THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 976-2016

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

TABLE OF CONTENTS

PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, July 14, 2017.

B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

B3.1 Further to C3.1, Site Investigations will be held to provide Bidders information about the project. Site meetings will be broken up by trade at the following dates and times:

(a) Civil (site services, building construction), and mechanical on May 9, 2017 starting at 8:00 a.m. with a one hour break for lunch (lunch will not be provided).

(b) Electrical (including site electrical), instrumentation and control on May 10, 2017 starting at 8:00 a.m. with a one hour break for lunch (lunch will not be provided).

(c) Civil (site services, building construction), and mechanical on June 6, 2017 starting at 8:00 a.m. with a one hour break for lunch (lunch will not be provided).

(d) Electrical (including site electrical), instrumentation and control on June 7, 2017 starting at 8:00 a.m. with a one hour break for lunch (lunch will not be provided).

B3.2 Bidders to meet at the front entrance of the SEWPCC facility located at 100 Ed Spencer Drive at the time noted above to obtain access.

B3.3 The Bidder is advised that the excavation, shoring, groundwater depressurization, chemical / electrical building piles, and concrete works for the grit tank, high rate clarification building, bioreactors and secondary clarifier structures have been or will be installed by others, unless otherwise noted, and therefore should familiarize himself with the existing Site conditions. Bidders are to include for anticipated Site condition changes due to ongoing Site construction from the time of the Site Investigation to the mobilization of this Contract.

B3.4 The Bidder shall not be entitled to rely on any information or interpretation received at the Site Investigation unless that information or interpretation is the Bidder’s direct observation, or is provided by the Contract Administrator in writing.

B3.5 Bidders attending the Site Investigations are required to provide and wear their own CSA approved safety footwear, high visible vest, hard hat, and safety glasses.

B4. BIDDERS' CONFERENCE

B4.1 Further to C3.1, the Contract Administrator will hold a Bidders’ conference at the Site starting at 1:00 p.m. on May 8, 2017. Bidders are to meet at the front entrance of the SEWPCC facility located at 100 Ed Spencer Drive at the time noted above to obtain access.

B4.2 The Bidder is advised that, at the Bidders’ Conference, the Contract Administrator will present a 3D walk through of the project to provide the Bidders an overview of the Work. The 3D walk through will assist the Bidder in visualizing the Work prior to the Site Investigations identified in B3

B4.3 The Bidder shall not be entitled to rely on any information or interpretation received at the Bidders' Conference unless that information or interpretation is provided by the Contract Administrator in writing.

B5. ENQUIRIES

B5.1 All enquiries shall be directed to the Contract Administrator identified in D8.1.

B5.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B5.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B5.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B5.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B5 unless that response or interpretation is provided by the Contract Administrator in writing.

B6. CONFIDENTIALITY

B6.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

(a) was known to the Bidder before receipt hereof; or

(b) becomes publicly known other than through the Bidder; or

(c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B6.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

B6.3 Notwithstanding B6.1, all quotations, invoices and other pricing related information associated with the Standardized Goods and acquired by a Bidder or its Subcontractors through enquiries, investigation or any other means is confidential. Such information shall not be used or disclosed in any way, other than meeting the requirements of this Bid Opportunity.

B7. ADDENDA

B7.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

B7.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B7.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/bidopp.asp

B7.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B7.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B8. SUBSTITUTES

B8.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B8.2 Substitutes to the City's Standardized Goods, as identified in E5, E6, E7, E8, will not be accepted.

B8.3 Substitutes to the City's Pre-qualified Systems Integrators, as identified in D4, will not be accepted.

B8.4 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B8.5 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least ten (10) Business Days prior to the Submission Deadline.

B8.6 The Bidder shall ensure that any and all requests for approval of a substitute:

(a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;

(b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;

(c) identify any anticipated cost or time savings that may be associated with the substitute;

(d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;

(e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

B8.7 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

B8.8 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.

B8.8.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.

B8.9 If the Contract Administrator approves a substitute as an "approved equal", any Bidder may use the approved equal in place of the specified item.

B8.10 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B18.

B8.11 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B9. BID COMPONENTS

B9.1 The Bid shall consist of the following components:

(a) Form A: Bid;

(b) Form B: Prices;

(c) Bid Security;

(i) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;

B9.2 Further to B9.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B8.

