

LEGAL NOTICE

TOWN OF BRANFORD Variable Frequency Drives Preventive / Predictive Maintenance For Plant and Pump Stations

Sealed proposals will be received in the Finance Office, Branford Town Hall, 1019 Main Street, Branford, CT 06405 for VFD's Preventive / Predictive Maintenance from July 1, 2010 through June 30, 2011.

The Request for Proposal may be obtained in the Finance Office or on the Town of Branford's Website at www.branford-ct.gov.

Proposals will be received until Thursday, June 10, 2010 at 11:00 a.m. and opened publicly at 11:30 a.m. in the Finance Office.

Anna DelRosso
Purchasing Clerk

**Specifications
For
Variable Frequency Drives
Preventive/Predictive Maintenance**

This document is designed to set guidelines & procedures required for the service and maintenance of variable frequency drives (vfds).

1.0 Qualifications

The contractor, its employees, and/or its representatives shall possess a minimum of 10 years of field experience in: (1) the commissioning of vfd controlled systems; (2) repairing all manufactured brands of vfds on-site; (3) providing root-cause component failure analysis; and (4) custom vfd programming/configuration specific to the customer's application to maximize energy efficiency and system component life expectancy. The contractor shall be capable of repairing circuit boards to minimize the owners' maintenance expense and downtime of this equipment.

2.0 Equipment Inventory

See attached listing identifying the vfd manufacturer, manufacturer's part number, and serial number, Hp and voltage ratings.

3.0 Purpose

The owner desires to have an on-going Preventive/Predictive Maintenance (PdM) program designed to improve system performance, maximize energy savings, enhance reliability, and extend the life of the vfd and the driven equipment. The PdM Program shall be initiated, scheduled, administered, monitored and updated by the contractor. The contractor shall schedule service dates and times that are mutually agreeable to the owner's personnel. The service activities shall be regularly scheduled based on manufacturer's recommendations, equipment location, application, vfd type, run time and the contractor's own experience. The contractor shall inform the customer of the program's progress and results on a continuing basis via a detailed Service Report, presented after each service call for customer's review and approval. A log file for each piece of equipment shall be maintained to provide a service history for each unit.

4.0 Scope of Services

Provide lot pricing to include labor & expenses for unlimited emergency on-call service 24/7/365 for the vfds and (1) Predictive Maintenance service provided annually for each vfd. Contractor shall quote any materials required for repair of the equipment to the owner for approval prior to installing and billing. Provide a comprehensive test/inspection of each vfd to identify proper operation and collect data to establish condition of the vfd components for use in predicting component life expectancy or risk of potential failure. Provide detailed maintenance and/or service report highlighting any problem areas. Any deficiencies detected in the equipment shall be reported to the owner along with price(s) of the material(s) needed to correct them. Provide PdM data for each vfd to use as test history and for tracking/trending potential equipment degradation over time.

The following PdM services shall be performed:

- Record nameplate data from each vfd & driven motor to determine compatibility. **Enter information into a database to maintain accurate equipment inventory for the owner.**

- Review installation of each vfd, application and system operation. **Provide recommendations to correct, or enhance, system performance and reliability.**
- Visually inspect vfd components and tighten all electrical connections **to reduce risk of failure or fire due to loose connections.**
- Clean inside of drive cabinet with ESD safe vacuum to allow for proper component cooling, which **enhances component life expectancy.**
- Provide INFRARED THERMAL SCAN of all electrical connections, components and motor. **Record abnormalities for correction and/or for tracking component degradation.**
- Clean, or change, filter(s) & check cooling fans, if applicable.
- Custom vfd programming specific to the application(s) **to provide enhanced energy savings, enhanced performance and reliability, over-and-above the inherent capability that vfd's provide.**
- Provide motor analyzer service to determine the condition of the motor windings & bearings. Record motor winding resistance, impedance, inductance, phase balance, I/F response and insulation test (meggar). This data will be used to **track degradation of stator windings, motor shaft, bearings and winding insulation.**
- Check all vfd power components for correct operation and to **predict failure or life expectancy of the major components.**
- Signal check all circuit board operations, i.e. base drive outputs, utilizing a Fluke 43B power analyzer/scope meter. **Use to predict failure or life expectancy of the vfd output section & the output driver circuitry.**
- Measure and record remote speed reference and motor speed **to determine accuracy of the building control. Calibrate vfd speed reference input, if applicable.**
- Measure and record all three-phases of **incoming AC** volts, amps, and voltage drop across input components (i.e. input contractor, AC line reactor...etc) at full speed/load to **use for predictive maintenance.**
- Measure and record all three-phases of **output AC** volts, amps, and voltage drop across output components (i.e. output contractor, motor filter...etc) at full speed/load to **use for predictive maintenance.**
- Measure and record AC & DC volts across the vfd's DC Bus section to assess & **track condition of the DC capacitors and related filter components.**
- Check the vfd's control and circuit DC power supplies. **Record any levels that are out of the manufacturer's specs.**

