



## City of Duluth

DEPARTMENT OF PUBLIC WORKS/UTILITIES  
Engineering Division  
211 City Hall • Duluth MN 55802  
(218) 730-5200 Fax: (218) 730-5907

Date: May 30, 2013

City of Duluth Bid # 13-0360

Job Description: 2012 Flood Repairs – 45<sup>th</sup> Ave East  
City Project No. 1250

### ***Addendum #1***

#### NOTICE TO ALL BIDDERS:

The addendum is issued to modify, explain or correct the original drawings specification and/or previous addendums and hereby made part of the Contract Documents. Please attach this Addendum to the specifications in your possession and note receipt of this Addendum on the Request for Bid.

#### Bid Form:

Remove Item **“Wire Fence Design 48V-9322”** and replace with Item **“Ornamental Metal Railing Type Special”**. Quantity remains unchanged.

#### Specifications:

Insert attached Special Provisions **SP-1 (2402) Steel Bridge Construction – “Ornamental Metal Railing Type Special”**

#### Plan sheets:

Delete Item **“Wire Fence Design 48V-9322”** and all references to Item **“Wire Fence Design 48V-9322”** on Sheets W1 through W6 and replace with Item **“Ornamental Metal Railing Type Special”**.

All other items remain the same.

Sincerely,

Patrick Mlakar  
Project Manager

## STATEMENT OF ESTIMATED QUANTITIES

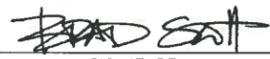
LINE	NOTES	CHART	SHEET	SPEC. NO.	DESCRIPTION	UNIT	TOTAL PROJECT		S.A.P. 118-170-003 (45TH AVE E)			
							ESTIMATED QUANTITY	FINAL QUANTITY	FEMA		FLOOD BOND	
									EST	FINAL	EST	FINAL
39												
40			W1	2401.501	STRUCTURAL CONCRETE (1A43) (P)	CU YD	20		20			
41			W1	2401.501	STRUCTURAL CONCRETE (3Y43) (P)	CU YD	25		25			
42			W1	2401.541	REINFORCEMENT BARS (P)	POUND	1 880		1 880			
43			W1	2401.541	REINFORCEMENT BARS (EPOXY COATED) (P)	POUND	3 750		3 750			
44												
45			W1	2402.601	DRAINAGE SYSTEM	LUMP SUM	1		1			
46												
47			13	2451.503	GRANULAR BACKFILL (CV)	CU YD	360		360			
48			13	2451.509	AGGREGATE BEDDING (CV)	CU YD	160		160			
49												
50			12	2501.521	51" SPAN RC PIPE-ARCH CULVERT CLASS IIA	LIN FT	213		213			
51			12	2501.525	51" SPAN RC PIPE-ARCH APRON	EACH	2		2			
52												
53			12	2503.511	8" PVC PIPE SEWER	LIN FT	68		68			
54			12	2503.602	CONNECT TO EXISTING SANITARY SEWER	EACH	2		2			
55			28	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	1		1			
56												
57			12	2504.604	3" POLYSTYRENE INSULATION	SQ YD	75		75			
58												
59			10,11,28	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	EACH	1		1			
60		C	7,11	2506.602	ADJUST FRAME & RING CASTING (SPECIAL)	EACH	28				28	
61												
62			12	2511.501	RANDOM RIPRAP CLASS III	CU YD	130		130			
63												
64	8	A	6,19	2521.501	4" CONCRETE WALK	SQ FT	1 586		50		1 536	
65	8	A	6	2521.501	6" CONCRETE WALK	SQ FT	820				820	
66												
67	8	A	6,9,14,19	2531.501	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	609		250		359	
68	8	A	6	2531.618	TRUNCATED DOMES	SQ FT	253				253	
69												
70	9,10	C	7	2540.602	ADJUST MONUMENT BOX	EACH	2				2	
71												
72			W1	2402.583	ORNAMENTAL METAL RAILING TYPE SPECIAL	LIN FT	48		48			
73												
74			27	2563.601	TRAFFIC CONTROL	LUMP SUM	1		0.62		0.38	
75												

PLOT DATE: 5/31/2013 10:52:34 AM FILE: G:\22Proj\20451\03-Lakeside\600-Drawings\C\45th\20451\_03\_45\_02\_SECO.dwg

**LHB PROJECT NO. 120451**

I HEREBY CERTIFY that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

**BRAD SCOTT**  
PRINTED NAME

  
SIGNATURE

04/18/2013  
DATE  
46198  
LIC. NO.

