

NIAGARA FALLS WATER BOARD



REQUEST FOR PROPOSALS (“RFP”) NO. 2021-04

Wastewater Treatment Plant Intermediate Pumps Assessment

**Deadline for Sealed Proposal Submissions:
Wednesday January 19th, 2022 by 1:00 p.m. EST**

A mandatory pre-proposal information session and site visit will be conducted at the Wastewater Treatment Plant, 1201 Buffalo Avenue, Niagara Falls, NY 14304 **on Tuesday, December 14th, 2021 at 9:30 a.m.** Individuals will be subject to a COVID-19 screening at the WWTP entry gate that includes a temperature check and brief questionnaire. Visitors must have face covering before entering facilities and while on site.

The deadline for receipt of written questions submitted to the Water Board’s contact, Douglas Williamson, P.E., (dwilliamson@nfwb.org), is **December 20th, 2021** at 5:00 p.m.

AUTHORIZED WATER BOARD CONTACT:

The Water Board’s designated contact person for this Request for Proposals is:

Douglas S. Williamson, P.E.
Director of Technical & Regulatory Services
Niagara Falls Water Board
5815 Buffalo Avenue
Niagara Falls, New York 14304
(716) 283-9770 x 2290
dwilliamson@NFWB.org

To receive updates regarding this RFP, email the authorized Water Board contact with a copy to dwilliamson@nfwb.org to ask to be placed on the distribution list for RFP No. 2021-04.

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1. Introduction, Project Description, and Proposal Requirements

The Niagara Falls Water Board (“NFWB”) is issuing this request for proposals (“RFP”) seeking a qualified engineering consultant to develop a report assessing the intermediate pumps and associated check valves at the NFWB wastewater treatment plant (“WWTP”). These pumps are critical to the process and the purpose of issuing this RFP is to assist in determining the proper course of action to maintain reliable performance.

There are four 250 horsepower vertical centrifugal intermediate pumps that were installed at the wastewater treatment plant in the early 1970s. These pumps individually draw from a wet well through suction piping with 42” check valves and discharge into a common header that feeds primary effluent to the carbon system. Pump speeds are manually controlled by the operators from SCADA stations to maintain a sufficiently low intermediate wet well and carbon central influent channel.

The NFWB has been experiencing issues with the four intermediate pumps and check valves recently. The pumps need frequent maintenance and the check valves often slam when closed. Due to the age of the equipment, there is a lack of available parts for repairs. The NFWB also experiences issues with controlling the pumps due to outdated technology.

The four intermediate pumps and check valves may need to be replaced with more modern equipment. The NFWB also seeks an assessment of the potential to upgrade the pumps with variable frequency drives.

The report produced by the firm selected pursuant to this RFP will include a full description of the assessment and provide recommendations for improvements. The Project location is at the Niagara Falls Wastewater Treatment Plant, 1201 Buffalo Avenue, Niagara Falls, New York.

Proposers are encouraged to exercise creativity and innovation in crafting proposals. The Water Board seeks to procure efficient and effective services that add value for Water Board ratepayers. Sub-consultants, subcontracting, and/or joint ventures are permitted.

Proposals are to include, at a minimum, the following items:

- Situation understanding;
- Understanding of applicable regulations and standards;
- Project approach, scope, and project organization;
- Demonstrated experience on similar projects;
- Experience & qualifications of subconsultants/contractors;
- Specific experience of key project professionals;
- Schedule, effort and budget breakdown:
 - Schedules shall be in bar chart form, detailing specific tasks with a not exceed timeframe of 120 days, assuming contract execution by February 14, 2021.
 - Effort & budget shall be in a spreadsheet format using a task/hour estimate matrix with a not-to-exceed fee amount.

2. Additional Requirements

Proposers also must include in the statement of qualifications (see Appendix A):

1. Disclosure of any potential conflict of interest your firm may have or encounter if selected, and your firm's plan for resolving the conflict.
2. If proposer intends to use subcontractors or sub-consultants to perform more than 10% of the work that is the subject of this RFP, proposer must include details regarding the sub-consultant or subcontractor's identity and qualifications. At a minimum, the proposal must include information regarding the sub-consultant or subcontractor's business structure, experience, and resumes or other materials detailing the qualifications and contact information for key personnel and demonstrating prior experience with the scope work to be performed.

3. Timetable and Term

The timetable for proposal submission, a **mandatory** pre-proposal meeting, and for submission of written questions is set forth on the cover page for this RFP. A list of proposals received by the deadline will be posted to the NFWB's website at <https://nfwb.org/reports/procurements/>.

It is anticipated that evaluation of proposals will be completed in January 2022, and that submission of a recommendation to award to the Board of Directors will be at the Water Board's January 31, 2022 meeting. Proposing firms should be prepared to offer a presentation to the Board of Directors at their January 31 meeting, or at a special meeting to be called for the purpose of interviewing the proposing firms. The NFWB reserves the right to change any dates and deadlines at its sole discretion.

4. Opportunities for Minority and Women-Owned Business Enterprises

This project calls for procurement of specialized professional services to be performed by the prime firm with no or limited subcontracting. Following a review of New York State Minority and Women Owned Business Enterprises ("MWBE") Directory, the NFWB secured a pre-RFP waiver of the MWBE requirements that normally would apply to this procurement. Therefore, there is a **0% MWBE** utilization goal is assigned to this procurement.

Even though a 0% goal has been assigned, offering subcontracting opportunities to NYS certified MWBE firms is highly encouraged and MWBE participation may be given some consideration in evaluating proposals. If proposer will use any MWBE firms, please be sure to note this in the proposal, including the name of the firm and the anticipated dollar amount of the MWBE participation.

5. Participation Opportunities for New York Certified Service-Disabled Veteran-Owned Businesses

Article 17-B of the New York State Executive Law provides for more meaningful participation in public procurement by certified Service-Disabled Veteran-Owned Businesses (“SDVOBs”), thereby further integrating such businesses into New York State’s economy. The NFWB recognizes the need to promote the employment of service-disabled veterans and to ensure that certified service-disabled veteran-owned businesses have opportunities for maximum feasible participation in the performance of NFWB contracts.

In recognition of the service and sacrifices made by service-disabled veterans and in recognition of their economic activity in doing business in New York State, Bidders/Contractors are strongly encouraged and expected to consider SDVOBs in the fulfillment of the requirements of the Contract. Such participation may be as subcontractors or suppliers, as protégés, or in other partnering or supporting roles.

For purposes of this procurement, NFWB conducted a comprehensive search and determined that the Contract does not offer sufficient opportunities to set specific goals for participation by SDVOBs as subcontractors, service providers, and suppliers to Contractor. Nevertheless, Bidder/Contractor is encouraged to make good faith efforts to promote and assist in the participation of SDVOBs on the Contract for the provision of services and materials. The directory of New York State Certified SDVOBs can be viewed at: <https://ogs.ny.gov/veterans/>

Bidder/Contractor is encouraged to contact the Office of General Services’ Division of Service-Disabled Veteran’s Business Development at 518-474-2015 or VeteransDevelopment@ogs.ny.gov to discuss methods of maximizing participation by SDVOBs on the Contract.

6. RFP Updates

The NFWB may, in its sole discretion, withdraw or modify this RFP in whole or in part, and may issue addenda in writing. The NFWB will use its best efforts to post updates to: <https://nfwb.org/reports/procurements/>. However, **to be certain to receive timely updates regarding this RFP, you must email the authorized NFWB contact to ask to be placed on the distribution list for RFP No. 2021-04.**

7. Evaluation Criteria

Proposals shall be examined and evaluated to determine whether the proposals meet the requirements of this RFP. The contract will be awarded based on the following criteria:

1. Situational understanding;
2. Demonstrated experience, capabilities, and qualifications;
3. Completeness of the proposal; and

4. Total proposed cost.

Proposing firms may be invited to present to the Water Board or to NFWB staff and will be expected to provide prompt responses to questions and inquiries submitted through the designated NFWB contact.

RFP Dated: December 1, 2021

APPENDIX A

NFWB REQUEST FOR PROPOSALS (“RFP”) STANDARD TERMS, CONDITIONS, AND REQUIREMENTS

Except as otherwise may be agreed to in writing, the following standard terms, conditions, and requirements shall form a part of any contract between the Niagara Falls Water Board and a proposer that responds to the Request for Proposals (“RFP”):

A. Statement of Qualifications

Proposers must submit a statement of qualifications that provides a description of proposer’s business structure, licensing, years in business, any experience with providing similar services along with the project description (including contact information for references), locations, description of key personnel for this project, and any other pertinent information that will help to demonstrate proposer’s qualifications to perform. The statement of qualifications must also include the following:

1. Any other names under which proposer has done business in the past 10 years;
2. List all subsidiary and parent companies;
3. State whether proposer ever has been:
 - Debarred or suspended by any government entity from entering contracts with it;
 - Found not responsible by any government entity;
 - Declared in default or terminated for cause from any contract, or had any contract cancelled for cause; or
 - Required to pay liquidated damages on a contract.
4. State whether proposer has filed for bankruptcy or been the subject of an involuntary bankruptcy proceeding; and
5. State whether proposer has been a party to any legal action or government investigation related to proposer’s business practices, or alleging that any of proposer’s agents or employees committed any act of fraud, collusion, bid rigging, price fixing, or bribery. If proposer, any of proposer’s principals, or any of proposer’s agents has pleaded guilty or entered into a consent order in connection with respect to any of these, provide details.