All vfd measurements shall be taken utilizing a Fluke 43B Power Quality Analyzer/Oscilloscope meter, or equivalent meter with the same graphical and oscilloscope capabilities.

All motor measurements shall be taken utilizing an ALLTEST Pro-III or IV model motor analyzer, or equivalent meter to record the same values as stated above.

At the conclusion of each PdM service, contractor shall submit a computerized report of all findings as stated above. Provide a rate schedule for all extra services including straight time, overtime, weekend overtime, travel, etc.

Submit a list of employee names and emergency telephone numbers. – **END OF SECTION**

INVENTORY OF COVERED EQUIPMENT

#	Equipment ID	VFD Manufacturer	Size	Hp	Volt	Amps	Catalog #	Serial #
1	Influent Pump #1	Yaskawa GPD 506	60	460	96	E109423G		302767
2	Influent Pump #2	Yaskawa GPD 506	60	460	96	E109423G		302765
3	Influent Pump #3	Yaskawa GPD 506	60	460	96	E109423G		302766
4	Influent Pump #4	Yaskawa GPD 506	60	460	96	E109423G		302768
5	Septage Pump	Yaskawa GPD 506	5	460	8	E109423I		302771
6	Septage Blower	Yaskawa GPD 506	7.5	460	11	E109423B		302789
7	Aerated Grit Blower #1	Yaskawa GPD 506	7.5	460	11	E109423A		302792
8	Aerated Grit Blower #2	Yaskawa GPD 506	7.5	460	11	E109423A		302793
9	Sodium Hypochlorite Pump #1	Yaskawa GPD 506	0.8	460	1	E109423K		302775
10	Sodium Hypochlorite Pump #2	Yaskawa GPD 506	0.8	460	1	E109423K		302773
11	Sodium Hydroxide Pump #1	Yaskawa GPD 506	0.8	460	1	E109423L		302776
12	Sodium Hydroxide Pump #2	Yaskawa GPD 506	0.8	460	1	E109423L		302769
13	Aeration Blower #1	Yaskawa GPD 506	150	460	240	E109423C		311153
14	Aeration Blower #2	Yaskawa GPD 506	150	460	240	E109423C		311165
15	Aeration Blower #3	Yaskawa GPD 506	150	460	240	E109423C		311164
16	RAS Pump #1	Yaskawa GPD 506	20	460	27	E109423F		302787
17	RAS Pump #2	Yaskawa GPD 506	20	460	27	E109423F		302763
18	RAS Pump #3	Yaskawa GPD 506	20	460	27	E109423F		302764
19	RAS Pump #4	Yaskawa GPD 506	20	460	27	E109423F		302788
20	WAS Pump #1	Yaskawa GPD 506	20	460	27	E109423E		302783
21	WAS Pump #2	Yaskawa GPD 506	20	460	27	E109423E		302786
22	WAS Pump #3	Yaskawa GPD 506	20	460	27	E109423E		302784
23	WAS Pump #4	Yaskawa GPD 506	20	460	27	E109423E		302785
24	WALL Pump #1	Yaskawa GPD 506	15	460	21	E109423P		302761
25	WALL Pump #2	Yaskawa GPD 506	15	460	21	E109423P		302762
26	Reaeration Blower #2	Yaskawa GPD 506	25	460	34	E109423D		302781
27	Reaeration Blower #1	Yaskawa GPD 506	25	460	34	E109423D		302782
28	WAS Blower	Yaskawa GPD 506	100	460	180	E109423H		302770
29	Gravity Belt Th.Feed Pump	Yaskawa GPD 506	50	460	65	E109423N		302759
30	Thick WAS Pump	Yaskawa GPD 506	40	460	52	E109423O		302760
31	Polymer Feed Pump	Yaskawa GPD 506	2	460	3.6	E109423J		302772
32	Methanol Pump #1	Yaskawa GPD 506	0.8	460	1.9	E109423M		302757
33	Methanol Pump #2	Yaskawa GPD 506	0.8	460	1.9	E109423M		302758
34	Effluent Pump #1	Yaskawa GPD 506	40	460	52	NB65703A		4W028719203001
35	Effluent Pump #2	Yaskawa GPD 506	40	460	52	NB65703A		4W028719202001
36	Effluent Pump #3	Yaskawa GPD 506	40	460	52	NB65703A		4W0287192040001
37	VFD #1-Rte 139 Station	ABB ACS 601	75	460	96	ACS6010070-4-00B1200B01		9235-305044
38	VFD #2-Rte 139 Station	ABB ACS 601	75	460	96	ACS6010070-4-00B1200B01		
39	VFD #3-Rte 139 Station	ABB ACS 601	75	460	96	ACS6010070-4-00B1200B01		
40	Pump #1-Bradley Station	Leeson/AC-Tech	30	230	80	2626A00		
41	Pump #2-Bradley Station	Leeson/AC-Tech	30	230	80	5869B01		
42	Pump #1-Central Station	ABB ACS 600	100	460	125	ACS601-0100-4-000B1200801		
43	Pump #2-Central Station	ABB ACS 600	100	460	125	ACS601-0100-4-000B1200801		
44	Pump #3-Central Station	ABB ACS 600	100	460	125	ACS601-0100-4-000B1200801		
45	VFD#1-Sybil Creek Station	ABB ACS 600	60	230	170	ACS601-060-2-00B1200801		