**2012 FLOOD REPAIRS PROJECT**

CITY PROJECT NO. 1250

S.A.P. 118-170-003

STATEMENT OF ESTIMATED QUANTITIES

SHEET NO. 3 OF 38 SHEETS

**SPECIAL PROVISIONS**  
**S.A.P. NO. 118-170-003**  
**City Project Number: 1250 TR**  
**2012 Flood Repairs (45<sup>th</sup> Ave East Rehabilitation and Culvert Replacement)**  
**May 15, 2013**

**ADDENDUM NO. 1**

**SPECIFICATIONS SIGNATURE PAGE**

I HEREBY CERTIFY THAT THIS specification, Division SP,  
was prepared by me or under my direct supervision and that I am a duly  
Licensed Professional Engineer under the laws of the State of Minnesota.



\_\_\_\_\_  
Signature

\_\_\_\_\_  
Jon W. Siiter  
Typed or Printed Name

\_\_\_\_\_  
May 31, 2013  
Date

\_\_\_\_\_  
25128  
License No.

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**SP-1 (2402) STEEL BRIDGE CONSTRUCTION..... 2**

**SPECIAL PROVISIONS**  
**S.A.P. NO. 118-170-003**  
**City Project Number: 1250 TR**  
**2012 Flood Repairs (45<sup>th</sup> Ave East Rehabilitation and Culvert Replacement)**  
**May 15, 2013**

**ADDENDUM NO. 1**

**DIVISION SP**

**SP-1 (2402) STEEL BRIDGE CONSTRUCTION**

This work shall be performed in accordance with the provisions of Mn/DOT 2402 except as modified below:

**Ornamental Metal Railing Type Special**

**A. Description of Work**

This work shall consist of furnishing, coating, and installing metal railing (fence), including all anchorages, connectors and fittings, in accordance with the applicable provisions of 2402, 2433, 2471, 2478, the Plans and the following. The contractor is responsible for communicating all applicable specifications, special provisions and requirements to all subcontractors.

Engineer, as used herein, when relating to shop fabrication and coatings, shall mean the Department's Bridge Construction and Maintenance Engineer, Inspector and/or the City Engineer.

System supplied shall conform to one of the following manufacturers:

1. Master Halco (Monumental Iron Works, Imperial B Style)
2. Approved equal

**B. Materials**

All materials shall be in accordance with the Plan details and these special provisions. If not specified, all steel shall comply with 3306, except that pipe and pipe sleeves shall comply with 3362. Threaded rods, bolts, nuts, and washers shall meet 3391 and shall be galvanized in accordance with 3392 (ASTM 153). Materials for pickets shall be square solid steel bar meeting ASTM A36. Materials for rails shall be cold formed steel U-Shaped steel members (11 gage thickness minimum) with minimum yield strength of 45 KSI. Materials for posts shall square steel shapes, manufactured in accordance with ASTM A787 and shall have a minimum yield strength of 45 KSI. Minimum post dimensions are 4" x 4" with a 3/16" wall thickness. Brackets, connections etc. shall be detailed/designed by the manufacture and shall be capable of supporting the minimum loading requirements contained herein. Finials shall be furnished for each post and shall be made of galvanized cast iron and coated as per the requirements contained herein.

Finial style shall be Master Halco "Standard" or approved equal.

Except when part of a proprietary anchorage assembly, threaded rods and bolts shall meet the requirements of 3385 and 3391, respectively.

Anchorage for fastening rail posts shall have an ultimate pull out strength, as specified in the Plan and/or these special provisions, and shall be installed in sound concrete. Bolt heads and/or nuts shall be in contact with the adjacent surface and shall be torqued to approximately 108 Nm (**80 foot pounds**) unless a different torque is recommended by the manufacturer. Adhesive anchorages shall consist of a continuously threaded rod secured by an adhesive or mortar.

Laboratory tests, that include static load tests for ultimate pullout strengths, shall be performed on anchorage systems that are subject to tensile loads. The tests, in accordance with ASTM E 488, shall be performed and certified by an independent testing laboratory. The Contractor shall furnish the Engineer with the test reports and the specification sheets that are prescribed by ASTM E 488.