B. General Conditions of RFP

The issuance of this RFP does not commit the Water Board to award a contract or to pay any costs incurred by proposers in the preparation of proposals or for any work performed in connection therewith. In addition, the Water Board reserves the following rights:

1. To postpone or cancel this RFP;
2. Reject any or all proposals received in response to this RFP;
3. Award a contract without any discussion with proposers;
4. Retain a successful proposer for only a portion of the scope of services;
5. Accept a proposal other than the proposal offering the lowest price;
6. Waive or modify any irregularities in proposals received;
7. Consider proposals or modifications received at any time before the award is made, if such is in the best interest of the Board;
8. Request clarification and/or additional information from the proposers during the evaluation process; and

9. Utilize any and all ideas submitted in the proposals received, unless those ideas are covered by legal patent or proprietary rights and the patent or proprietary rights are clearly and specifically set forth in the proposal.

C. Proposal Firm and Irrevocable for 90 Days

A signed proposal shall be considered a firm offer on the part of the proposer, and the Water Board may insist on the strict performance of all elements of the proposal, unless the Water Board specifically waives a proposal element in writing during negotiations. By submitting a proposal, proposer agrees that its offer is firm for a period of 90 days from the deadline for proposal submissions, as may be amended or extended by way of an addendum to this RFP.

D. Oral Presentations or Interviews

Prior to award, one or more proposers may, in the sole discretion of the Niagara Falls Water Board, be invited to offer a presentation to Water Board staff and/or to the Board of Directors. The authorized Water Board contact will schedule the time and location of these presentations. Proposer shall bear all of its own costs for any such presentations or interviews.

E. Contract Negotiations

Upon selection, the successful proposer may be invited to negotiate a contract with the Water Board, though the Water Board reserves the right to award a contract on the basis of the initial offers received, without discussions. Therefore, each initial offer should contain the proposer's best terms from a technical and cost standpoint.

The Water Board reserves the right to enter into discussions/negotiations with one or more proposers and to request the submission of best and final offers from those proposers, who after the conclusion of such discussions/negotiations, still are under consideration for award. No proposer shall have any rights against the Water Board arising from an invitation to enter into discussions/negotiations or to submit a best and final offer.

Unless otherwise agreed, the contents of the selected proposal and any modifications agreed upon in writing during negotiations, together with the RFP, will be incorporated into and made part of the final contract. Should negotiations fail to result in a signed contract within a reasonable period of time as defined by the Water Board, the Water Board reserves the right to terminate negotiations and select another proposer, issue a new RFP, or take any other action consistent with the best interests of the Water Board.

F. Exceptions to RFP

The contract to be entered into shall include the requirements of this RFP among its terms and conditions, with such changes to which the Water Board may agree. Submission of a proposal constitutes consent to these terms and conditions. Any exceptions must be explicitly stated in the proposal and separately listed in a separate attachment to the body of the proposal entitled "Exceptions." Failure to list exceptions separately in the "Exceptions" attachment shall be deemed to constitute consent to all such terms and conditions herein and shall constitute a binding waiver by the proposer of all exceptions not listed. A general exception or reservation to the legal or technical terms and conditions shall be deemed a nullity and may also result in the Water Board rejecting the proposal as non-responsive.

G. Rely Only Upon Formal Information

1. The Water Board shall not be bound by any oral or written information released prior to the issuance of the RFP.
2. The Water Board shall not be bound by any oral or written representations, statements, or explanations other than those made herein, in Water Board written responses to proposer inquiries, or in formal written addenda to this RFP.

H. Questions Regarding the RFP

1. All inquiries regarding this RFP shall be emailed to the authorized Water Board contact by the date and time indicated on the cover page of this RFP. The subject line for such inquiries should indicate the RFP name and number.
2. Compiled questions and responses usually will be posted on the Water Board's website at <https://nfwb.org/reports/procurements/> on or after the date indicated on the cover page of the RFP, but to receive these responses as early as possible, you must email the authorized Water Board contact to ask to be placed on the distribution list for this RFP.

I. Addenda to the RFP

3. The Water Board shall issue responses to inquiries related to substantive issues and any other corrections or amendments to the RFP that it deems necessary prior to the proposal due date in the form of written addenda. Such addenda usually will be posted on the Board's website: <https://nfwb.org/reports/procurements/>, and the Water Board will use its best efforts to send copies to those who have asked to be placed on the distribution list for this RFP.
4. It is the proposer's responsibility to assure receipt of all addenda. The proposer should verify with the authorized Water Board contact prior to submitting a proposal that all addenda have been received. Proposers shall acknowledge the number of addenda received as part of their proposals using this Appendix's Form No. 1.

J. Proposal Package Submission Requirements

1. Proposal packages are due on or before the proposal due date and time at the location set forth on the cover page of this RFP.
2. Proposers shall deliver one (1) clearly marked original and six (6) copies of the proposal package. To prevent waste, proposers are encouraged to print and/or copy responses on both sides of the page.
3. One (1) electronic copy of the complete proposal package also is required, on CD or USB drive. The preferred method is PDF conversion from the proposer's source files rather than simply scanning the proposal documents (to minimize file size and maximize quality), though scanned documents are acceptable. The electronic copy of the proposal should be provided as one document with the pages in the same order as the paper original. If this is not possible, the electronic copy files should be named in a way so that they can be read in the same order as the paper original (e.g., naming the files "Proposal Part 1," "Proposal Part 2," etc.).

4. Only one original copy of each of the appendices requiring a signature is required, which may be submitted only as part of the paper original proposal and need not be included in the electronic copy of the proposal.
5. The sealed outer envelope enclosing any materials submitted in response to this RFP shall be addressed to the Water Board contact set forth on the cover page of this RFP. The outer envelope containing the proposal materials must clearly indicate the proposer's name and address, and must clearly be marked with the RFP number and title from the cover page of the RFP.
6. Proposals may be hand delivered. Proposers shall be responsible for informing any commercial delivery service, if used, of all delivery requirements and for ensuring that the information required in item "5" above, appears on the outer envelope used by such service.

K. Personnel

If awarded a contract, proposer agrees to provide adequate and competent personnel to fulfil its contractual obligations, with said personnel having the necessary licensing, education, training, and experience in the specialties that are necessary to perform proposer's obligations. Proposer agrees that its personnel, including sub-contractors, shall comply with any credentialing, security, badge, orientation, safety, or other requirements, procedures, or protocols as the Water Board may from time-to-time establish.

L. Insurance

Proposer shall be required to procure and maintain at its own expense and without expense to the Niagara Falls Water Board, insurance for liability for damages imposed by law, of the kinds and amounts hereinafter provided, from insurance companies authorized to do business in the State of New York covering all operations under any contract that results from this RFP, whether performed by the proposer or its subcontractors. Before proceeding with any work under the contract that may result from this proposal, the successful proposer shall furnish to the Niagara Falls Water Board Certificate of Insurance form(s) and relevant insurance policy declarations and endorsements satisfactory to the Water Board exhibiting compliance with this paragraph and providing that the policies shall not be changed or canceled until thirty (30) days written notice has been given to the Niagara Falls Water Board. The types and limits of insurance shall be as follows:

1. Workers Compensation as required by Law (submit Form C-105.2);
2. Disability Benefits as required by Law (submit Form DB-120.1);
3. Employer's Liability with a minimum limit of \$100,000;
4. Commercial General Liability insurance: Bodily, Personal Injury, and Property Damage Liability limits each of at least \$1,000,000 per occurrence/\$2,000,000 aggregate, which shall include the following coverages:
 - a. Owner's Protective Liability
 - b. Premises – Operations
 - c. Broad Form Contractual
 - d. Independent Contractor and Sub-Contractor
 - e. Products and Completed Operations

5. Automobile Liability: \$1,000,000 single limit; and
6. Umbrella/Excess Liability: A minimum of \$5,000,000 on a per occurrence and aggregate basis; this shall be in excess of primary general, automobile and employer's liability limits.
7. Professional Liability/Errors and Omissions: \$2,000,000 (identified as a claim made or an occurrence policy) (required only if professional services are to be performed pursuant to the contract).

Certificates, declarations, and endorsements should be made to the Niagara Falls Water Board, 5815 Buffalo Avenue, Niagara Falls, NY 14304.

The Niagara Falls Water Board, the Niagara Falls Public Water Authority, and the City of Niagara Falls, New York shall be named as an Additional Insureds, for both Ongoing and Completed Operations on a primary and non-contributory basis, on the Liability (General Liability, Auto Liability and Excess Liability) Policies (except for professional liability) with the following provision: The insurance company or companies issuing the policies shall have no recourse against the Niagara Falls Water Board or the Niagara Falls Public Water Authority for payment of any premiums or for assessments under any form of policy.

In the event that the proposer requires any subcontractor to procure insurance with regard to any of the operations under the contract resulting from this RFP and requires such subcontractor to name the proposer as an additional insured under such insurance, the proposer shall ensure that such policy names the Water Board, Niagara Falls Public Water Authority, and their officers and employees as additional insureds.

M. Indemnification and Waiver of Subrogation

The successful proposer, to the full extent permissible by New York law, must agree to indemnify and hold the Niagara Falls Water Board, its Directors, Officers, and Employees harmless against all loss, cost, or damage, on account of injury to person or damage to property as a result of any action or inaction of the proposer or its representatives or agents or subcontractors in performance of the contract resulting from this RFP and against all fines, penalties any other losses which the Niagara Falls Water Board shall be obliged to pay or incur in connection with the performance of the work under the contract.

The successful proposer also must agree to waive all rights against the Water Board, including its officials and employees, for any damages or losses that are covered under any insurance required by this appendix or in the resulting contract, or any other insurance applicable to the operations of the proposer and/or its subcontractors in the performance of the contract.

