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## MEMORANDUM

Date: December 7, 2022

To: Steve Krasaway, PE, St. Louis County

From: Tony Rotchadl, PE, Bolton & Menk

Subject: CSAH 4 (Rice Lake Road) Preliminary Design

Northland Constructors Access Modifications, Design Parameters

As part of the preliminary design efforts completed to date, we have coordinated with Northland Constructors (Northland) to verify operational needs and their possible impacts to the proposed improvements on CSAH 4. Below is a summary of the decisions made, in conjunction with Northland Constructors, to identify the preferred alternatives for key items along the CSAH 4 corridor.

In discussions with Northland, they identified a 135' trailer that is utilized to haul large equipment into and out of their facility. The frequency of this trailer being utilized is typically at the beginning and end of each construction season, but nevertheless needs to be accommodated with the geometric improvements along CSAH 4. Northland mentioned that this trailer and equipment are hauled in all directions out of their site.

The preferred improvements at Calvary Road and Martin Road (where they intersect CSAH 4) are single lane roundabouts. Typical roundabout configurations will not accommodate the 135' trailer due to the sweeping nature of the turning movements associated with this large trailer. The design team identified that designing both roundabouts to accommodate all direction turning movements for this large trailer would significantly increase the footprint and cost of the proposed roundabouts.

With this in mind, additional conversations with Northland took place to identify alternatives that could minimize the footprints of the roundabouts. An alternative access road, as shown in the "MATCHLINE B" inset of the preliminary design layout, was identified. It includes a 40' wide aggregate surface that exits the north side of Northlands property, traverses across a City of Duluth owned parcel, before intersecting Martin Road approximately 1200' west of the Martin Road/CSAH 4 intersection. The intent of this additional access is that it will be utilized for the 135' trailer mentioned above. In conjunction with this new access, the Martin Road/CSAH 4 Roundabout has been designed to accommodate the turning movements (in all directions) associated with Northland's 135' trailer. This design feature will allow for the 135' trailer to be mobilized in all directions (N, S, E, W) when leaving Northlands site.

Because the 135' trailer will leave Northlands site via the new access and Martin Road roundabout, the Calvary Road roundabout has been designed to accommodate a typical tractor-trailer combination. The 135' trailer will be able to traverse the Calvary Road roundabout going North to South or South to North, but no east or west movements for this trailer have been accommodated.

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Calvary Road is being extended slightly to the west with the proposed geometric alterations. Included in this western extension are driveway access points for both Northland and the MnDNR properties. We have coordinated with Northland and the DNR on the preferred access point locations and dimensions. The general approach is that Northlands conventional equipment, trailers, and employees can utilize the Calvary Roundabout and western extension to access their site and facilitate their operations. The customer access for Northland, located approximately 800' north of the Calvary Road roundabout, will be limited to a right-in, right-out configuration.

To summarize, accommodating Northland's 135' trailer is being completed via a new access driveway that will intersect Martin Road west of the CSAH 4 corridor. The Martin Road roundabout has been designed to accommodate this 135' trailer in all directions. The Calvary Road roundabout will provide conventional access (typical trailers, equipment, employees) to the Northland site while allowing the 135' trailer to traverse CSAH 4 in both the northbound and southbound directions. The current customer access will be limited to a right-in, right-out configuration based on the preferred geometry for the CSAH 4 corridor. Additional details are provided below.