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The Contractor shall demonstrate the anchorage system for drilled-in anchorage systems at the first site of field installation prior to actual use in the Project. The demonstration shall include installation and a static tension test in the presence of the Engineer, in accordance with test procedures prescribed in ASTM E 488. No portion of the testing device shall bear on the concrete surface within a distance equal to the anchorage embedment depth. Three anchorages shall be tested to not less than ½ the required minimum ultimate pull out strength or the value given in Table 1, whichever is less. Failure of an anchorage test will require a modification of installation procedures or use of a different anchorage system.

For Ornamental Metal Railing Type Special anchor rods shall have a minimum diameter of 1/2", a minimum embedment depth equal to eight times the bolt diameter or as shown in the Plans, whichever is greater, and an ultimate pull out strength of 10,000 pounds. Anchors shall be proof tested to 2500 pounds.

Installation of the anchorages shall be in accordance with the manufacturer's recommendations and as specified in the Plans.

Any voids occurring between the top of the anchorages and the top of the concrete in which it is embedded shall be filled with caulk approved by the Engineer.

Adhesive for anchors shall be HIT HY 150 or HIT-ICE 150 as manufactured by Hilti or an approved equal.

**C. Submittals**

At least 3 weeks prior to fabrication, the Contractor shall submit 4 sets of shop drawings for rail required at the wall location to the Engineer for approval. Shop drawings shall be 11"x17" and shall show at a minimum, rail and wall elevation view, section, post anchor locations and installation instruction, rail erection & handling instructions.

Submit warranty information to the City of Duluth within 4 weeks of installation of railing.

**D. Design Loads**

Rail system and components shall be capable of withstanding the following minimum design loads:

1. Pickets – Horizontally applied point load of 50 pounds
2. Rails – Uniform load of 50 PLF applied in either direction.
3. Top Rails – Uniform load of 50 PLF applied in either direction OR 200 pound point load applied at any location and in any direction (these two loadings need not be applied concurrently).
4. Posts – Shall be designed to transfer the loads accumulated by the rails to the concrete wall based on a maximum post spacing of 8 feet.

**E. Coating Ornamental Metal Railing**

Coating system for Ornamental Metal Railing shall consist of a duplex system of polyester resin over hot-dipped galvanized steel. Galvanized surface shall be at least 0.90 ounces per square foot. Sections shall be coated unassembled.

Following galvanizing and prior to finish coating, the material shall be prepared in accordance with ASTM D 6386 to clean the surface and ensure good adhesion of the top coat conforming (at a minimum) to the following:

1. Clean and phosphate treat all metal surfaces.
2. Thoroughly rinse all metal surfaces with water.
3. All metal to receive a non-chromated seal.
4. All metal to be baked dry prior to application of the top coat.

Top coat shall consist of a polyester resin based powder coat finish. Powder coating shall be applied by the electrostatic spray process to a minimum thickness of 2.5 mils. The polyester resin finish shall be cured at

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450 degrees F for at least 20 minutes. The color of the finish coat shall match Federal Standard 595 B No. 27038 (black) and have a semi-gloss finish.

**F. Pre-Galvanized Procedure(s):**

1. Calibrate dry film thickness gages in accordance with SSPC-PA 2-Measurement of Dry Coating Thickness with Magnetic Gauges.
2. Prepare all fabricated material surfaces by abrasive blast cleaning to a minimum of SSPC-SP 6/NACE No. 3-Commercial Blast Cleaning, prior to galvanizing.
3. Purchase Order(s) shall inform the galvanizer as to which specific items are going to be duplex coated so that they may comply with any additional cleaning required to meet the "Post Galvanizing Procedures", and, as necessary, meet the visual requirements of aesthetic, ornamental products. The galvanizer shall also be informed which materials, to be galvanized, are reactive (e.g. 3309, etc.).