N. Coordination and Cooperation with Third Parties

Proposer agrees and acknowledges that if the contract calls for work on Water Board property, there may be other ongoing projects on site for all or part of proposer's performance. The Water Board or its representative will take reasonable steps to avoid any conflicts between work performed by proposer and any third party, but proposer shall be responsible for actively communicating and cooperating with the Water Board's representative

and any third party, including but not limited to other contractors or subcontractors of the Water Board, as necessary to ensure coordination of performance of services.

O. Safety and Site-Specific Safety Plan

Proposer shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work to be performed by proposer, and shall take all necessary precautions for the safety and protection of all persons who may be affected by the work of proposer or its subcontractors. If requested by the Water Board, prior to the commencement of work, proposer agrees that it shall submit to the Water Board or its representative copies of a Safety Program and Site-Specific Health & Safety Plan. The Safety Program shall describe proposer's overall safety policy, regulatory compliance plan, and applicable safety standards. The Site-Specific Health & Safety Plan shall identify the project work scope, contain a safety hazard analysis for the associated contract tasks, and include the following:

- specific safety procedures appropriate and necessary to complete the work;
- personal protective equipment to be used by proposer or its subcontractors for associated project tasks;
- documentation that proposer and its subcontractors are in compliance and current with required OSHA training; and
- a description of the frequency and types of air monitoring, personnel monitoring and instrumentation to be used, if any.

The proposer's equipment and method of operation shall be in full compliance with OSHA Standards and satisfy all Federal, State and Local Health & Safety regulations. The Water Board may but is not obligated to provide proposer with comments on the Safety Program and Site-Specific Health & Safety Plan, but in no event does the Water Board assume responsibility for the adequacy or completeness of these plans or for adherence by proposer or proposer's subcontractors to the same.

P. Independent Contractor and Identification of Subcontractors

The successful proposer and its employees will operate as an independent contractor and are not considered Water Board employees. Proposer must identify its subcontractors, if any, in its proposal, but award of a contract shall not create any relationship between the subcontractors and Water Board, and proposer shall be responsible for the entire contract. The Water Board shall have the right to reject any proposed subcontractors.

Q. Successors and Assigns

Any contract resulting from this RFP shall inure to the benefit of and be binding upon the legal representatives and successors of the parties, respectively, but the successful proposer may not assign the contract without the Water Board's written permission.

R. Freedom of Information Law – Claim of Confidential, Proprietary, or Trade Secret Information

The Water Board is subject to the provisions of the Freedom of Information Law ("FOIL"), N.Y. Public Officers Law, Sections 84 through 90, relating to public access to agency records. The proposer shall specifically identify any portions of the documents submitted with the proposal deemed to be confidential, proprietary information, or trade secrets and provide any justification why such material, upon request, should not be disclosed by the Water Board. The top of each page containing such information must be clearly marked in bold type **"PROPOSER BELIEVES THAT THIS INFORMATION IS PROTECTED FROM DISCLOSURE UNDER THE STATE FREEDOM OF INFORMATION LAW."** Such information deemed by the proposer to be confidential/proprietary shall be easily separable from the non-confidential/non-proprietary sections of the proposal.

The Water Board accepts no responsibility for disclosure of information designated as exempt from disclosure, but the Board does intend to evaluate, on a case-by-case basis, whether exemption from disclosure applies when a FOIL request is made to the Water Board for examination of such a document. Proposers should be aware that any and all terms of their respective proposals may be the subject of discussion at Board of Directors meetings that are open to the public.

S. Records

If awarded a contract, proposer shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under the contract (hereinafter, collectively, "the Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as the Water Board and its representatives, shall have access to the Records during normal business hours at an office of the proposer within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The Water Board shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the proposer shall timely inform an appropriate Water Board official, in writing, that said Records should not be disclosed; and (ii) said Records shall be sufficiently identified; and (iii) designation of said Records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the Water Board's right to discovery in any pending or future litigation.

T. Compliance with Breach Notification and Data Security Laws

Proposer agrees that if awarded a contract to perform work for the Water Board it shall comply with the provisions of the New York State Information Security Breach and Notification laws, General Business Law §§ 899-aa and 899-bb and State Technology Law § 208.

U. Prevailing Wage and Workforce Reporting

Proposer shall pay prevailing wages as required by law for any work performed for the Water Board in connection with this proposal, and per New York Executive Law and Executive Order Number 162, proposer and any of its subcontractors may be required to submit a quarterly Workforce Employment Utilization Report in the format provided by the Water Board reflecting the entirety of proposer and its subcontractors' workforces performing work on the contract and located within New York State, as well as the salaries of any such employees.

V. Payment Terms and Requirements

If awarded an agreement, proposer agrees to provide complete and accurate billing invoices to the Water Board on a monthly basis, and will comply with cover sheet requirements or other invoice submission procedures as the Water Board may from time to time require. Invoices submitted must contain sufficient information and documentation to support the charges submitted. Documentation may include time sheets, expense vouchers and any other supportive documentation requested by the Water Board or its representative. If proposer is in compliance with applicable prevailing wage laws and has satisfactorily completed all required Minority, Women, and Disadvantaged Business Enterprise and Service-Disabled Veteran-Owned Business utilization and reporting requirements, payment shall be made monthly on the basis of invoices submitted by proposer, each payment to be due sixty (60) days after receipt of the invoice, unless the Water Board reasonably disputes some or all of the invoice.

W. Exemption from Sales Tax

The Water Board is exempt from state and local fees, taxes, franchise taxes, sales taxes or other excise taxes. Proposals shall not include any such taxes or fees.

X. Non-Discrimination and Prohibition Against Sexual Harassment

To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the proposer will not discriminate against any employee or applicant for employment because of race, creed, color, sex, national origin, sexual orientation, age, disability, or marital status. By submitting a proposal, proposer agrees that it shall submit an Equal Employment Opportunity ("EEO") Policy Statement to the Water Board containing at a minimum the terms therefore as set forth in this Appendix's Form No. 4.

By submission of this proposal, each proposer and each person signing on behalf of any proposer certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, under penalty of perjury, that the proposer has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of section two hundred one-g of the labor law. The proposal must include the Statement on Sexual Harassment form at this Appendix's Form No. 5.

Y. Iran Divestment Act

By submitting a proposal in connection with this RFP or by assuming the responsibility of a contract awarded hereunder, proposer certifies in accordance with State Finance Law §165-a that it is not on the "Entities Determined to be Non-Responsive Bidders/Offerors pursuant to the New York State Iran Divestment Act of 2012" ("Prohibited Entities List") posted at: <http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf>. Proposer further certifies that it will not utilize in connection this contract any subcontractor that is identified on the Prohibited Entities List.

Z. International Boycott Prohibition

In accordance with Section 220-f of the Labor Law and Section 139-h of the State Finance Law, if this contract exceeds \$5,000, that by submitting a proposal or by assuming the

responsibility of a contract awarded hereunder, proposer agrees, as a material condition, that neither the proposer nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the federal Export Administration Act of 1979 (50 USC App. Sections 2401 et seq.) or regulations thereunder. If proposer, or any of the aforesaid affiliates of proposer, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the proposer's execution, such contract, amendment or modification thereto shall be rendered forfeit and void. The proposer shall so notify the State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2 NYCRR 105.4).

AA. MacBride Fair Employment Principles

In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), by submitting a proposal or by assuming the responsibility of a contract awarded hereunder the proposer hereby stipulates that the proposer either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.

BB. Prohibition on Purchase of Tropical Hardwoods

The proposer certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of State Finance Law §165 (Use of Tropical Hardwoods) which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the responsibility of the contractor to establish to meet with the approval of the State.

In addition, when any portion of this contract involving the use of woods, whether supply or installation, is to be performed by any subcontractor, the prime Contractor will indicate and certify in the submitted proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in §165 State Finance Law. Any such use must meet with the approval of the State, otherwise, the proposal may not be considered responsive. Proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

CC. Conflicts of Interest and Prohibition on Political and Religious Activity

By submitting a proposal or by assuming the responsibility of a contract awarded hereunder, proposer stipulates that, upon information and belief, no member of the governing body of the Water Board, or officer or employee of the Water Board, forbidden by Law, is interested in, will derive benefit from, or will be a party to, the contract between proposer and the Water Board. Proposer warrants that no payment, gift, or thing of value has been or will be made, given, or promised any Director, Officer, or Employee of the Water Board, or any member of the

immediate family of any Director, Officer, or Employee of the Water Board (spouse, parent, sister, brother, or child) to obtain this or any other agreement between the parties. Proposer agrees that its provision of services under any contract that may result from this RFP shall not include any partisan political activity or any activity to further the election or defeat of any candidate for public, political, or party office, nor shall any of the funds provided under any contract that may result from this RFP be used for such purposes. The proposer further agrees that if awarded an agreement as a result of this RFP, there shall be no religious worship, instruction, or proselytizing as part of or in connection with the proposer's provision of services under that contract, nor shall any of the funds provided under this agreement be used for such purposes.

DD. Non-Collusion

Proposer must submit a signed statement of non-collusion on the form that is this Appendix's Form No. 2.

EE. Communication with Water Board and Lobbying Law.

Proposers are advised that, from the date this RFP is issued until the award of the contract, no contact by proposers or their agents with the Water Board or Water Board personnel related to this RFP is permitted, except as shall be authorized by the authorized Water Board contact indicated on the cover page of this RFP.

