STEAM LINE INSTALLATION - DULUTH STEAM

1ST ALLEY & 7TH AVE E.

Duluth, Minnesota

ST. PAUL

STATE OF MINNESOTA

PROJECT LOCATION

I. JOB NO:
9/11/13 50892

II. DESCRIPTION
SHEET #:
M1

III. REVISION

10/1/15

Specifications for Construction

Governing Specification is the 2006 Edition of the Minnesota Department of Transportation (MnDOT) Standard Specifications for Roads, Bridges, and Architectural Works (Standard). MnDOT Standard Specifications are to be supplemented with the following:

1. MnDOT Standard Specifications for Construction of Concrete pavements.

GENERAL

Any holes or other alterations to the structure which are not specifically detailed on the contract documents shall be subject to the approval of the Engineer.

Shop drawings, to include typical and unique conditions and all connections, shall be submitted to the engineer for approval. The designs shown herein are intended for this project and may not be used in any other project by others. The Engineer shall review such submittals and reports to determine if they in any way affect the quality or performance of the project.

Do not strip forms until concrete has reached adequate strength.

KOA is responsible only for the design of the steam vault cover as shown in the drawings. KOA is not responsible for the design of the mechanical elements shown in the preliminary design.

Provide clear cover from outermost reinforcing to surface of concrete in accordance with following schedule:

- #14 bars: 2.5"
- #18 bars: 3.0"
- #25 bars: 3.5"
- #36 bars: 4.0"
- #40 bars: 4.5"
- #50 bars: 5.0"

All reinforcing shall be shop fabricated, except #3 or #4 bars may be field bent. Bend bars only one time in any direction. Provide temporary bracing and protection as required until concrete has reached adequate strength.

Concrete shall be placed in courses not exceeding 12" thick, with a minimum embedment of 10" below structural elements. The longest dimension of reinforcing steel shall be compatible with the longest dimension of structural elements. Minimum embedment shall be 10" for all reinforcing bars, but not less than shown on drawings, nor less than 7" for embedded anchors. Minimum embedment shall be 10" x rod diameter unless noted otherwise.

Specifications for Construction of Concrete pavements

The following approved waterproofing systems (60 mil minimum thickness) shall be installed on the exterior surfaces that are exposed for construction or repair (walls and roof slab):

- Jiffy Seal 140/60 (Protecto Wrap)
- Bituthene 4000 (Grace Construction Products)
- Xyntex 4000 (Grace Construction Products)
- Xypex's "C-500" or approved equal

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Specifications for Design and Construction of Bridge Structures

All hooked bars shall be a standard ACI shop fabricated hook unless noted otherwise.

Specifications for Design and Construction of Underground Utilities

The contractor shall provide quality control samples of concrete and embedment materials. Concrete will be placed in accordance with MnDOT 2008 Materials Control Schedule. Use the following formulas:

f'c = (1.05 + 0.20 k + 0.15 x) x 1000

Where:
- k = Air content (+/-1.5%)
- x = Slag content (%)
- f'c = Compressive strength (psi)

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Specifications for the Design and Construction of Underground Utilities

All concrete work shall conform to ACI 301 unless noted otherwise. Reinforcement shall be placed with consideration for location of anchors.

Specifications for the Design and Construction of Bridges

The contractor shall provide quality control samples of concrete and embedment materials. Concrete will be placed in accordance with MnDOT 2008 Materials Control Schedule. Use the following formulas:

f'c = (1.05 + 0.20 k + 0.15 x) x 1000

Where:
- k = Air content (+/-1.5%)
- x = Slag content (%)
- f'c = Compressive strength (psi)

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4 MANHOLE APRON AND ROADWAY REPAIR DETAIL

- EXCAVATE FOR NEW VAULT
- SAWCUT AND REMOVE CURB AND GUTTER OVER NEW VAULT
- FORM AND CAST WALLS (FINAL HEIGHT TO BE DETERMINED IN FIELD)*
- FORM AND CAST FLOOR*
- SUPPLY AND INSTALL STAINLESS STEEL DOWELS FOR ROOF CONNECTION
- CLEAN AND SANDBLAST (E) VAULT WALL LS 1
- PROVIDE AND PLACE / COMPACT GRANULAR FILL
- PROVIDE AND INSTALL PIPE SLEEVES FOR STEAM PIPE
- FORM WALLS AND FLOOR AROUND EXISTING THRUST BLOCK
- INSTALL MANHOLE RINGS COVERS AND APRONS EA 1

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**REINFORCING VAULT ROOF. SEE FOR MANHOLE**

NOTE:

**ITEM UNIT EST. QTY.**

- THE ESTIMATED QUANTITIES SHOWN
- UNIT BID PRICE ONLY FOR THOSE QUANTITIES ABOVE
- CONTRACTOR WILL BE PAID AT THE

**MINIMUM SPLICE AND EMBEDMENT LENGTHS**

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**TYPICAL CONCRETE REINFORCING DETAILS**

- CONCRETE COVER GREATER THAN OR EQUAL TO 2"
- MINIMUM SPLICE AND EMBEDMENT LENGTHS
- BOTTOM HORIZONTAL BARS MUST BE CAST WITHIN THE BOTTOM 12" OF THE CONCRETE POUR

**TYPICAL CONCRETE CORNER REINFORCING DETAIL (LAN)**

**TYPICAL MANHOLE APRON REINFORCING PLAN**

- STANDARD HOOK
- MINIMUM SPLICE AND EMBEDMENT LENGTHS
- 1 1/2" CLR AROUND

**WEST WASHINGTON AND 1ST ALLEY PLAN VIEW**

- APPROX TOP
- APPROXIMATE BASE CLASS 3
- EXISTING STEEL DOWELS IN ROOF
- MANHOLE APRON AND ROADWAY REPAIR DETAIL
- VARIOUS REINFORCEMENT NOTED

**VALVE ROOM PLAN**

- Valve Room Plan
- Valve Room Location
- Valve Room Details

**VALVE ROOM SECTION**

- Valve Room Section
- Valve Room Details

**RECEIVED FOR APPROVAL FROM:**

- DULUTH STEAM
- DULUTH, MN

**ARCHITECT:**

- F.wxw.

**CHECKED BY:**

- DULUTH STEAM
- DULUTH, MN

**DATE:**

- 9/11/13

**JOB No:**

- 131164

**NAME:**

- F.wxw.

**SIGNATURE:**

- F.wxw.

**PROFESSIONAL ENGINEER:**

- F.wxw.

**ADDRESS:**

- 227 WEST FIRST STREET, SUITE 200
- SUPERIOR, WI 54880
- Fx: 715.392.3338 www.krechojard.com

**TYPICAL CONCRETE REINFORCING DETAILS**

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