**G. Galvanizing Procedure(s):**

1. All metal railing to be galvanized will be processed utilizing a "dry" kettle. The metal railing shall be prefluxed prior to the galvanizing bath using an aqueous tank of zinc chloride/ammonium chloride. The use of a "top flux" blanket on the molten zinc bath will not be permitted.
2. Air cool the metal railing to ambient temperature before handling for shipment and/or storage. Do not quench the metal railing or apply any post-galvanizing treatments.
3. Lumps, projections, globules, or heavy deposits of zinc, which will interfere with the "intended use of the product", will not be permitted. Damage to the galvanized zinc coating resulting in uncoated "black" and/or bare areas, blisters, flux deposits, and dross inclusions will also be considered unacceptable. Galvanized material that does not meet the requirements of 3394, shall be repaired in accordance with the methods described in ASTM A780. Required repair(s) may be subject to written approval of the Engineer. "Intended use of the product" shall be defined as surface conditions that, when painted, will produce acceptable aesthetic and/or visual qualities.
4. Galvanized metal railing shall be stored in a manner that will prevent the formation of "white-rust" or wet storage painting. "White rust" or staining of the galvanizing is not acceptable. A written repair procedure shall be subject to the approval of the Engineer. All repairs shall be performed at no expense to the owner.
5. The galvanizer shall provide the Engineer with all galvanizing process-related Quality Control documents prior to shipment of the galvanized product. These documents shall include the following: coating material certifications, visual examinations, and coating thickness examinations.
6. The galvanized metal railing shall have a straightness tolerance of 3 mm in 3000 mm (1/8 inch in 10 ft), prior to any subsequent paint applications. Any galvanized metal railing not meeting this tolerance shall be straightened.

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7. It is the galvanizer's responsibility to provide the Engineer with advanced notification of at least 5 working days of intent to ship so that the Engineer can perform a Quality Assurance audit.

H. Post Galvanizing Surface Preparation:

1. Preparation of galvanized surfaces for painting shall be in accordance with ASTM D 6386.

I. Paint Application:

1. Surface cleaning shall be by the solvent cleaning method and surface preparation shall be performed by sweep blasting.
2. All sweep blasted galvanized railing shall be coated with the subsequent coat(s) within the time frame defined in ASTM D 6386, Sect. 5.4.1, or within the same 8-hour shift, maintaining manufacturer defined control and environmental conditions. The Contractors QC personnel shall document that all parameters were followed.
3. All coating material shall be applied in accordance with the contract documents and the manufacturer's Product Data Sheet (PDS) and application guides for the material and system specified.
4. Coating material(s) shall meet the requirements of 3520. The color of the intermediate coat shall present a distinct contrast from other applied coatings.
5. QC Inspections of all coated products shall be accomplished by an observer with normal color vision, in a "well lighted" area, during each coating phase and prior to final acceptance.

"Well-lighted" shall be defined as a minimum of 50 foot candles of artificial light or natural daylight. A light meter with readings in foot candles shall be used to verify the adequacy of the lighting.

J. Repairs of Coated Steel Railings:

Any damaged coated surfaces, identified through either Quality Control or Quality Assurance inspections as being unacceptable, either after the application of the paint or after shipping and handling, shall be subject to the provisions of 1512.

K. Construction Requirements:

The steel posts shall be adjusted to obtain the grade and alignment as shown in the Plans by one of the following methods:

1. The steel posts shall be shimmed with steel shims or washers to the proper grade and alignment, not to exceed 6 mm (**1/4 inch**) of shim height. Before attaching the nuts, coat the surface between the base plate and concrete rail with an approved silicone caulk. Tighten the anchor rod nuts (as per section "B"-Materials) and neatly smooth the caulk around the perimeter of the railpost base plate.
2. The anchor rods shall have leveling nuts threaded on them and turned down to the base of the anchor rods. The rails shall be installed and the steel posts set to

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the proper grade and alignment by adjusting the leveling nuts. Install the top nuts and tighten them firmly to the base plate. The space between the base plate and the concrete shall be filled and neatly finished with grout that is approved by the Engineer.

L. Measurement and Payment

Item 2502.583 "Ornamental Metal Railing Type Special" shall be measured by the linear foot in plan view from end of rail or post to end of rail or post. Payment shall include all costs associated with furnishing and installing metal railing complete at the locations shown in the Plans including providing, installing and testing anchorages.