Pursuant to State Finance Law Sections 139-j and 139-k, this RFP includes and imposes certain restrictions on communication between respondents and the Water Board during the procurement process. A respondent is restricted from making contacts from the date the RFP is issued through the final contract award by Water Board (the "Restricted Period"). During the Restricted Period, respondents may only contact the designated contact regarding this RFP. The designated contact is identified on the cover page of this RFP. Respondents are responsible for complying with State Finance Law Sections 139-j and 139-k. Directors, officers and employees of the Water Board are required to record certain information when contacted during the Restricted Period. A review of whether such contacts were permissible contacts will be considered in connection with any determination of responsibility of the respondent. Failure of any respondent to timely certify or to disclose accurate and complete information or the submission of any intentionally false or intentionally incomplete certification may result in the rejection of the contract award or if such contract has been executed, then the immediate termination of the contract. Violations may result in debarment of the respondent from proposing on or obtaining governmental procurement contracts in the State of New York.

Proposers are required to complete and return with their proposal this Appendix's Form No. 3, New York State Finance Law Sections 139-j and 139-k ("Lobbying Law") – Disclosure Statement.

FF. Waiver of Immunity

As a condition of any contract award, the proposer agrees, acknowledges, and accepts that pursuant to Public Authorities Law § 2875, upon the refusal by a person, when called before a grand jury, head of a state department, temporary state commission or other state agency, the organized crime task force in the department of law, head of a city department, or other city agency, which is empowered to compel the attendance of witnesses and examine them under oath, to testify in an investigation concerning any transaction or contract had with the state, any political subdivision thereof, a public authority or with any public department,

agency or official of the state or of any political subdivision thereof or of a public authority, to sign a waiver of immunity against subsequent criminal prosecution or to answer any relevant question concerning such transaction or contract, (a) such person, and any firm, partnership or corporation of which he is a member, partner, director or officer shall be disqualified from thereafter selling to or submitting bids to or receiving awards from or entering into any contracts with any public authority or official thereof, for goods, work or services, for a period of five years after such refusal, and (b) any and all contracts made with any public authority or official thereof, by such person and by any firm, partnership or corporation of which he is a member, partner, director or officer may be cancelled or terminated by the public authority without incurring any penalty or damages on account of such cancellation or termination, but any monies owing by the public authority for goods delivered or work done prior to the cancellation or termination shall be paid.

GG. Termination

The following terms shall apply to any contract entered into as a result of this request for proposals:

1. **For Cause:** For a material breach that remains uncured for more than thirty (30) days or other specified period after written notice to the contractor, the contract may be terminated by the Water Board at the contractor's expense where contractor becomes unable or incapable of performing, or meeting any requirements or qualifications set forth in the contract, or for nonperformance, or upon a determination that contractor is nonresponsible. Such termination shall be upon written notice to the contractor. In such event, the Water Board may complete the contractual requirements in any manner it may deem advisable and pursue available legal or equitable remedies for breach.
2. **For Convenience:** By written notice, this contract may be terminated at any time by the Water Board for convenience upon thirty (30) days written notice and without penalty or other early termination charges due. Such termination of the contract shall not affect contractor's right to recover for any work performed or materials acquired under the contract prior to the date of such termination, provided that contractor cancels, prior to the effective date of the termination, as many outstanding obligations as possible and agrees not to incur any new obligations after receipt of the notice of termination without approval by the Water Board. If the contract is terminated pursuant to this subdivision, the Water Board shall remain liable for all accrued but unpaid charges incurred through the date of the termination. Contractor shall use due diligence and provide any outstanding deliverables.
3. **For Violation of the Sections 139-j and 139-k of the State Finance Law:** The Water Board reserves the right to terminate the contract in the event it is found that the certification filed by the contractor in accordance with Section 139-k of the State Finance Law was intentionally false or intentionally incomplete. Upon such finding, the Water Board may exercise its termination right by providing written notification to the contractor.

HH. Governing Law and Venue

These terms and conditions and the contract shall be governed by the laws of the State of New York. Each of the parties to these terms and conditions and the contract submits to the exclusive jurisdiction and venue of the State and Federal courts located in Niagara County,

New York, or if the required Federal courts are not located in Niagara County, to the Federal courts located in Erie County, New York.

II. Service of Process and Notices

In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), proposer agrees that if awarded a contract it consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon proposer's actual receipt of process or upon the Water Board's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Proposer must promptly notify the Water Board, in writing, of each and every change of address to which service of process can be made. Service by the Water Board to the last known address shall be sufficient. Proposer will have thirty (30) calendar days after service hereunder is complete in which to respond. A copy of all notices to the Water Board shall be provided to: Legal Department, Niagara Fall Water Board, 5815 Buffalo Avenue, Niagara Falls, NY 14304.

JJ. No Waiver of Rights

No failure or delay (in whole or in part) on the part of either the Water Board or proposer to exercise any right or remedy pursuant to the terms and conditions herein shall impair its ability to later exercise any such right or remedy, operate as a waiver thereof, or affect any other rights or remedies that may be available under the law or in equity, except to the extent it causes actual prejudice to the other party. No waiver by either party of any covenant, condition, term or provision of the contract shall be deemed to have been made by that party unless such waiver is in writing and signed by an authorized representative of the party.

APPENDIX A, FORM No. 1

ACKNOWLEDGEMENT OF ADDENDA

RFP TITLE: _____
(Write the RFP No. and Title on the Line Above)

DIRECTIONS: Complete Part I or Part II, whichever is applicable.

PART I: LISTED BELOW ARE THE DATES OF ISSUE FOR EACH
ADDENDUM RECEIVED IN CONNECTION WITH THIS RFP:

ADDENDUM # 1: DATED _____ , 20__

ADDENDUM # 2: DATED _____ , 20__

ADDENDUM # 3: DATED _____ , 20__

ADDENDUM # 4: DATED _____ , 20__

ADDENDUM # 5: DATED _____ , 20__

ADDENDUM # 6: DATED _____ , 20__

PART II: _____ INITIAL HERE IF NO ADDENDUM WAS RECEIVED
IN CONNECTION WITH THIS RFP INITIAL HERE

DATE: ____/____/____

PROPOSER (SIGNATURE): _____

PROPOSER (NAME): _____

PROPOSER (FIRM): _____

APPENDIX A, FORM No. 2

CERTIFICATE OF NON-COLLUSION

Pursuant to New York State Public Authorities Law, Article 9, Title 4, Section 2878, the undersigned proposer hereby subscribes and affirms as true, under the penalties of perjury, the following statement of non-collusion:

By submission of this proposal, each proposer and each person signing on behalf of any proposer certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, under penalty of perjury, that to the best of his/her knowledge and belief:

- (1) The prices in this proposal have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other proposer or with any competitor;
- (2) Unless otherwise required by law, the prices which have been quoted in this proposal have not been knowingly disclosed by the proposer and will not knowingly be disclosed by the proposer prior to opening, directly or indirectly, to any other proposer or to any competitor; and,
- (3) No attempt has been made or will be made by the proposer to induce any other person, partnership, or corporation to submit or not to submit a proposal for the purpose of restricting competition.

DATE: ____/____/____

PROPOSER (SIGNATURE): _____

PROPOSER (NAME): _____

PROPOSER (FIRM): _____

STATE OF _____)
) ss.:
COUNTY OF _____)

On the ____ day of _____, 20____, before me, the undersigned, a Notary Public in and for said state, personally appeared _____ as a representative of _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the entity on behalf of which the individual acted executed the instrument.

Notary Public

APPENDIX A, FORM No. 3

NEW YORK STATE FINANCE LAW SECTIONS 139-j AND 139-k ("LOBBYING LAW") – DISCLOSURE STATEMENT

General Information

All procurements by the Niagara Falls Water Board ("NFWB") in excess of \$15,000 annually, are subject to New York State's State Finance Law Sections 139-j and 139-k, effective January 1, 2006 ("Lobbying Law").

Pursuant to the Lobbying Law, all "contacts" (defined as oral, written or electronic communications with the NFWB intended to influence a procurement) during a procurement - from the earliest notice of intent to solicit bids/proposals through final award and approval - must be made with one or more designated Point(s) of Contact only. Exceptions to this rule include written questions during the bid/proposal process, communications with regard to protests, contract negotiations, and RFP conference participation. Nothing in the Lobbying Law inhibits any rights to make an appeal, protest, or complaint under existing administrative or judicial procedures.

Violations of the policy regarding permissible contacts must be reported to the appropriate NFWB officer and investigated accordingly. The first violation may result in a determination of non-responsibility and ineligibility for award to the violator and its subsidiaries, affiliates and related entities. The penalty for a second violation within four (4) years is ineligibility for bidding/proposing on a procurement and/or ineligibility from being awarded any contract for a period of four (4) years. The NFWB will notify the New York State Office of General Services ("OGS") of any determinations of non-responsibility or debarments due to violations of the Lobbying Law. Violations found to be "knowing and willful" must be reported to the NFWB Executive Director and OGS.

Moreover, the statutes require the NFWB to obtain certain affirmations and certifications from bidders and proposers. This Disclosure Statement contains the forms with which offerors are required to comply, together with additional information and instructions.

Instructions

New York State Finance Law §139-k(2) obligates the NFWB to obtain specific information regarding prior non-responsibility determinations. In accordance with New York State Finance Law §139-k, an offerer must be asked to disclose whether there has been a finding of non-responsibility made within the previous four (4) years by any governmental entity due to: (a) a violation of New York State Finance Law §139-j or (b) the intentional provision of false or incomplete information to a governmental entity.

As part of its responsibility determination, New York State Finance Law §139-k(3) mandates consideration of whether an offerer fails to timely disclose accurate or complete information regarding the above non-responsibility determination. In accordance with law, no procurement contract shall be awarded to any offerer that fails to timely disclose accurate or complete information under this section, unless the factual elements of the limited waiver provision can be satisfied on the written record.

