



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

November 2, 2005

SUBJECT: FAI Route 70
Project Bowman Ave. Pump Station
Section 82-(1,2)T-17
St. Clair County
Contract No. 76645
Item No. 46, November 18, 2005 Letting
Addendum A

NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Revised page iii of the Table of Contents to the Special Provisions.
2. Added pages 463 – 471 to the Special Provisions.

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal.

Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Very truly yours,

Michael L. Hine
Engineer of Design
and Environment

A handwritten signature in black ink, appearing to read "Ted B. Walschleger" with a small "P.E." to the right.

By: Ted B. Walschleger, P. E.
Engineer of Project Management

cc: Mary C. Lamie, Region 5, District 8; Roger Driskell; Estimates; Design & Environment File

TBW:DB:jc

STEEL COST ADJUSTMENT (BDE)..... 459
ADDENDUM NO. 1 463

Revised 11/02/2005

ADDENDUM NO. 1

November 18, 2005 Letting, Item 46
Contract No. 76645
Section 82-(1,2)T-70
FAI Route 70 (I-55/70)
Rehabilitation of the Bowman Avenue Pump Station

A. Special Provisions Division 15 – Mechanical Section 15E – Ventilation

1. Insert the following articles 2.9 and 2.10 after article 2.8 on Page 258.

2.9 Generator Building Wall Mounted Dampers DM6A, DM6B, DM7A, DM7B,
Generator Dampers

2.9.1 General

Provide dampers, design, size and location as shown on plans and in schedule. Dampers may be fan manufacturer=s standard models.

2.9.2 Fabrication – DM6A & DM6B, DM7A & DM7B

12 gage galvanized steel frame with 3 inch depth, galvanized steel blades formed triple-V-groove construction, 8" wide and minimum 16 gage. Axle material shall be plated steel rod 3/4" diameter. Bearings shall be stainless steel sleeve pressed into frame. Standard damper design shall allow application in system with 2.8" static pressure drop across a minimum 48".

2.9.3 Fabrication – Generator Damper

Frame shall be .125" wall thickness extruded aluminum with 12 gage galvanized steel structural brace at each corner. Blades shall be .070" wall thickness extruded aluminum with extruded vinyl blade edge seals mechanically locked into blade edge. Bearings shall be corrosion resistant, long life synthetic type. Linkage shall be 1/2" wide tiebar connected to stainless steel pivot pins. Counterbalances shall be provided for each blade and shall be adjustable zinc plated steel weights mechanically attached to each blade. Aluminum bird screen shall be provided.

2.10 Electrical Building Roof Mounted Air Handling Unit, AHU-1

2.10.1 General

Added 11/02/2005

Provide outdoor rooftop mounted, electrically controlled heating and cooling unit utilizing a hermetic compressor(s) for cooling duty. Unit shall discharge supply air vertically as shown on contract drawings.

2.10.2 Equipment (Standard)

(a) General:

Factory assembled, single-piece heating and cooling unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-22), and special features required prior to field start-up.

(b) Unit Cabinet:

- (1) Unit cabinet shall be constructed of galvanized steel, and shall be bonderized and coated with a prepainted baked enamel finish on all externally exposed surfaces.
- (2) Evaporator fan compartment interior cabinet surfaces shall be insulated with a minimum $\frac{1}{2}$ -in. thick, 1 lb. density, flexible fiberglass insulation, neoprene coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the gas heat compartment.
- (3) Cabinet panels shall be easily removable for servicing.
- (4) Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.
- (5) Unit shall have a factory-installed, sloped condensate drain pan made of a non-corrosive material, providing a minimum $\frac{3}{4}$ -in.-14 NPT. connection with both vertical and horizontal drains, and shall comply with ASHRAE Standard 62.
- (6) Unit shall have a factory-installed filter access panel to provide filter access with tool-less removal.
- (7) Unit shall have standard thru-the-bottom power connection

(c) Fans:

(1) Evaporator Fan:

- (i) Fan shall be direct or belt driven as shown on the equipment drawings. Belt drive shall include an adjustable-pitch motor pulley.