**Bid # 13-0360 Project # 1250  
2012 Flood Repairs - 45th Avenue East**

Initial

**EXHIBIT A**

Item No.	Spec. No.	Description	Unit	Est. Qty	Unit Price	Total Price
1	2021.501	MOBILIZATION	LUMP SUM	1		
2	2101.502	CLEARING	TREE	26		
3	2101.507	GRUBBING	TREE	26		
4	2104.501	REMOVE PIPE CULVERTS	LIN FT	218		
5	2104.501	REMOVE SEWER PIPE (SANITARY)	LIN FT	68		
6	2104.501	REMOVE CURB & GUTTER	LIN FT	240		
7	2104.503	REMOVE CONCRETE WALK	SQ FT	2,406		
8	2104.505	REMOVE CONCRETE PAVEMENT	SQ YD	480		
9	2104.509	REMOVE CONCRETE APRON	EACH	3		
10	2104.509	REMOVE DRAINAGE STRUCTURE	EACH	2		
11	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	72		
12	2105.501	COMMON EXCAVATION	CU YD	1,226		
13	2105.522	SELECT GRANULAR BORROW MOD 7% (CV)	CU YD	527		
14	2105.601	DEWATERING	LUMP SUM	1		
15	2105.601	TEMPORARY STREAM DIVERSION SYSTEM	LUMP SUM	1		
16	2105.604	GEOTEXTILE FABRIC TYPE III	SQ YD	260		
17	2105.604	GEOTEXTILE FABRIC TYPE V	SQ YD	534		
18	2123.610	STREET SWEEPER WITH PICKUP BROOM	HOUR	10		
19	2211.503	AGGREGATE BASE (CV), CLASS 5	CU YD	89		
20	2232.501	MILL BITUMINOUS SURFACE (2.0")	SQ YD	18,612		
21	2301.511	STRUCTURAL CONCRETE	CU YD	89		
22	2301.538	DOWEL BAR	EACH	210		
23	2301.602	DRILL & GROUT DOWEL BAR (EPOXY COATED)	EACH	60		

24	2301.602	DRILL & GROUT REINFORCEMENT BAR (EPOXY COATED)	EACH	183	
25	2301.604	CONCRETE PAVEMENT (SPECIAL)	SQ YD	117	
26	2301.604	CONCRETE PAVEMENT 7.5"	SQ YD	427	
27	2360.501	TYPE SP 9.5 WEARING COURSE MIX (3,B)	TON	2,233	
28	2360.501	TYPE SP 12.5 BITUMINOUS MIXTURE FOR PATCHING	TON	50	
29	2401.501	STRUCTURAL CONCRETE (1A43)	CU YD	20	
30	2401.501	STRUCTURAL CONCRETE (3Y43)	CU YD	25	
31	2401.541	REINFORCEMENT BARS	POUND	1,880	
32	2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	3,750	
33	2402.601	DRAINAGE SYSTEM	LUMP SUM	1	
34	2451.503	GRANULAR BACKFILL (CV)	CU YD	360	
35	2451.509	AGGREGATE BEDDING (CV)	CU YD	160	
36	2501.521	51" SPAN RC PIPE - ARCH CULVERT CL IIA	LIN FT	213	
37	2501.521	51" SPAN RC PIPE - ARCH APRON	EACH	2	
38	2503.511	8" PVC PIPE SEWER	LIN FT	68	
39	2503.602	CONNECT TO EXISTING SANITARY SEWER	EACH	2	
40	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	1	
41	2504.604	3" POLYSTYRENE INSULATION	SQ FT	75	
42	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	EACH	1	
43	2506.602	ADJUST FRAME & RING CASTING (SPECIAL)	EACH	28	
44	2511.501	RANDOM RIPRAP CLASS III	CU YD	130	
45	2521.501	4" CONCRETE WALK	SQ FT	1,586	
46	2521.501	6" CONCRETE WALK	SQ FT	820	
47	2531.501	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	609	
48	2531.618	TRUNCATED DOMES	SQ FT	253	
49	2540.602	ADJUST MONUMENT BOX	EACH	2	

50	2402.583	ORNAMENTAL METAL RAILING TYPE SPECIAL	LIN FT	48	
51	2563.601	TRAFFIC CONTROL	LUMP SUM	1	
52	2564.602	RELOCATE SIGN	EACH	11	
53	2564.602	CONCRETE FOOTING	EACH	1	
54	2573.502	SILT FENCE TYPE MACHINE SLICED	LIN FT	120	
55	2575.505	SODDING TYPE LAWN	SQ YD	407	
56	2575.572	RAPID STABILIZATION METHOD 4	SQ YD	606	
57	2582.502	6" SOLID LINE WHITE - EPOXY	LIN FT	131	
58	2582.502	12" STOP LINE WHITE - EPOXY	LIN FT	18	
59	2582.502	4" BROKEN LINE YELLOW - EPOXY	LIN FT	840	

GRAND TOTAL:

Initial