Disclosure of Prior Non-Responsibility Determinations

Name of Bidder/Proposer: _____

Address: _____

Name and Title of Person

Submitting this Form: _____

Has any governmental entity¹ made a finding of non-responsibility regarding the Bidder/Proposer in the previous four years?

_____ Yes _____ No

If yes: Was the basis for the finding of the Bidder's/Proposer's non-responsibility due to a violation of State Finance Law §139-j?

_____ Yes _____ No

Was the basis for the finding of Bidder's/Proposer's non-responsibility due to the intentional provision of false or incomplete information to a governmental entity?

_____ Yes _____ No

If yes to any of the above questions, provide details regarding the finding of non-responsibility below:

Governmental Entity: _____

Year of Finding of Non-responsibility: _____

Basis of Finding of Non-Responsibility (attach additional pages if necessary): _____

Has any governmental entity terminated or withheld a procurement contract with the Bidder/ Proposer due to the intentional provision of false or incomplete information?

_____ **Yes** _____ **No**

If yes, provide details regarding the termination/withholding below:

Governmental Entity: _____

Year of Termination/Withholding:_____

Basis for Termination/Withholding (attach additional pages if necessary):

[illegible]

The NFWB reserves the right to terminate a Contract (including any lease, license, entry permit, or sale documents) in the event it is found that the certification filed by the Proposer, in accordance with New York State Finance Law §139-k, was intentionally false or intentionally incomplete. Upon such finding, the NFWB may exercise its termination right by providing written notification to the Bidder/Proposer in accordance with the written notification terms of the Contract.

By signing below, the Proposer:

- DATE: ____/____/____

PROPOSER (FIRM): _____

STATE OF _____)
) ss.:
COUNTY OF _____)

On the ____ day of _____, 20____, before me, the undersigned, a Notary Public in and for said state, personally appeared _____ as a representative of _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the entity on behalf of which the individual acted executed the instrument.

Notary Public

APPENDIX A, FORM No. 4

**EQUAL EMPLOYMENT OPPORTUNITY (“EEO”)
POLICY STATEMENT AND AGREEMENT**

Proposer hereby agrees to the following EEO policy with respect to its work on any contract awarded in connection with this RFP:

- a) This organization will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability or marital status, will undertake or continue existing programs of affirmative action to ensure that minority group members are afforded equal employment opportunities without discrimination, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on Niagara Falls Water Board (“Water Board”) contracts.
- b) This organization shall state in all solicitations or advertisements for employees that in the performance of the Water Board contract all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, disability or marital status.
- c) At the request of the Water Board, this organization shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union, or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of this organization’s obligations herein.
- d) This organization shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. Proposer and subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, pregnancy or pregnancy-related conditions, gender identity, familial status, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.
- e) This organization will include the provisions of section (a) through (d) of this agreement in every subcontract in such a manner that the requirements of the subdivisions will be binding upon each subcontractor as to work in connection with the Water Board contract.

ACCEPTED AND AGREED:

DATE: ____/____/____

PROPOSER (SIGNATURE): _____

PROPOSER (NAME): _____

PROPOSER (FIRM): _____

APPENDIX A, FORM No. 5

**STATEMENT ON SEXUAL HARASSMENT
PURSUANT TO STATE FINANCE LAW § 139-1**

By submission of this proposal, proposer(s) and each person signing on behalf of any proposer certifies, and in the case of a joint proposal each party thereto certifies as to its own organization, under penalty of perjury, that the proposer has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of section two hundred one-g of the labor law.

DATE: ____/____/____

PROPOSER (SIGNATURE): _____

PROPOSER (NAME): _____

PROPOSER (FIRM): _____

STATE OF _____)
) ss.:
COUNTY OF _____)

On the ____ day of _____, 20____, before me, the undersigned, a Notary Public in and for said state, personally appeared _____ as a representative of _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the entity on behalf of which the individual acted executed the instrument.

Notary Public

APPENDIX A, FORM No. 6

**REQUEST FOR PROPOSALS
ACKNOWLEDGEMENT AND CERTIFICATION**

As a duly-authorized representative of the proposer indicated below, I hereby acknowledge that by submitting a proposal in connection with

_____,
(write RFP Number and Title)

proposer has made a firm offer and agrees to be bound by its terms. Proposer has carefully read the RFP and all addenda, and in submitting this proposal acknowledges proposer understands and agrees to be bound by the requirements set forth in the RFP, except as explicitly stated on a separate sheet attached to this proposal and entitled "Exceptions." Proposer agrees and understands that the terms and conditions set forth in the RFP addenda shall be incorporated into any contract or agreement awarded in connection with this RFP, and agrees to be bound by those terms and conditions.

I recognize that all information submitted is for the express purpose of inducing the Water Board to enter a contract with the submitting business entity. I affirm, under the penalties of perjury, that to the best of my knowledge the information contained in the proposal is full, complete, and truthful.

DATE: ____/____/____

PROPOSER (SIGNATURE): _____

PROPOSER (NAME): _____

PROPOSER (FIRM): _____

STATE OF _____)
COUNTY OF _____) ss.:

On the ____ day of _____, 20____, before me, the undersigned, a Notary Public in and for said state, personally appeared _____ as a representative of _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her capacity, and that by his/her signature on the instrument, the entity on behalf of which the individual acted executed the instrument.

Notary Public

APPENDIX B

INTERMEDIATE PUMP DRAWINGS AND SPECIFICATIONS

SECTION 15B

MIXED FLOW SEWAGE PUMPS

PART 1: GENERAL

1.01 SCOPE OF WORK

A Furnish all labor, materials, equipment, appurtenances and incidentals required and install complete, ready for operation and field test the electric motor driven, volute type, vertical, centrifugal, mixed flow pumps for installation as follows:

1. Four (4) main sewage pumps
2. Four (4) Intermediate Sewage pumps.

B These Specifications are intended to give a general description of what is required, but do not purport to cover all details which will vary in accordance with the requirements of the equipment as offered. It is, however, intended to cover the furnishing, shop testing, delivery, complete installation, and field testing of all materials, equipment and appurtenances for the complete pumping units as herein specified, whether specifically mentioned in these Specifications or not.

C For all units there shall be furnished and installed all necessary and desirable accessory equipment and appurtenances whether specifically mentioned in these Specifications or not, and as required for an installation incorporating the highest standards for the type of service including field testing of the entire installation and instructing the regular operating personnel in the care, operation and maintenance of all equipment.

1.02 RELATED WORK SPECIFIED UNDER OTHER SECTIONS

- A Concrete is specified under Division 3.
- B Electrical is specified under Division 16.
- C Instrumentation is specified under Division 16.
- D Piping and Valves are specified under respective Sections of Division 15.
- E Lifting gear is specified under Division 14.

1.03 DESCRIPTION OF SYSTEMS (continued)

5. Ramp control.
6. Adjustable speed drive cantrollers.

1.04 QUALIFICATIONS

- A The equipment covered by these Specifications is intended to be standard pumping equipment of proven ability as manufactured by reputable concerns having experience in the production of such equipment. Each unit specified herein shall be furnished by a single manufacturer. The equipment furnished shall be designed, constructed and installed in accordance with best practice and methods, and shall operate satisfactorily when installed as shown in the Drawings.

1.05 SUBMITTALS

- A In accordance with the General Conditions, the Contractor shall submit six (6) copies of the following to the Engineer for approval for each pump furnished:

1. Manufacturer's rating curves showing pump characteristics of head, brake horsepower, discharge, efficiency, required net positive suction head, and allowable suction lift. Variable speed curves shall be provided with at least five speeds plotted from maximum rpm to minimum recommended rpm. This information shall be prepared specifically for the pumps proposed. Catalog sheets showing a family of curves will not be acceptable.
2. Literature and drawings describing the equipment in sufficient detail, including parts list and materials of construction, to indicate full conformance with the detail Specifications.

- B Certified pump test data for the sewage pumps as described under Part 2, Products.

- C Motor data as described under Part 2, Products.

- D Within ninety (90) calendar days following the award of Contract, the Contractor shall submit copies of the following in triplicate for approval by the Engineer:

1. Certified dimensional drawings of each item of equipment and auxiliary apparatus to be furnished.
2. Certified foundation and anchor bolt plans and details.
3. Schematic electrical wiring diagrams and other data as required for completion of the installation.

1.06 SPARE PARTS AND TOOLS (continued)

2. 1 - Complete set of both radial and thrust bearings for one pump.
 3. 1 - Complete shaft sleeve with keys, nuts and accessories.
 4. 1 - Complete set of wearing rings for one pump.
 5. 2 - Sets of packing glands complete with rings, nuts and bolts.
 6. 2 - Sets of gaskets for each casing joint.
 7. 2 - Sets of all special bolts, nuts and screws.
 8. 3 - Extra complete sets of packing as required for field installation in addition to that supplied for installation prior to the field test as specified herein.
 9. 2 - Spare lantern rings.
 10. 1 - Blank flange to replace rotating assembly of one pump.
- C Spare Parts shall be properly bound and labeled for easy identification without opening the packaging and suitably protected for long term storage. *boxed* 7

1.07 SHIPPING INSTRUCTIONS

- A All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the units and equipment are ready for operation.
- B All equipment and parts must be properly protected against any damage during a prolonged period at the site.
- C Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the Engineer.
- D Finished surfaces of all exposed parts shall be properly protected for the conditions which will prevail from time of shipment until ready for operation.
- E The finished surfaces of all exposed flanges shall be protected by wooden blank flanges, strongly built and securely bolted thereto.

PART 2: PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A The pumping units required under this Section shall be complete including pumps, magnetic drives, motors and intermediate shafting with proper alignment and balancing of the individual units.

All parts shall be so designed and proportioned as to have liberal strength, stability, and stiffness and to be especially adapted for the work to be done. Ample room and facilities shall be provided for inspection, repairs, and adjustment.