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TOWN OF BRANFORD

Bid Proposal Sheet

BID PROPOSAL FOR: Variable Frequency Drives Preventive/ Predictive.

IN ACCORDANCE WITH THE INSTRUCTION TO BIDDERS AND
SPECIFICATIONS.

WE HEREBY PROPOSE TO FURNISH ALL LABOR AND MATERIALS
REQUIRED BY THE CONTRACT DOCUMENTS AS FOLLOWS:

TOTAL DELIVERED PRICE:_____

DATE(S) OF DELIVERY:_____

COMPANY NAME:_____

COMPANY
ADDRESS:_____

SIGNATURE OF AUTHORIZED REPRESENTATIVE:_____

DATE:_____TITLE:_____

BID BOND REQUIRED YES NO IF
YES_____%

BID BOND ENCLOSED (IF REQUIRED) YES NO

PERFORMANCE BOND REQUIRED YES NO IF YES_____%

TOWN OF BRANFORD

OFFICE OF THE TREASUER



1019 Main Street
Post Office Box 150
Branford, CT 06405

(203) 488-8394
FAX: 315-3736

General Requirements for Bidding and Instructions to Bidders

NOTICE

Information provided in these specifications is ***CONFIDENTIAL*** and is to be used only for the purpose of preparing a proposal. It is further expected that each bidder will read these specifications with care, for failure to meet every one or a combination of specified conditions may invalidate the proposal.

The Town reserves the right to reject any or all bids or any portion thereof and to accept the bid deemed to be in the best interest of the Town of Branford.

Bidders are requested to submit quotations on the basis of these specifications. Alternate quotations will receive consideration providing such alternatives are clearly explained.

The information contained herein is believed to be accurate and is based upon the latest available information but is not to be considered in any way as a warranty.

Revised 5/09
Standard Form

SECTION I - General Terms and Conditions

A. Compliance with Laws

The bidder shall at all times observe and comply with all laws, ordinances and regulations of the federal, state and local governments, which may in any way affect the preparation or the performance of the contract.

B. Timetable

Price quoted must be valid for 60 days. Delivery and installation completion dates must be included in the bid proposal.

C. Consideration of Proposals

The Board of Selectmen, or a majority of them, reserve the right to select or reject alternate proposals; to waive informality in proposals; and to reject any and all bids, or accept such bid as shall in its judgement be to the best interest of the Town of Branford.

