert.

Photo 14: Culvert at Fargo Terminal. No erosion / sedimentation issues, or bare ground observed.

Photo 15: Fargo Terminal erosion control fiber mat erosion control.

Photo 16: Fargo Terminal silt fencing.

Photo 17: Corridor at 165th Avenue SE (looking east).

Photo 18 / 19: Corridor at NE ¼ of Section 28, facing south.

Photo 20: Corridor at north end of Section 28, facing west

Photo 21: Access manhole near Maple River.

Photo 22 / 23: Project Corridor at Maple River crossing. Horizontal Directional Drilling was used to span the river.

Photo 24: Topsoil separation.

Photo 25: Topsoil separation depth to 12+ inches.

Photo 26: Topsoil separation.

ATTACHMENTS

Photo Location Map

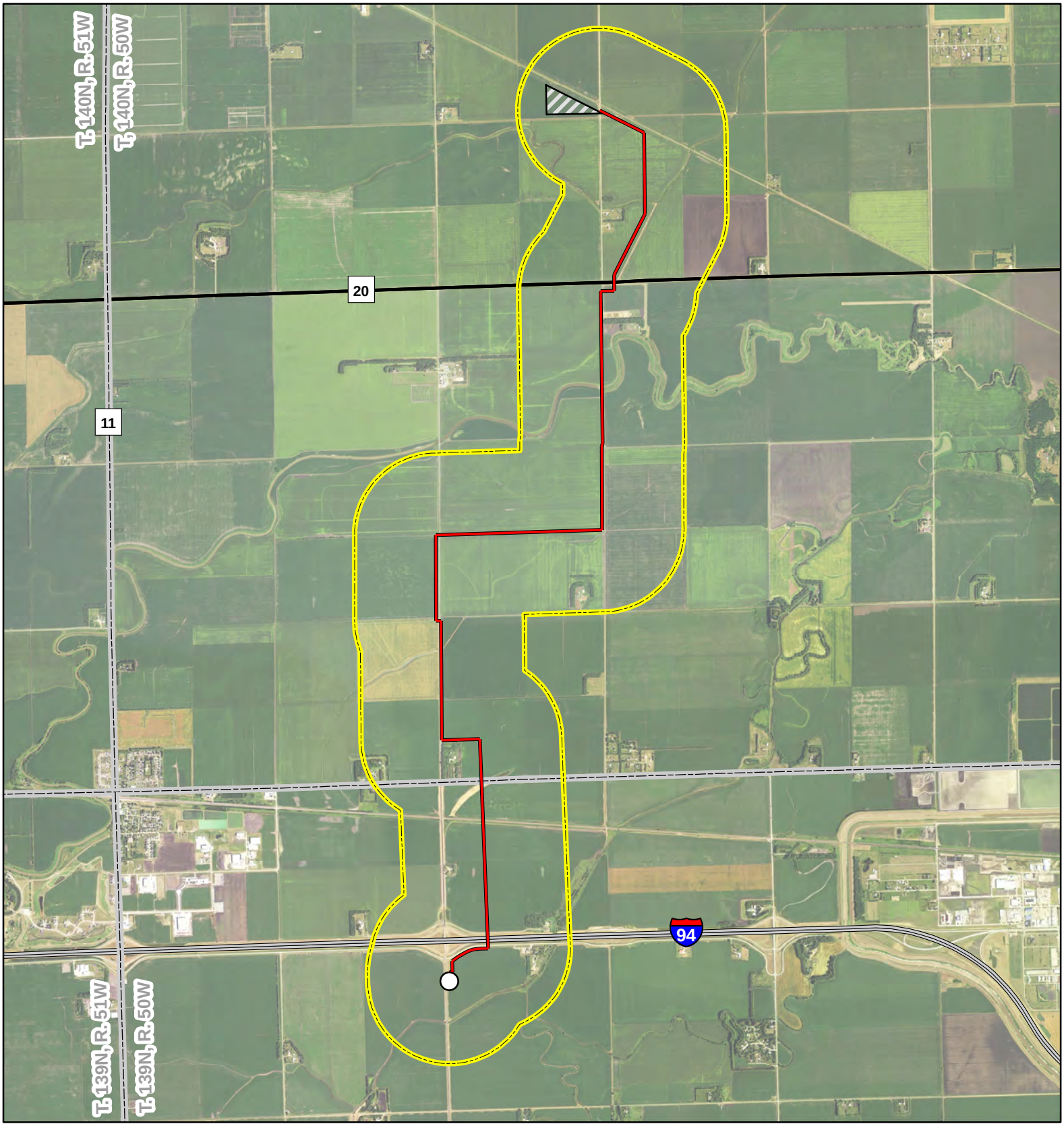

Fig. 2: Laurel Interconnect Pipeline Project

- Proposed Mapleton Junction Site
- Proposed Route
- Interstate Highway
- County Highway
- Proposed Cenex Fargo Terminal
- Study Area
- Township/Range Boundary

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Base Map: 2014 Aerial Imagery
Source: USDA/FSA -
Aerial Photography Field Office
Casselton SE (1976), Mapleton (1976),
West Fargo North (1976)
T. 139N, R. 50W & T. 140N, R. 50W
Cass County, North Dakota

Projection: NAD 1983 UTM Zone 14N

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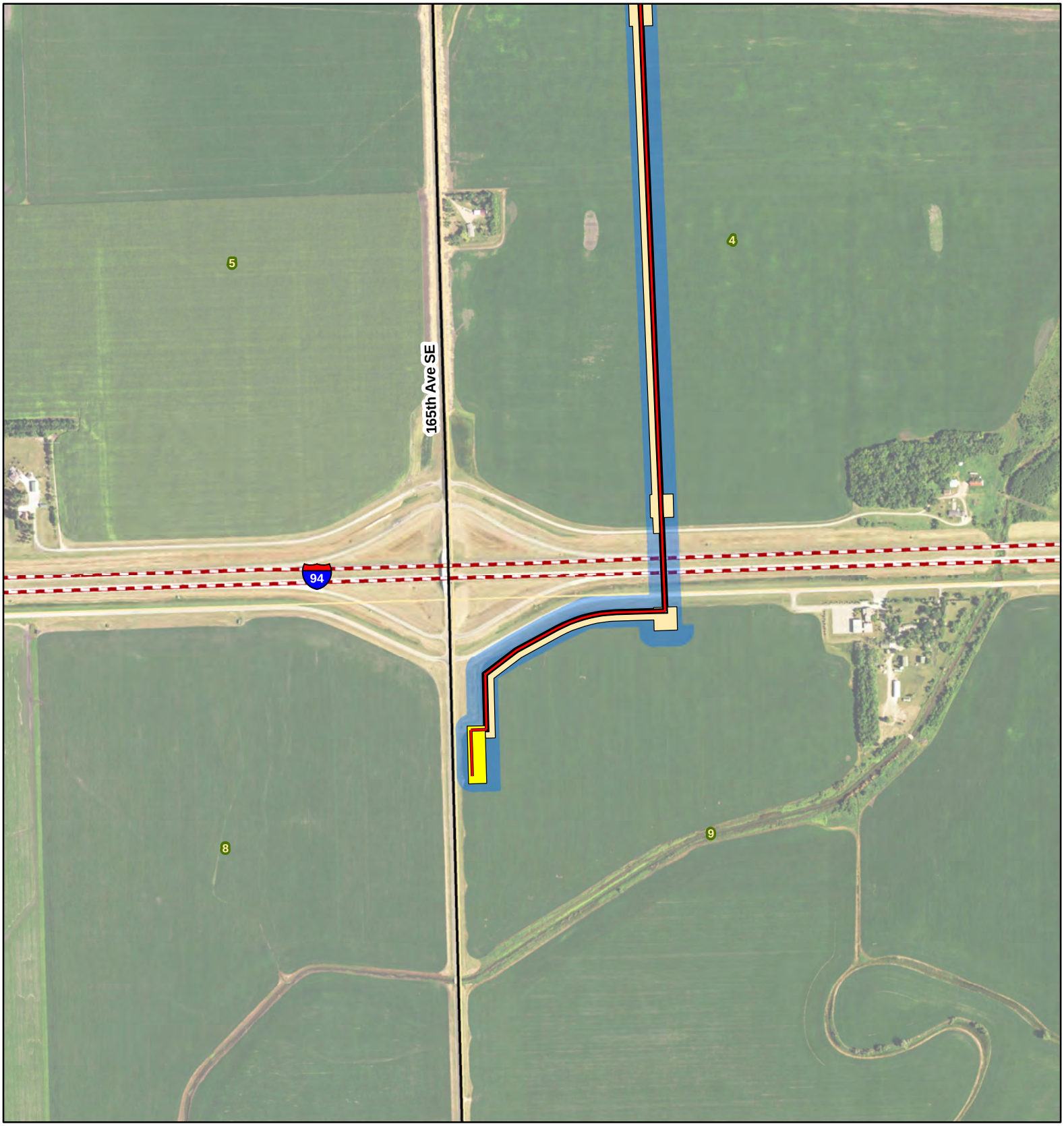