- B Each base for pump, motor and magnetic drive shall be rigidly and accurately anchored into position and all necessary foundation bolts, plates, nuts, and washers shall be furnished and installed by the Contractor.
- C Brass or stainless steel nameplates giving the name of the manufacturer, the rated capacity, head, speed, and all other pertinent data shall be attached to each pump and motor.
- D Each pumping unit and its driving equipment shall be designed and constructed to successfully withstand the maximum turbine run-away speed of the unit due to back flow through the pump.
- E The pumps shall be heavy-duty, vertical, single stage, mixed flow, dry pit centrifugal pumps as manufactured by Morris Machine Works, Worthington, Fairbanks-Morse or approved equal.

1. The four main sewage pumps shall be identical in every respect with all parts interchangeable and designed for the following conditions of service:

Design Capacity, gpm	15,200 @ 49ft TDH
Maximum Pump Speed, rpm	700
Efficiency at Design Point, percent	87
Shut Off Head, feet	75
Discharge Size, inches, minimum	24
Suction Size, inches minimum	24
Maximum Solid Size, inches	4
Maximum Net Positive Suction Head Required, ft.	25
Synchronous Motor HP	250
Secondary Design Point, gpm	7,500 @ 43ft TDH

2. The normal static water level at the suction of the main sewage pump is about 2.5 feet above the centerline of the pump discharge and the minimum about 1.5 feet above the centerline of the pump discharge. Losses in the

2.01 MATERIALS AND EQUIPMENT (continued)

G Pump Casings

The casing shall be cast ductile iron, 7/8-in min thickness, suitably ribbed to withstand all stresses and strains of service at full operating pressure and shall be in accordance with ASTM Designation A339-55, Type 80-603-03. Casings shall be designed for handling sewage and stormwater containing a certain amount of solids and abrasive material. A handhole 12-in x 18-in min shall be provided in the discharge nozzle to provide convenient access to the impeller and interior parts of the pump. The inner contours of the handhole cover shall match the contours of the casing which it fits. The casing shall be provided with all necessary vent, drain, and gage connections. Flanged connections shall be 125 lb ANSI Standard flange.

No stationary guides will be permitted on either the suction or discharge sides of the casing.

H Suction and Back Heads

The volute casings shall be provided with cast suction and backs heads of the same material as the volute, cast separately from the volute, and shall be built to allow for complete rotating assembly. The back head and suction head shall be shoulder fitted to the volute casing to assure accurate alignment. The back head shall be designed to support the frames and shall be designed to prevent excessive leakage, and to accommodate packing as later specified. The lantern ring for grease lubrication and sealing shall be located in the bottom thirty percent of the stuffing box.

The lower or suction head shall be designed to assure equal distribution of liquid to all parts of the impeller.

A suitable vent connection shall be provided at the high point of the volute.

I Packing

Packing as specified below shall be furnished and installed by the Contractor under the supervision of the Engineer, after the pumps have had a suitable run-in period and prior to the field acceptance test.

The packing which will replace the original packing shall be as furnished by A.W. Chesterton Company, Everett, Massachusetts or approved equal.

At the bottom of the stuffing box provide one or two compressed asbestos rings 1/16-inch thickness and cut to the

2.01 MATERIALS AND EQUIPMENT (continued)

hardness in the 400 to 450 range.

L Pump Frame

Each cast iron pump frame shall be rigidly fixed to the casing and back head, and shall be accurately centered.

M Pump Shafts

The pump shafts shall be SAE 1045 steel or better, accurately machined and ground to size. Where shafts pass through stuffing boxes or where exposed directly to sewage, they shall be protected by readily renewable, snug fitting wearing sleeves, internally ground to approved tolerances and positively secured to the shaft so as to prevent relative rotation. Passage of water from pump casing between shaft and sleeve shall be prevented by "O-Ring" packing or other approved means. Wearing sleeves shall be extra thick, removable, hard, stainless steel containing not less than 13 percent chromium and having a Brinell hardness of 450 or more. The shaft sleeve shall extend from the impeller hub through the stuffing box.

N Bearings

The pumps shall be provided with bearings both radial and thrust, of the anti-friction type, and of ample size to carry all loads under continuous service without over heating. Bearings shall be of sufficient size to have a service expectancy for the life of the pump. The thrust bearing shall be of ample size to properly support the weight of the vertical shafting and couplings, as well as the unbalanced hydraulic thrust.

All bearings shall be accessible while the pump is in operation. The bearings shall be grease lubricated, and a relief shall be provided so that excessive grease pressure will not damage the bearings.

For protection of bearings during shipment and installation, the bearings shall be properly processed with Esso Standard Oil Company "Rust Bane" or approved equal. Each bearing frame shall be designed so that the complete rotating element can be removed from casing without disconnecting piping. Bearings shall be designed in accordance with the Anti-Friction Bearing Manufacturers Association, Inc. Standards for 40,000 hours minimum life at all conditions of operation.

The bearing frame shall contain external provision for axial adjustment of the rotating element when necessary to provide proper clearance between the impeller and suction cover

2.02 MIXED FLOW SEWAGE PUMP DRIVE MOTORS (continued)

- no-load and full-load, the vibration measured in a horizontal plane at the top of the motor shall not exceed two mils displacement from peak to peak.
- G No critical speed shall occur within 25 percent of synchronous speed of the motors when driving the magnetic drives or operating by themselves.
- H The motor frames shall have adequate strength to support the various components of the motor assembly and to allow the motor assembly to be lifted by a 10 ton bridge crane.
- I Unless otherwise specified, the motors shall comply with the latest ANSI, NEMA, IEEE standards and the National Electrical Code wherever they are applicable.
- J The motors shall be capable of going through two complete starting cycles with no appreciable time interval, or four starting cycles per hour without injurious heating in any part.
- K Torque characteristics shall be as required by the pump characteristics, but the pull-out torque shall be not less than 150 percent of full-load torque.
- L Each rotor spider shall be of steel, cast-iron, or ductile-iron construction pressed on the shaft and secured against movement. Pole pieces of laminated construction shall be secured to the spider by dovetailing or bolting. Field coils shall be copper strip or rectangular wire, well insulated and securely held in place to prevent any movement or distortion. Amortisseur windings shall be embedded securely in the pole faces in such a manner as to permit removal of any pole or group of poles without difficulty. The amortisseur bars shall be brazed or welded to the end ring section, and end ring sections shall be joined securely with a minimum number of bolted connections, all to ensure a permanent and uniform low resistance winding of high mechanical strength to withstand vibrations. The motor shall withstand, without damage, 150 percent of its maximum speed when driven in reverse direction by the pump. The motor shaft shall be made of high-grade, open-hearth steel carefully machined and polished. Forged steel half couplings shall be integral with the shaft ends, if required. Adequate cooling fans shall be attached to each rotor.
- M The stator frame shall be of heavy steel or cast-iron construction capable of withstanding all mechanical and electrical forces and shall have adequate ventilated openings. Eyebolts or lugs shall be provided on the stator frame for lifting the motors as individual units or as an assembled unit.

2.02 MIXED FLOW SEWAGE PUMP DRIVE MOTORS (continued)

system is used, oil sight flow indicators shall be provided. All oil level gauges shall indicate normal oil levels for running and rest conditions.

- R Each motor shall be provided with a strip heater of sufficient wattage to prevent condensation on the core or windings. Heaters shall have rustproof sheaths and shall be connected to an enclosed terminal block on the side of the motor frame by conductors having heat-resistant insulation to avoid overheating adjacent to the terminals. Heaters shall be suitable for operation on 120 volt, single phase, alternating current.

- S The rotating brushless excitation system shall include a direct connected three phase, A.C. generator feeding a full wave three phase diode bridge rectifier with the output applied to the field of the synchronous motor through a silicon controlled rectifier which is geared at the proper motor speed and phase angle by a semi-conductor operated logic circuitry to achieve maximum positive pull-in torque. Optimum synchronizing speed shall be selectable over a limited range in the vicinity of 95 percent synchronous speed. A system using straight timing for random application of motor field excitation will not be acceptable.

The rotating logic circuitry shall further provide a means for energizing the motor field in the event the motor pulls into step under lightly loaded conditions through its reluctance torque. (Zero slip feature.) It shall also be capable of removing motor field excitation within the first cycle of slip should the motor pull out of step for any reason.

During the acceleration (starting) period the motor field shall be short circuited with a motor mounted field discharge resistor which is disconnected from the field at pull-in.

- T Each motor shall be designed and guaranteed to have efficiencies not less than following:

HORSEPOWER	FULL RATED LOAD	3/4 LOAD	1/2 LOAD
250 (450) <i>rpm</i>	93.7	93.4	92.4
250 (720) <i>rpm</i>	93.6	92.7	91.0

2.03 MIXED FLOW SEWAGE PUMP CONTROL SYSTEMS

- A The pump control systems shall meet the following requirements.

2.03 MIXED FLOW SEWAGE PUMP CONTROL SYSTEMS (continued)

low wet well alarm shall occur at EL. 520.5 and a pump shutdown shall occur at EL. 518.0.

5. The intermediate sewage pumps shall start and stop from a change in level of the wet well. One pump will be designated the lead pump. A rising wet well level shall cause the pump speed to increase in linear proportion to the rise in wet well liquid level until the pump is operating at full speed. If the level continues to rise, the second pump shall start and both units shall adjust to an equal speed so that each shares the load. If the wet well liquid level continues to rise and the two pumps are operating at full speed a third pump shall start. The three pumps shall adjust to an equal speed so that each shares the load. The pumps shall operate in reverse order when the wet well level decreases. The intermediate sewage pumps shall operate within the elevations listed below:

	START	STOP
Lead Pump	561.0	560.5
Second Pump	562.0	561.5
Third Pump	563.0	562.5

6. The high intermediate wet well alarm shall occur at EL. 566. A low wet well level alarm shall occur at EL. 558 and pump shutdown shall occur at EL. 554.0.

