



Professional Engineers and Consultants, Inc.

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October 8, 2003
NI-5652-CC
SL# 25245

Reference: Wastewater Collection System Model & Master Plan
Hydraulic Modeling, Task 3

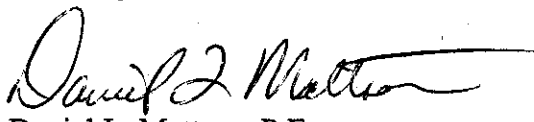
Dear Chris:

As requested, we are providing you with a scope and budget for the above referenced task as a part of the Wastewater Collection System Model & Master Plan. This Scope of Services reflects our understanding of the task based on the data collection we have completed and our meetings and discussions with you. Included is a detailed Scope of Services and a fee estimate based on the hourly rates set forth in our Master Agreement.

We have begun to assimilate the collected data and started inputting it into the model. The model will be built to reflect the actual system as much as possible. Using the information we have gathered we will make initial runs to calibrate the model and prepare it for the existing system analysis and for future use.

Please call if you should have any questions or comments, or need additional information.

Very truly yours,
Rothberg, Tamburini & Winsor, Inc.



Daniel L. Mattson, P.E.
Project Manager

HYDRAULIC MODELING TASK 3
For
Wastewater Collection System Model & Master Plan
SCOPE OF WORK

As a part of this Scope of Work, we may request that the City of Fort Collins team assist us in researching and procuring critical data (that we were unable to obtain through our planned methods) that may be needed for the building and calibration of the waste water system model.

Outline of Proposed Tasks:

SUBTASK 1. DATA ASSEMBLY AND INPUT PREPARATION

- a. Collect survey data on the manholes. Input the data into the model and determine which manholes have missing information. When possible make assumptions on missing information if it is not critical to the operation of the model. If missing information is deemed critical to the proper operation of the model it will be procured through some other method (i.e. additional survey, archived record drawings or design drawings, etc.). All of the data and assumptions will be provided to the City during the process for their review, approval and ultimate use. If additional survey data is needed it may be an addition to this scope of work.
- b. Review flow-monitoring information in order to establish Manning's "n", diurnal curves for different types of land use, and infiltration and inflow for different areas throughout the system. This information will be presented to the City for approval to use in the analysis of the existing system.
- c. Collate the loading information provided from the City's database and distribute it appropriately throughout the model.
- d. Review drawings, reports, and other information provided by the City to fill in "gaps" in other information collected.

SUBTASK 2. INITIAL MODEL RUN AND CALIBRATION

- a. Using all the information gathered, collated, and input into the model, several computer model runs will be completed to correct errors and determine additional data needed to insure proper model operation.
- b. Once all the information is corrected, calibration runs will be completed using monitoring points in order to produce a calibrated working model.

SUMMARY OF FEES:

Hydraulic Modeling Task 3

Subtask 1. Data Assembly and Input Preparation	\$7,545
Subtask 2. Initial Model Run and Calibration	\$ 8,070
TOTAL	\$ 15,615

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