Laurel Interconnect Pipeline Project - Exclusion and Avoidance Area

- Proposed Route
- Maple River
- Interstate Highway
- County Highway
- Existing Road
- Permanent ROW
- Temporary Workspace
- Proposed Mapleton Junction Site
- Proposed Corridor
- Proposed Cenex Fargo Terminal
- Township/Range Boundary
- Section Boundary

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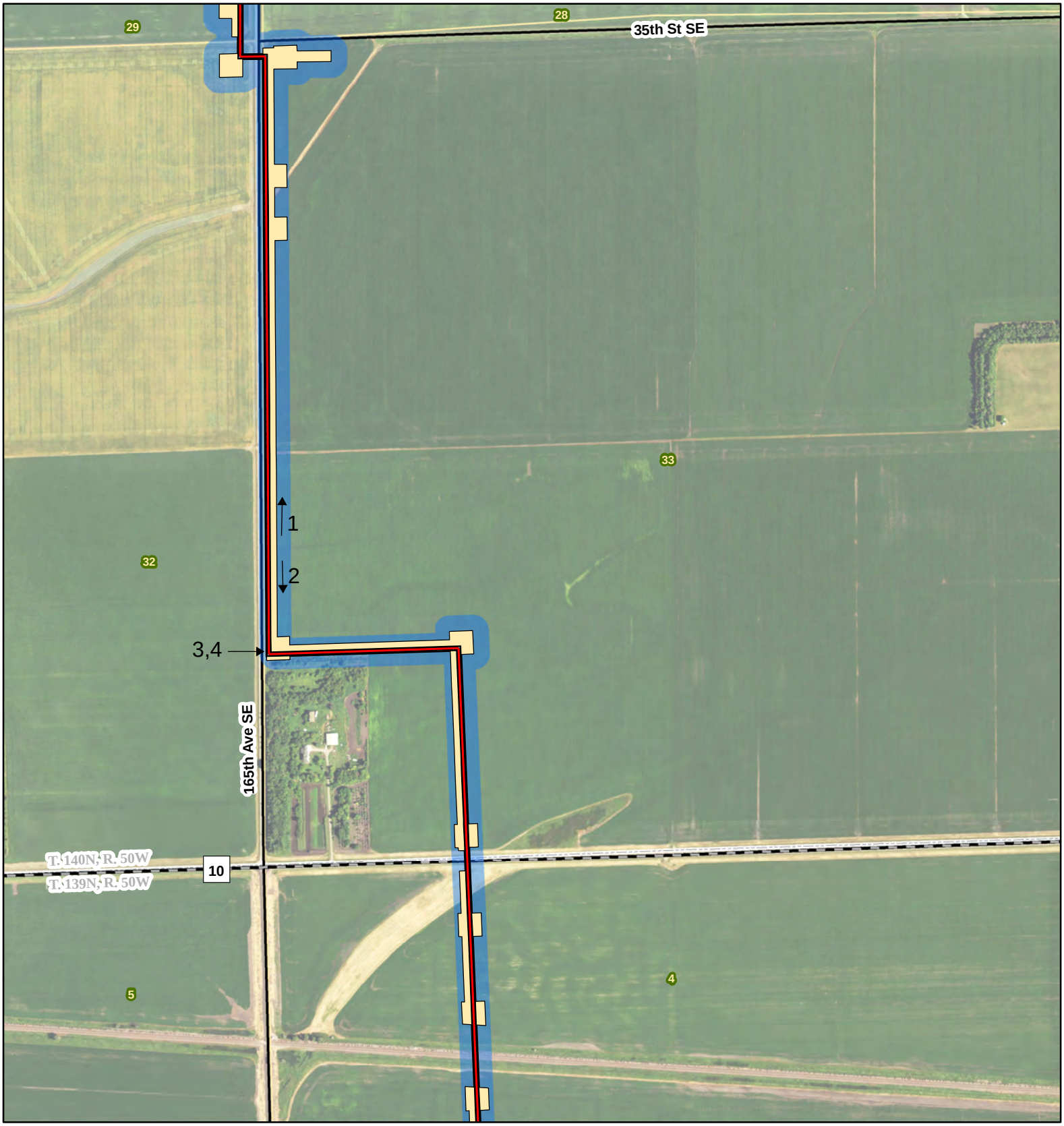