- C Each magnetic drive shall consist of a stationary frame, a constant speed and an adjustable speed member, bearings, lower bearing bracket and housing, and such other components as are necessary to provide a complete operating unit.

The stationary frame shall be of open fabricated construction with necessary baffles to direct the cooling air to the rotating members. It shall provide mounting space for the motor adapter, the lower bearing bracket, and the terminal box.

The constant speed ring member shall be of steel construction with adequate exterior surface to facilitate cooling. The magnetic drive input (upper) end shall be arranged for flexible coupling to the drive motor by means of a shaft/ring spider, and it shall also contain a bearing bracket with guide bearing assembly.

The adjustable speed magnet member shall be of salient pole design type. The coils shall be wound with Class F insulated magnet wire. The shaft extension of the adjustable speed member shall provide space for the mounting of bearings,

2.03 MIXED FLOW SEWAGE PUMP CONTROL SYSTEMS (continued)

voltage.

- D Speed control system components shall be mounted in a free-standing, front-accessible, NEMA Type 1 enclosure. A hinged front door shall be used as a pump control panel. The control panel and enclosure shall be as shown on the Drawings.

The following panel mounted equipment shall be furnished:

1. Wet well level gauge. It shall be for flush mounting, designated "Wet Well Level" and graduated uniformly in feet and tenths of feet. The range of wet well levels from below low alarm level to above high level alarm as specified herein. The gauge may be an integral part of the signal transducer.
 2. Running time meters, 99,999.9 hour range; General Electric Co. Type 236 or an approved equal product.
 3. Speed indicators - Local
 4. Hand-off-automatic switches, pistol-grip; General Electric Co. Type SB1 or an approved equal product.
 5. Manual speed control potentiometers for each variable speed unit.
 6. Start-Stop switches for all pumps
 7. Pump sequence selector switch
 8. Alarm relays, annunciator, pushbuttons, and indicating lights as shown on the Drawings.
 9. Lockout relays Type 86
- E The liquid level control described in the preceding paragraph is comprised, basically, of the following components:
1. The air supply system.
 2. The pressure transducer and switching devices for starting and stopping pumps.
 3. The bubbler tube.
 4. The ramp control.
 5. The adjustable speed drive controllers.

2.03 MIXED FLOW SEWAGE PUMP CONTROL SYSTEMS (continued)

consisting of stainless steel hoops fitted into a collar and firmly secured to the open ends of the pipe to prevent debris from wrapping around the ends causing loss of level control. Bubble pipe guards shall be furnished and installed by the Contractor.

- M The plant air system shall be piped to the control panels by the Contractor. The magnetic drive manufacturer shall provide means to connect the plant air to the discharge side of the compressor as a standby source of air in case of compressor failure. The magnetic drive manufacturer shall furnish and install all necessary piping, valves pressure reducing valves, etc. to make a complete stand-by system.

PART 3: EXECUTION

3.01 INSTALLATION

- A The main and intermediate sewage pumps, shall be installed in accordance with the instructions of the manufacturer and as shown in the Drawings. In addition, the main sewage pumps, intermediate sewage pumps, motors, and magnetic drives shall be installed under the supervision of a representative of the manufacturer supplying the equipment.
- B Field tests shall not be conducted until such time that the entire installation is complete and ready for testing.
- C The Contractor shall submit a certificate from the equipment manufacturer stating that the installation of the equipment is satisfactory, that the equipment is ready for operation, and that the operating personnel have been suitably instructed in the operation, lubrication and care of each unit.

3.02 INSPECTION AND TESTS

- A The Engineer shall have the right to inspect, test or witness tests of all materials or equipment to be furnished under these specifications, prior to their shipment from the point of manufacture.
- B The Engineer shall be notified in writing prior to initial shipment, in ample time so that arrangements can be made for inspection by the Engineer.
- C The Engineer or his representative shall be furnished all facilities, including labor, and shall be allowed proper time for inspection and testing of material and equipment.
- D Materials and equipment shall be tested or inspected as required by the Engineer, and the cost of such work shall be

3.02 INSPECTION AND TESTS (continued)

IEEE and shall include the following:

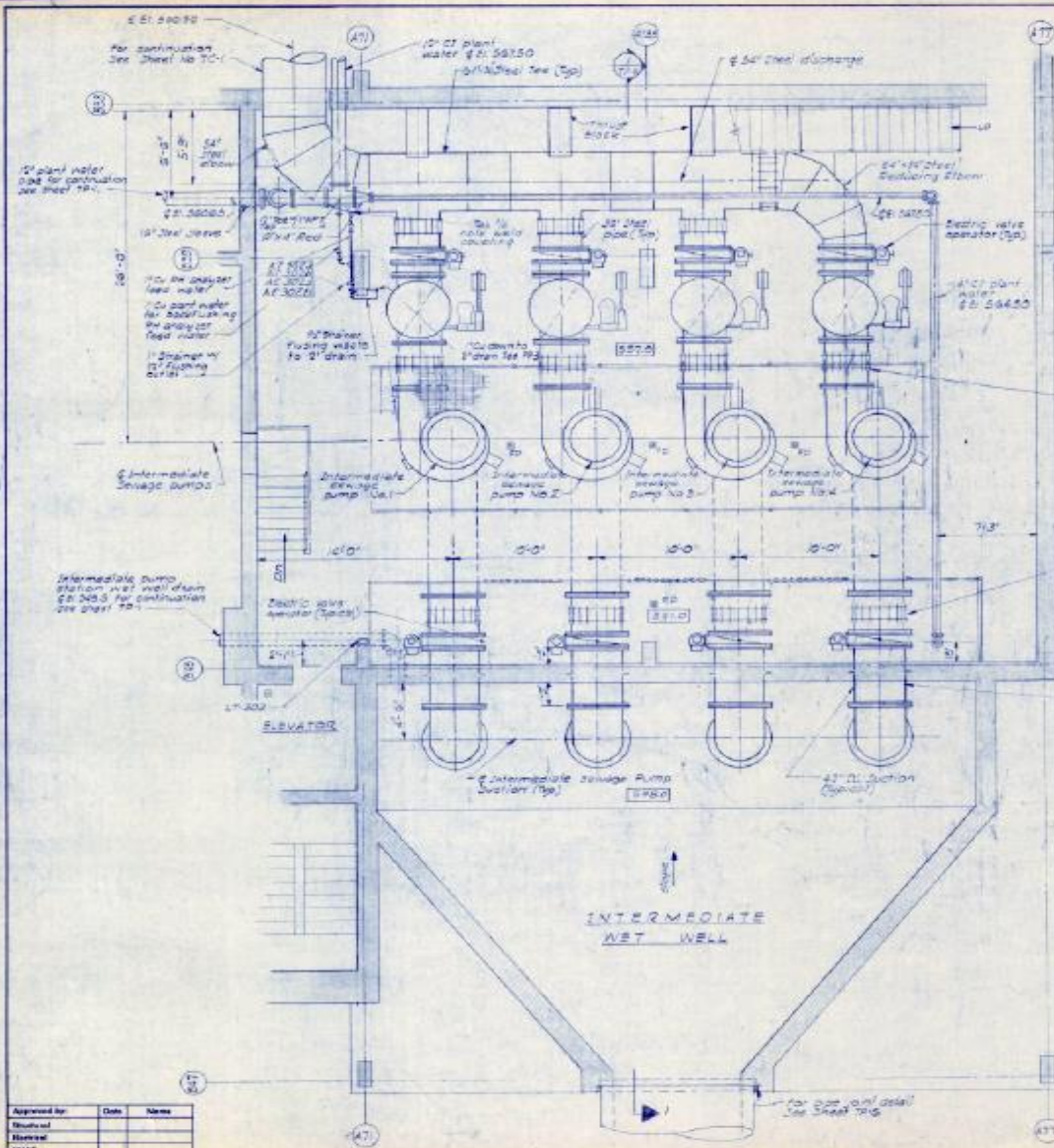
1. Resistance of armature and field.
2. Polarity of Field Coils.
3. High potential test on stator and rotor - 11,000 volts on stator, 3,500 volts on rotor, both at 60 hertz RMS for one minute.
4. Measurement of air gap.
5. No-load field current at normal voltage frequency.
6. Test for shaft current.
7. Bearing inspection.
8. Vibration and sound pressure-level test instruments shall be equal to the General Radio Type 1564-A Sound and Vibration Analyzer and the General Radio Type 1553 Vibration Meter. The vibration test shall be made in accordance with the manufacturer's instructions for use of the vibration meter. The sound pressure-level tests shall be made in accordance with the requirements of IEEE Publication No. 85.
9. Locked rotor Kva. and torque. These tests may be conducted using input method, and wattmeter torque by reversing speed and taking readings at zero speed point.
10. Calculated pull-in and pull-out torque.
11. No-load saturation.
12. Full-load saturation at unit power factor.
13. Friction and windage.
14. Stray load losses.
15. Core loss.
16. Stator and rotor resistance.
17. Motor efficiency by segregation of losses calculated at $1/2$, $3/4$, and full load.
18. Temperature rise for each size motor by zero power factor test.