D. Bid Bond **See Bid Proposal Sheet*

1. A certified check or bank draft made payable to the "Treasurer, Town of Branford", or a satisfactory bid executed by the bidder and a surety company in an amount no less than five percent (5%) of the base bid, may be required with each proposal.
2. Checks or drafts will be returned to unsuccessful bidders within ten (10) business days of the bid opening.

E. Performance Bond **See Bid Proposal Sheet*

Successful bidders may be required to furnish a Performance and Payment Bond in the amount of 100% of the contract sum.

F. Protection of Work and Property

Successful bidders shall be responsible for protection of their equipment and materials against theft, damage or deterioration on the site.

G. Competency of Bidders

1. Bidders shall have had proven experience in the field of work.
2. Bidders shall submit with their bid a listing of recent work performed within the State of Connecticut of the size equal to or greater than the work being bid.

H. Alternates

1. Any alternates to specified materials or workmanship must be separately listed and described in detail.
2. Alternates will be considered in awarding the contract only if they provide, as a minimum requirement, all features contained in the specifications.
3. The Town of Branford reserves the sole right to determine through its agents the equality of alternate products and/or installation procedures.

I. Bid Requirements

1. Each bidder shall return two (2) copies of the proposal sheet entitled "Bid Proposal".
2. Each bid proposal must be signed by an authorized agent of the bidder.
3. Successful bidders must obtain any required governmental approvals.

J. Specifications – General

The contract shall include all labor and materials, tools and equipment and services required for proper performance of the work as specified hereinafter and as may be required for proper completion of the work in accordance with the highest standards of the trades involved.

K. Examination of Site

Prior to submission of the bid, contractor shall visit the site, consult with the supervisor, and become thoroughly familiar with all conditions under which the work will be installed. The contractor will be responsible for any assumptions made regarding the site for the work to be performed.

SECTION II - Insurance Requirements

The contractor, following award of the contract, may be required to furnish to the Town of Branford a Certificate of Insurance for the following coverage:

1. Comprehensive General Liability
2. Property Liability Insurance
3. Automobile Liability **
4. Workmen's Compensation and Employees Liability**
5. Professional Liability

In addition to the coverage delineated above, Builders Risk Insurance may be required for construction contracts. The limits of insurance unless otherwise specified shall be as follows:

A. General Liability

Combined single limit of \$1,000,000; Bodily Injury \$500,000 per occurrence; Property Damage \$500,000 per occurrence. The insurance carried by the bidder shall include the following coverage:

1. Comprehensive Form
2. Premises Operations
3. Products Completed Operations
4. Contractual – Hold Harmless Requirements**
5. Independent Contractors
6. Broad Form Property Damage
7. Personal Injury

B. Hold Harmless Requirements

The contractor shall, at all times, indemnify and save harmless the Town of Branford, its officers, agents, and servants on account of any and all claims, damages, losses, litigation expense, counsel fees and compensation

arising out of injuries (including death) sustained by or alleged to have been sustained by the public, any or all persons affected by the contractor's work, or by the contractor, any subcontractor, material, men or anyone directly or indirectly employed by them or any one of them while engaged in the performance of this contract. The Town of Branford shall be named as an additional insured on said policy of public liability insurance to cover all claims against the Town arising out of said contract.

C. Automobile Liability

Combined single limit of \$1,000,000; Bodily Injury \$500,000 per person/accident; Property Damage \$500,000 per accident.

Comprehensive automobile policy to cover all automobile or vehicles owned, hired or owned by contractor's employees and used on business.

D. Workers' Compensation

The contractor must have workers' compensation and liability insurance as provided by Connecticut and federal law with statutory limits of \$100,000 per accident, \$100,000 disease each employee and \$500,000 disease policy limit

The contract shall procure and pay for the insurance coverage described above with the minimum limits of liability as stated. The Certification of Insurance shall certify that said coverage shall be in effect for the term of the contract.

The Town of Branford shall be named as an additional insured on the General Liability Insurance Policy. All policies shall provide for sixty (60) days written notice prior to cancellation, substantial change or non-renewal.

The contractor must be in compliance with the State of Connecticut Public Act Section 86-87, "An Act Concerning Workers' Compensation Insurance Requirements For Contractors, On Public Works Projects and State Licenses".