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- (ii) Fan wheel shall be double-inlet type with forward-curved blades.
 - (iii) Bearings shall be sealed, permanently lubricated ball-bearing type for longer life and lower maintenance.
 - (iv) Evaporator fan shall be made from steel with a corrosion-resistant finish and shall be dynamically balanced.
- (2) Condenser Fan:
- (i) Condenser fan shall be of the direct-driven (with totally enclosed motors) propeller type and shall discharge air vertically.
 - (ii) Condenser fan shall have aluminum blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.
- (3) Induced Draft Blower:
- (i) Induced-draft blower shall be of the belt-driven, single inlet, forward-curved centrifugal type, made from steel with a corrosion-resistant finish and shall be dynamically balanced.
- (d) Compressor(s):
- (1) Fully hermetic type, internally protected scroll-type.
 - (2) Factory mounted on rubber grommets and internally spring mounted for vibration isolation.
- (e) Coils:
- (1) Provide aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
- (f) Refrigerant Components:
- (1) Provide the following refrigerant circuit components:
 - (i) Fixed orifice metering system
 - (ii) Refrigerant filter drier.
 - (iii) Service gage connections on suction, discharge, and liquid lines.

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(g) Filter Section:

(1) Provide the following refrigerant circuit components:

- (i) Standard filter section shall consist of factory-installed, low velocity, throwaway 2-in. thick fiberglass filters of commercially available sizes.
- (ii) Filter face velocity shall not exceed 320 fpm at nominal airflows.
- (iii) Filter section should use only one size filter.
- (iv) Filters shall be accessible through an access panel with "no-tool" removal.

(h) Controls and Safeties:

(1) Provide the following unit controls:

- (i) Unit shall be complete with self-contained low-voltage control circuit protected by a fuse on the 24-v transformer side.

(2) Provide the following safeties:

- (i) Unit shall incorporate a solid-state compressor protector which provides anti-cycle reset capability at the space thermostat, should any of the following standard safety devices trip and shut off compressor.
 - 1) Compressor overtemperature, overcurrent.
 - 2) Loss-of-charge/low-pressure switch.
 - 3) Freeze-protection thermostat, evaporator coil.
 - 4) High-pressure switch.
 - 5) Automatic reset motor thermal overload protector.

(i) Operating Characteristics:

- (1) Unit shall be capable of starting and running at 125 F ambient outdoor temperature, meeting maximum load criteria of ARI Standard 210/ 240 or 360 at \pm 10% voltage.
- (2) Compressor with standard controls shall be capable of operation down to 25 F ambient outdoor temperature.

(j) Electrical Requirements:

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- (1) All unit power wiring shall enter unit cabinet at a single factory-predrilled location.

(k) Motors:

- (1) Compressor motors shall be cooled by refrigerant gas passing through motor windings and shall have line break thermal and current overload protection.
- (2) Evaporator-fan motor shall have permanently lubricated bearings and inherent automatic-reset thermal overload protection. Motors are designed and qualified in the "air-over" location downstream of the cooling coil and carry a "maximum continuous bhp" rating that is the maximum application bhp rating for the motor; no "safety factors" above that rating may be applied.
- (3) Totally enclosed condenser-fan motor shall have permanently lubricated bearings, and inherent automatic-reset thermal overload protection.
- (4) Induced-draft motor shall have permanently lubricated sealed bearings and inherent automatic-reset thermal overload protection.

(l) Special features: Provide the following:

- (1) Roof Curbs 20" high (Vertical):
 - a. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
 - b. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.
- (2) Automatic Outdoor-Air Damper:

Provide automatic damper package shall consist of damper, damper motor, birdscreen, and rainhood which can be set to admit from 20% to 100% outdoor air for year round ventilation. Provide spring return motor to close damper upon unit shutdown.
- (3) Electric Resistance Heaters and Single Point Kits:
 - (i) Provide open wire nichrome elements with all necessary safety operating controls.