3.02 INSPECTION AND TESTS (continued)

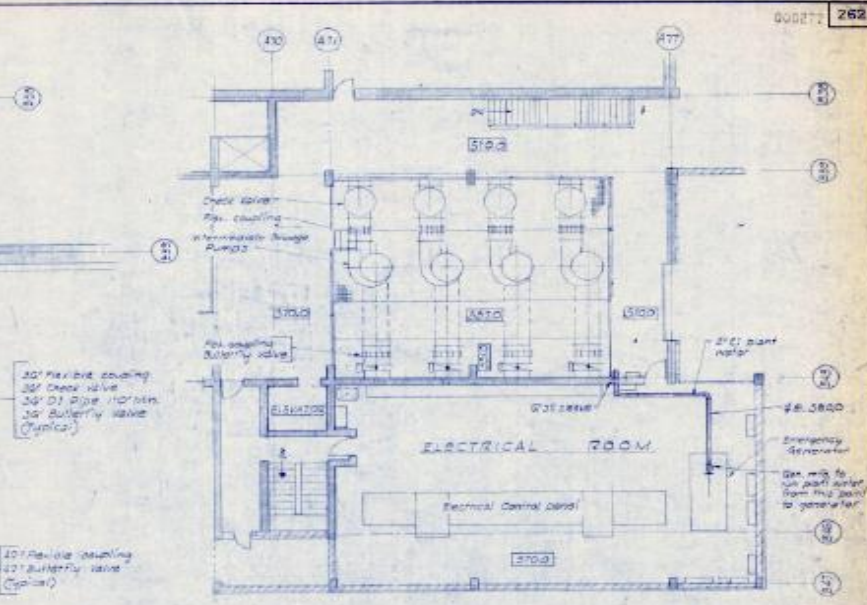
All expenses for conducting the field tests shall be paid by the Contractor.

3.03 PAINTING

- A Prior to coating, all surfaces shall be thoroughly dry and free of all corrosion, grease, and dirt.
- B The prime coating and finish paints shall be products of the same manufacturer to assure compatibility.
- C All ferrous metal surfaces to be prime coated in the shop shall have all corrosion, dust, scale, and other foreign substances removed by sandblasting or pickling. The sandblasting process shall remove all slag from welds and shall expose bare metal on the surfaces to be coated. All ferrous metal surfaces not given a prime coat in the shop shall be sandblasted in the field prior to application of the prime coating. Cleaned metal shall be prime coated immediately after cleaning in order to prevent further corrosion.
- D All non ferrous metal surfaces, whether to be shop or field prime coated, shall be cleaned with a solvent as recommended by the coating manufacturer for the respective metals. After cleaning, all non-ferrous metal surfaces shall be coated with Koppers 40 Passivator or approved equal in accordance with the coating manufacturer's recommendations prior to application of the prime coating.
- E All galvanized metal surfaces shall be cleaned prior to the application of the prime coating with Koppers 888 Emulsion cleaner or an approved equal. After cleaning, the galvanized metal surfaces shall be coated with Koppers 30 Metal Conditioner or approved equal in accordance with the manufacturers recommendation, prior to application of the prime coating.
- F The mixed flow pumps shall be prime coated in the shop as follows:
 - 1. One (1) coat of Inertol Rustinhibitive Primer 621 or approved equal shall be applied to all surfaces except stainless steel with a maximum coverage of 300 sf per gal and a minimum dry thickness of 195 mils per coat.
 - 2. On metal surfaces, the prime coating shall be applied at the rate specified by the coating manufacturer to achieve the minimum dry mil thickness specified. If the coating material has to be diluted for application by spray gun or because of thickening, the coating shall be built up to the specified minimum dry mil thickness

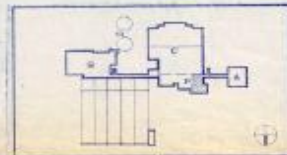


PLAN AT ELEV. 537.0
Scale: 1/4" = 1'-0"



PLAN AT ELEV. 570.0
Scale: 1/4" = 1'-0"

Approved by:	Date:	Name:
Structural		
Electrical		
Mechanical		
Project Engineer		
Project Manager		



C-36-747

Date: 1/24/57

Drawn by: J.H.H.

Checked by: J.H.H.

Approved by: J.H.H.

Date: February 1957

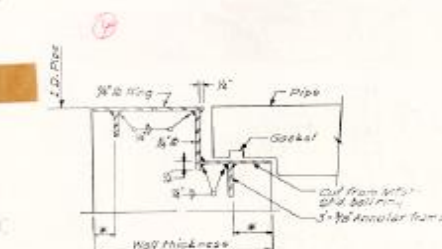
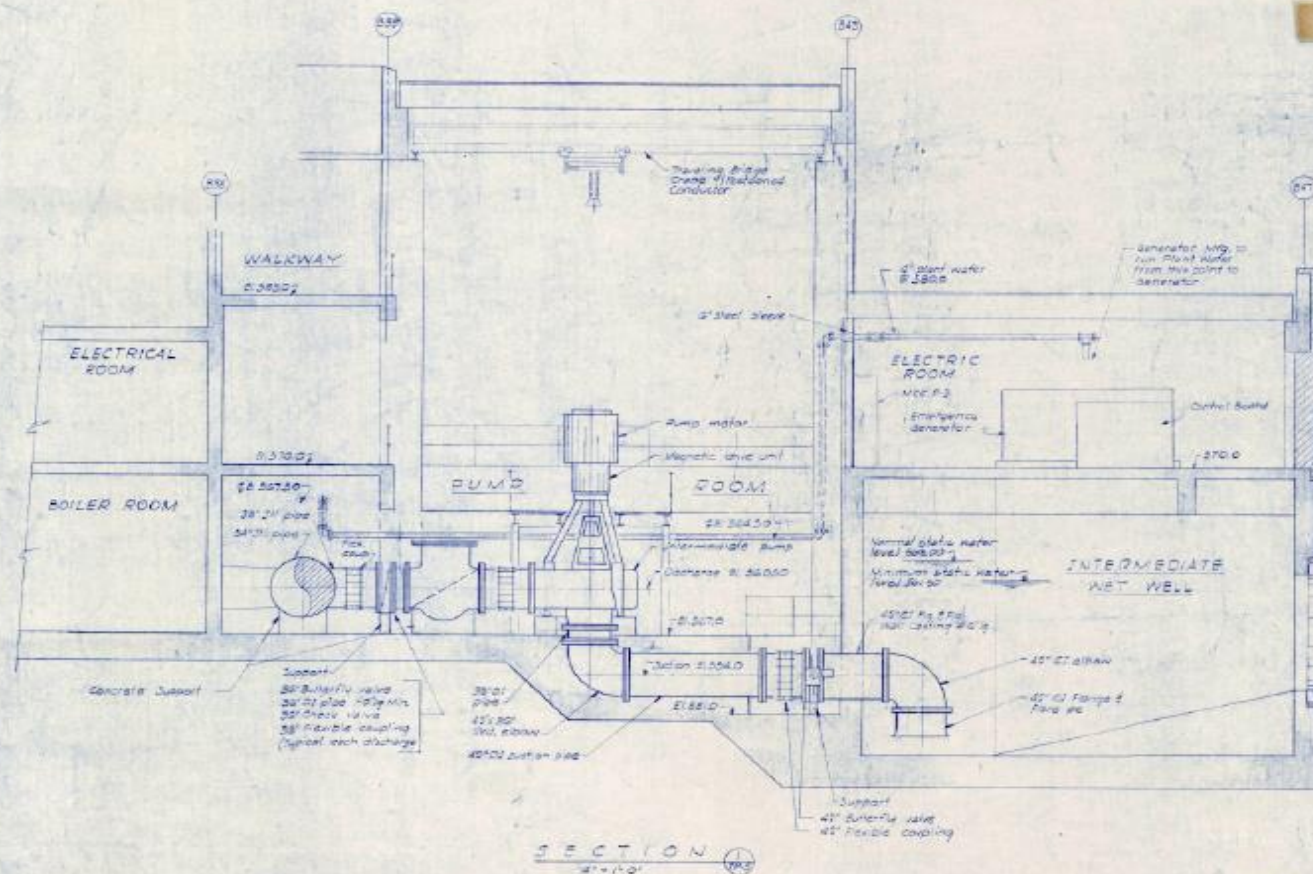
Scale: As noted

CITY OF NIAGARA FALLS, NEW YORK
IMPROVEMENTS TO WASTEWATER FACILITIES
CONTRACT NO. 50 - WASTEWATER TREATMENT PLANT

INTERMEDIATE SEWAGE PUMPS PLANS

SHEET NO. 5
TP-5

434-10753



* Reinforcing steel embedment plus dia. of outside bars.

R.C PIPE AT WALL JOINT DETAIL

NT

AGENDUM NO. 4 AUGUST, 1977
CITY OF NIAGARA FALLS, NEW YORK
PAGE JOINT DETAIL SH. TR-8



CAMP DRESSER & MCKEE, Inc.
Consulting Engineers
Boston, Mass.

10



- Reinforcing steel embedded
into the outside curbs

RC PIPE AT WALL

U.S. Department of Education

Approved by:	Date:	Name:
Student		
Electron		
INAC		
Project Engineer		

2. SHULTS CO., TP-2, S. C. FIVE AT MAIL NINE DETAIL
Delaware "Red" located and removed classified "Disallowed"



C-38-747

Date	Ch 7-6
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Designed by: _____

Drawn Up

Checked by _____
Date received by _____

100

Figure 1

Revision

1000


Section: _____

As noted

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

CITY OF NIAGARA FALLS, NEW YORK
IMPROVEMENTS TO WASTEWATER FACILITIES
CONTRACT NO. 42 - WASTEWATER TREATMENT PLANT

SECTIONS-II



CAMP, DRESSER & MCKEE
Consulting Engineers
Boston, Mass.

SHEET NO.
TP-6