

**EVER-GREEN ENERGY™**

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Jim Green
General Manager
Duluth Energy Systems
One Lake Place Drive
Duluth, MN 55802

Re: Superior Street to Duluth Energy Systems Plant
Hot Water System Design Proposal

Jim,

Duluth Energy Systems (DES) is seeking design of a hot water distribution system connection from the forthcoming Superior Street project construction to the DES plant. This connection will enable DES to supply hot water to customers along Superior Street after the completion of the Superior Street reconstruction. Ever-Green Energy (Ever-Green) is proposing a scope of work to complete this design, based upon discussions with DES staff and our understanding of the work.

Scope of Services:

Ever-Green will provide preliminary planning and design to connect the hot water distribution piping, which will be constructed as a part of the upcoming Superior Street reconstruction project, to the DES plant. Ever-Green's scope will include the following:

1. Provide detailed design of the hot water distribution system mains to connect hot water piping from Superior Street to the DES plant. The hot water pipe installed as part of the Superior Street project will be south of the intersection of Superior Street and 1st Avenue West. General routing will be as identified by DES staff. The detailed design will include verifying existing topographic survey work performed by others, existing utility investigation and conflict resolution, hot water pipe design for buried pipe and pipe in the tunnel crossing Interstate 35, and the preparation of construction ready plans and specifications for use in the bidding process. Ever-Green will provide "Issued for Construction" drawings and specifications to Duluth Energy Systems for use in the construction of this connection.
2. Provide an estimate of probable cost for the work.
3. Provide plan design quantities and a component list to DES for its use in the procurement process of hot water piping system components.
4. Support DES with the preparation and administration of permit applications required by MNDOT and the North Shore Scenic Railroad.

Preliminary Assumptions

Hot water piping design will be completed according the EN13941 standards and will be provided to DES in AutoCAD Civil 3D 2016 format. Plans and specifications will also be provided in PDF and hard copy formats.

Ever-Green Energy will perform the design according to the following assumptions:

1. Distribution System Preliminary Design

- Existing public and private utilities will be remain in the same location, and relocation of said utilities will only be recommended as a last resort to enable the construction of the hot water distribution system.
- Record drawing information will be requested from all public and private utilities using the Gopher State One Call system for the limits of the design scope to estimate the depth of these utilities for preliminary vertical profile design. Depths of utilities will be assumed to be at typical depths where no depth information is provided. This information will be incorporated into the topographic survey performed by Ever-Green for the development of the construction plans.
- Design parameters of the hot water in the system will be 215° F maximum temperature, 150 psi maximum pressure.
- Hot water main sizes will be provided based on hydraulic modeling previously completed for DES by Ever-Green.
- Ever-Green will design air vents and drains into the system at all high points and low points in the segment of this scope.

Clarifications:

- DES has obtained, or will obtain, any necessary easements, rights of way for the proposed pipe routing.
- DES will procure structural design separately from this scope for the support structure over the railroad and the expansion of the concrete tunnel. The selected consultant will be required to coordinate with the Ever-Green team on its design. Ever-Green estimates this cost to be approximately \$10,000.
- Available soil borings and geotechnical information will be provided to Ever-Green by DES. If none exist for this area, Ever-Green recommends that DES procure the services of a geotechnical testing company to determine the soil characteristics and groundwater elevations as part of this design process. Ever-Green accepts no responsibility for design assumptions related to the soil conditions that will be made without reliable geotechnical information.
- Modifications to existing underground utilities, if required, will be completed by others.
- Environmental permitting, if required, will be by others. Ever-Green will provide technical input as required for permitting efforts.
- This proposal does not include material procurement. It is assumed that DES or the selected contractor will procure all of the necessary material for the project. Ever-Green will provide recommended vendors, purchase quantities, and material quality specifications to be met.

Budget:

Services will be provided on a time & material basis, with a budgeted maximum cost of \$39,000. Ever-Green will inform DES of the project's costs on a monthly basis, and notify DES when the costs are nearing the budgeted maximum. No sub-consultants will be used for this project.

Ever-Green Energy Employees will be charged at the following rates:

Sean McFarling	Lead Engineer	\$150/hr
Ryan Johnson	Project Engineer	\$150/hr
Henry Kinane	Project Engineer	\$120/hr
Rich Gacek	Autocad Specialist	\$120/hr
Michael Ahern	Executive Sponsor	\$275/hr

*Other employees working on the project will be charged at similar rates, depending upon their classification

Schedule:

Ever-Green anticipates that this work effort will span approximately three months. The schedule for the project will be determined in coordination with DES to ensure completion of the hot water pipe construction in time for the customers along Superior Street to receive service upon completion of the Superior Street Reconstruction.

We hope that you find these proposed services consistent with your thoughts. Please let me know if you have any questions

Best,
Ever-Green Energy, LLC



Sean McFarling, PE
Senior Engineer
Project Development Group