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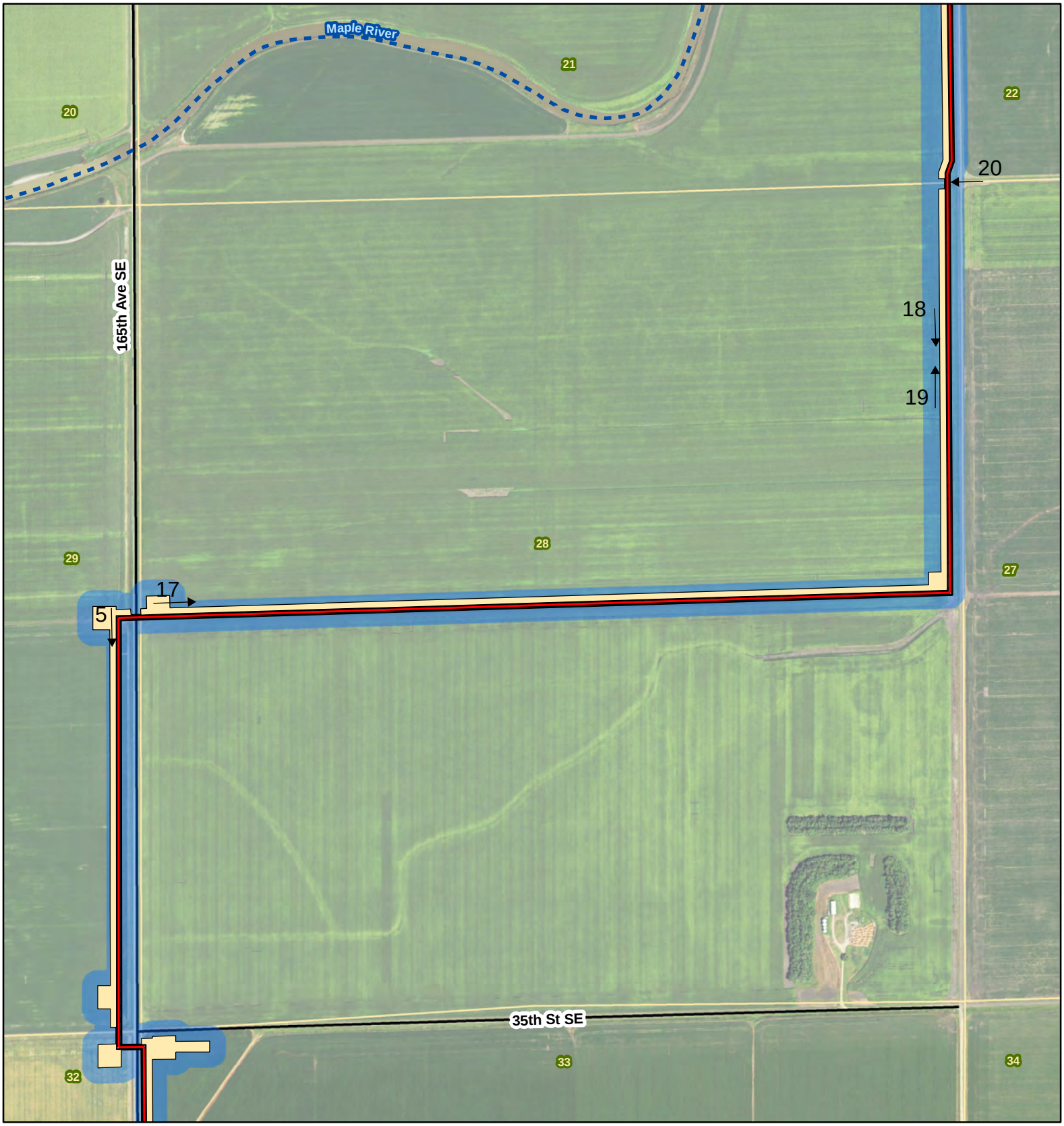