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- (ii) Provide UL listed and indicated on basic unit informative plate.
 - (iii) Provide 2-heater modules
- (4) Thermostat and Subbase:
- (i) Provide thermostat with staged cooling and heating automatic (or manual) changeover based on outside air temperature and operator setting, fan control (both automatic and manual), indicator light and fan/filter status light.
- (5) Outside Air Temperature Sensor:
- (i) Provide outside air temperature sensor with -40 to 150°F operating range (adjustable to specific temperatures) complete with all controls, with NEMA 4X enclosure and stainless steel mounting hardware and compatible with AHU-1 controls.
- (6) Convenience Outlet:
- (i) Provide factory-installed and internally mounted outlet with easily accessible 115-v female receptacle. Provide 15 amp GFI receptacles with independent fuse protection. Voltage required to operate convenience outlet shall be provided by a factory-installed step-down transformer. Provide accessibility from outside the unit.
- (7) Fan/Filter Status Switch:
- (i) Provide switch for status of evaporator fan (ON/ OFF) or filter (CLEAN/DIRTY). Status shall be displayed over communication bus when used with direct digital controls or with an indicator light at the thermostat.
2. Change article number from 3.4 3.5 Fan Schedule to number **3.5 Fan Schedule** on Page 261.
3. Change article number from 3.5 Damper Schedule to number **3.6 Damper Schedule** on Page 262.

Added 11/02/2005

4. Insert the following article 3.4 Roof Top Air Handling Unit, after article **3.3 Fans** on Page 261.

3.4 Roof Top Air Handling Unit

3.4.1 Examine areas and conditions under which air handling units to be installed. Do not proceed with Work until unsatisfactory conditions corrected.

3.4.2 Installation of Air Handling Unit

- (a) Install air handling units where indicated in accordance with equipment manufacturer's published installation instructions and recognized industry practices to ensure units comply with requirements and serve intended purposes.
- (b) Coordination: Coordinate with other Work including ductwork, floor construction, roof decking, and piping necessary to interface installation of air handling units with other Work.
- (c) Access: Provide access space around air handling units for service as indicated, but in no case less than that recommended by manufacturer.
- (d) Install roof-mounted air handling units on structural steel mechanical stand complete with vibration isolators designed for local seismic conditions. Anchor unit to stand with removable fasteners. Construct mechanical equipment stand as indicated and in accordance with NRCA Handbook of Accepted Roofing Knowledge, Detail N.
- (e) Install electrical devices furnished by manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal.
- (f) Provide piping, valves, accessories, gauges, supports, and flexible connectors as indicated and in conformance with specification sections.
- (g) Provide ductwork, accessories, and flexible connections as indicated.

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- (h) Upon completion of installation of air handling units, startup and operate equipment to demonstrate capability and compliance with requirements. Field-correct malfunctioning units; then retest to demonstrate compliance.

6. Insert the following article, 3.7 Air Handling Unit Schedule, after article 3.6 Damper Schedule on Page 262.

3.7 Air Handling Unit Schedule

ITEM	DETAIL
UNIT	AHU-1
AIRFLOW CFM	2,000
STATIC PRESSURE INCH W.G.(EXTERNAL) DISCHARGE	1.0 DOWN
SEER	13.0
POWER SUPPLY V-PH-Hz	460\3\60
MCA	41.5
MCCP	45
COMPRESSOR INPUT Kw	4.62
COMPRESSOR RLA(EACH)	9
COMPRESSOR LRA(EACH)	62
SUPPLY FAN SF-6 DRIVE	BELT
RPM	1362
POWER BHP	1.7
MOTOR HP	3.0
DAMPER MOTOR HP	1/12
CONDENSOR EAT, °F	98.0
OUTDOOR FAN (2) FLA	.8 EACH
EVAPORATOR TYPE	DX, R22
ENT DB, °F	80.0
ENT WB, °F	67.0
ENTHALPHY. BTU/lb	31.73
INDOOR FAN FLA	3.4
INDOOR FAN MOTOR CONTINUOUS BHP	2.9
ITEM	DETAIL
UNIT DISCHARGE DB, °F	58.5
DISCHARGE WB, °F	57.1
DISCHARGE ENTHALPHY, BTU/lb	24.63

Added 11/02/2005

COOLING CAPACITY, MBH NET CAPACITY, MBH	62.74 57.8
SENSIBLE CAPACITY, MBH NET CAPACITY, MBH	45.66 40.72
COIL BYPASS	0.110
ELECTRICAL HEATING COIL FULL LOAD AMPS ELECTRIC INPUT Kw ENT AIR TEMP., °F LVG AIR TEMP., °F	27.7 23 35.0 72.0

END

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