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March 28, 2023 Revised Proposal QTB174511

Zach Lingl, PE
Bolton & Menk, Inc.
7533 Sunwood Drive NW, Suite 206
Ramsey, MN 55303

Re: Revised Proposal for Pavement Material Sampling and SFDR Mix Design
167th Avenue
From Nowthen Blvd to Quicksilver St
Ramsey County, Minnesota

Dear Mr. Lingl:

Braun Intertec Corporation is pleased to present this revised proposal to complete pavement material sampling and perform an SFDR mix design for 167th Avenue in Ramsey County, Minnesota.

Background and Project Description

In October of 2022, Haugo Geotechnical Services evaluated 167th Avenue in Ramsey County, Minnesota. Based on the provided Geotechnical Report, the rural section of 167th Avenue is a 40-foot-wide roadway extending about 1-mile from Nowthen to Quicksilver Street. The roadway has 8 to 10-foot-wide shoulders.

Based on the testing performed by Haugo Geotechnical Services, on average, the segment consists of 5 1/4 to 6 1/4 inches of bituminous overlying an aggregate base layer that ranges from about 2 to 10 inches in thickness. Given thin aggregate base layer encountered in several locations, it was later decided by Bolton and Menk, Inc. to perform an 8-inch Stabilized Full Depth Reclamation (SFDR) with emulsion on this segment followed by 4 inches of bituminous overlay.

Bolton & Menk, Inc. requested that we perform pavement material sampling followed by an SFDR mix design.

Purpose

The purpose of our pavement material sampling is to obtain pavement materials and prepare a laboratory SFDR mix design.

Scope of Services

The following tasks are proposed to help achieve the stated purpose. If unfavorable or unforeseen conditions are encountered at any point during the completion of the tasks that lead us to recommend an expanded scope of services, we will contact you to discuss the conditions before resuming work.

Site Access

Based on our understanding of the existing highway alignment, we propose to utilize a trailer-mounted coring rig. Depending on roadway conditions, potential utility conflicts, and investigation requirements, our field crew will select locations throughout the proposed project as needed to obtain materials for laboratory design.

We have assumed that the fees associated with the required Right of Way (ROW) permit(s), if any, will be waived by the city.

Cores and Hand Auger Borings

We propose to complete 23, 8-inch diameter cores along the existing highway alignment. Within each corehole, underlying base material will be collected using a combination of the cuttings from hand auger borings and shoveling. Sufficient aggregate base will be collected to properly proportion the aggregate base and RAP (cores) in the design procedure.

We will backfill the coreholes and patch the surface cold bituminous patch. Over time, subsidence of core backfill may occur, requiring releveling of surface grades or replacing bituminous patches. We are not assuming responsibility for re-leveling or re-patching after we complete our fieldwork.

Traffic Control

Since coring will be performed within the roadway, traffic control will be required to alert motorists of our work and protect our field crew. Based on traffic volumes of about 2,390 vehicles per day, flaggers will be required. The cost for traffic control is included in our estimate.

Sample Review and Laboratory Testing

Bituminous cores and aggregate base samples will be returned to our laboratory in Bloomington, Minnesota. Cores will be cold-crushed and mixed with the aggregate base at the proper ratio based on the average in-place bituminous thickness and the reclamation depth of 8 inches. Next, the SFDR with emulsion mix design will be performed on the combined materials.

If after review of the materials it appears that additional testing would be required for successful completion of the design analyses, we will request authorization for the additional testing through a Change Order.

Reporting

An SFDR mix design report will be provided that includes the Engineered Emulsion type and the recommended application rate.

An electronic copy of our report will be submitted to you.

Fees

We will furnish these services on a cost plus basis in accordance with the previously discussed scope of services. The approximate cost by work type is shown in Table 1.

Table 1. Estimated Cost

Scope	167th Ave
Coring and Mobilization	$ 4,155
Traffic Control (Subcontractor)	5,000
SFDR Mix Design (assumes 1 design*)	6,500
Engineering and Project Management	2,410
Total Estimated Cost	**$18,065**

**Note that if multiple maintenance sections and/or highly variable material types and thicknesses are encountered, multiple designs may be warranted. Additional designs will require additional sampling. Additional mix designs will be billed at a rate of $6,500 per design upon approval by you.*

Our work may extend over several invoicing periods. As such, for work that is performed during the course of each invoicing period, we will submit partial progress invoices.

Schedule

We will schedule work on this project upon receipt of your written authorization. We will begin the field work within two to three weeks of authorization. We anticipate the field work for coring and hand auger boring will take about two days to complete. Once we receive the materials in our lab, the laboratory mix design will be completed which likely take about 5 to 7 weeks to complete. We anticipate we can submit the mix design report by approximately two months following project authorization.

If our proposed scope of services cannot be completed according to this schedule due to circumstances beyond our control, we may need to revise this proposal prior to completing the remaining tasks.

General Remarks

We will be happy to meet with you to discuss our proposed scope of services further and clarify the various scope components.

We appreciate the opportunity to present this proposal to you. If acceptable, please return a signed copy in its entirety.

The proposed fee is based on the scope of services described and the assumptions that our services will be authorized within 30 days and that others will not delay us beyond our proposed schedule.

We will complete the work under the conditions of the Master Services Agreement between Bolton & Menk, Inc. and Braun Intertec.

To have questions answered or schedule a time to meet and discuss our approach to this project further, please contact Mohammad Sabouri at 952.995.2828 or MSabouri@braunintertec.com or Neil Lund at 952.995.2284 or NLund@braunintertec.com.

Sincerely,

BRAUN INTERTEC CORPORATION

Mohammad Sabouri, PhD, PE
Senior Engineer

Neil Lund, PE
Technical Manager/Senior Engineer

The proposal is accepted, and you are authorized to proceed.

Authorizer's Firm

Authorizer's Signature

Authorizer's Name (please print or type)

Authorizer's Title

Date