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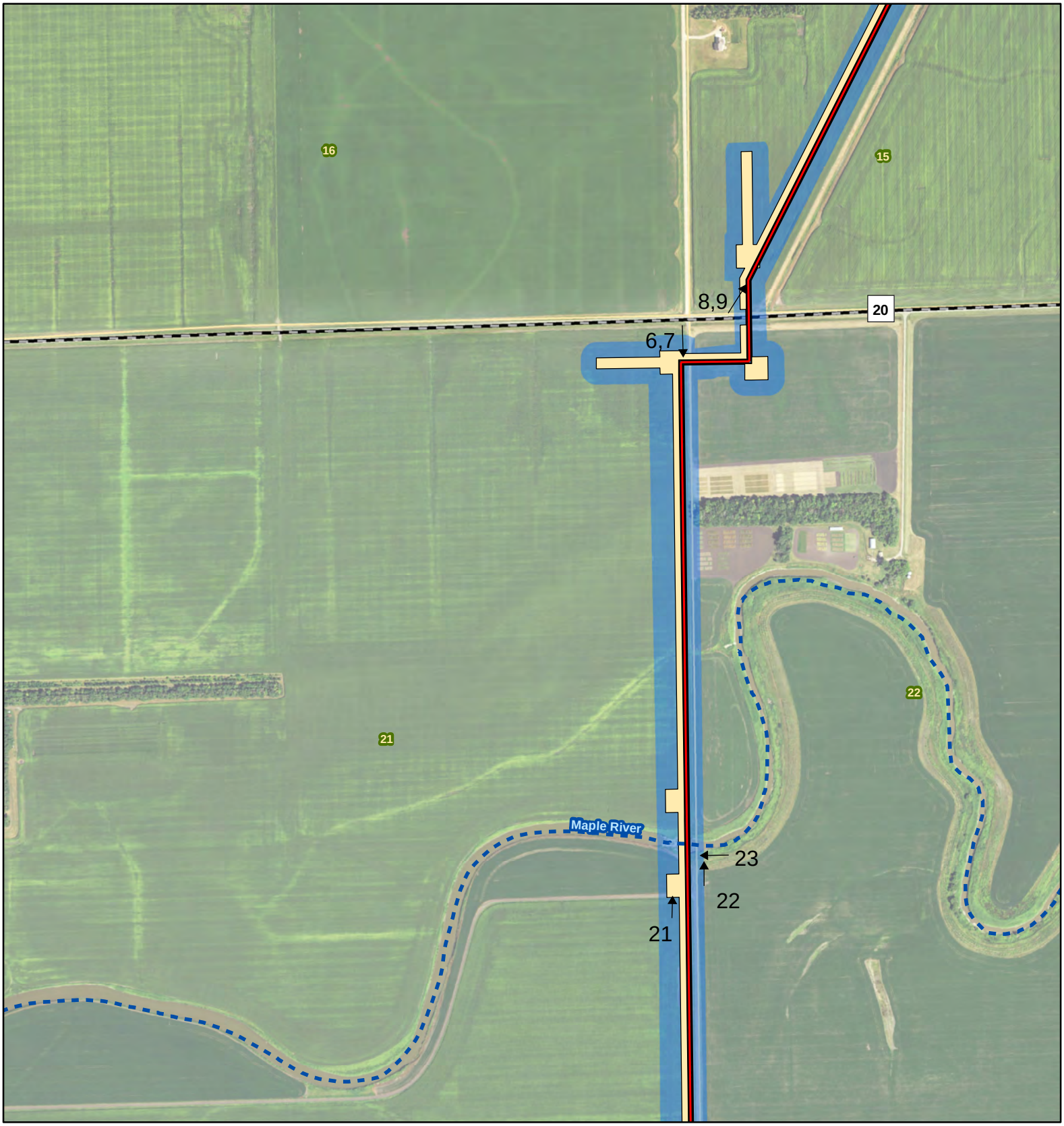

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