B9.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.

B9.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.

B9.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder’s Bid.

B9.5 Bidders are advised not to include any information/literature except as requested in accordance with B9.1.

B9.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B18.1(a).

B9.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B9.8 Bids shall be submitted to:

The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B10. BID

B10.1 The Bidder shall complete Form A: Bid, making all required entries.

B10.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

(a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;

(b) if the Bidder is a partnership, the full name of the partnership shall be inserted;

(c) if the Bidder is a corporation, the full name of the corporation shall be inserted;

(d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B10.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B10.2.

B10.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B10.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:

(a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;

(b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;

(c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed;

(d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B10.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B10.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B11. PRICES

B11.1 The Bidder shall state the price in Canadian funds for each item of the Work identified on Form B: Prices.

B11.1.1 Notwithstanding C12.2.3(c), except where otherwise indicated in Form B: Prices, the unit prices on Form B: Prices shall include the Manitoba Retail Sales Tax (MRST, also known as PST). The applicable MRST for Electrical Work and Mechanical Work shall be shown separately and shall be included in the applicable Subtotals and in the TOTAL BID PRICE.

B11.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B11.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications

B11.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11.5 Form B, Item 16.1: The Bidder shall enter the cost of the Standardized Goods to be supplied from Schneider Electric Canada Ltd. (Schneider) as part of the Standardized Control System Equipment agreement identified in E5. The cost shall be the base cost received from Schneider, without any mark-up or taxes applied.

B11.5.1 Any mark-up to the supply of the Standardized Goods shall be deemed to be included in other applicable Form B lines.

B11.6 Form B, Item 16.2: The Bidder shall enter the cost of the Standardized Goods to be supplied from Schneider Electric Canada Ltd. (Schneider) as part of the Standardized Motor Control

Equipment agreement identified in E5. The cost shall be the base cost received from Schneider, without any mark-up or taxes applied.

B11.6.1 Any mark-up to the supply of the Standardized Goods shall be deemed to be included in other applicable Form B lines.

B11.7 Form B, Item 16.3: The Bidder shall enter the cost of the Standardized Goods to be supplied from Rotork Control Canada Ltd. (Rotork) as part of the Standardized Electric Valve Actuators agreement identified in E6. The cost shall be the base cost received from Rotork, without any mark-up or taxes applied.

B11.7.1 Any mark-up to the supply of the Standardized Goods shall be deemed to be included in other applicable Form B lines.

B11.8 Form B, Item 16.4: The Bidder shall enter the cost of the Standardized Goods to be supplied from Mine Safety Appliances Company, LLC (MSA) as part of the Standardized Gas Detection Systems agreement identified in E7. The cost shall be the base cost received from MSA, without any mark-up or taxes applied.

B11.8.1 Any mark-up to the supply of the Standardized Goods shall be deemed to be included in other applicable Form B lines.

B11.9 Form B, Item 16.5: The Bidder shall enter the cost of the Standardized Goods to be supplied from Trans-West Supply Company Inc. (Trans-West) as part of the Standardized Instrumentation agreement identified in E8. The cost shall be the base cost received from Trans-West, without any mark-up or taxes applied.

B11.9.1 Any mark-up to the supply of the Standardized Goods shall be deemed to be included in other applicable Form B lines.

B12. DISCLOSURE

B12.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B12.2 The Persons are:

(a) N/A

B13. QUALIFICATION

B13.1 The Bidder shall:

(a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and

(b) be financially capable of carrying out the terms of the Contract; and

(c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B13.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

(a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/debar.stm

B13.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

(a) have successfully carried out work similar in nature, scope and value to the Work; and

(b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and

(c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);

B13.4 Further to B13.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

(a) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) or

(i) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program or;

(ii) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program or;

(b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/.

B13.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

(a) Proposed Subcontractor(s) may include at a minimum one or more of the following:

(i) Piling Subcontractor

(ii) Mechanical Subcontractor

(iii) Electrical Subcontractor

(iv) High voltage Subcontractor

(v) Instrumentation Subcontractor

(vi) Systems Integrator Subcontractor

B13.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B14. BID SECURITY

B14.1 The Bidder shall provide bid security in the form of:

(a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or

(b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or

(c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

B14.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B14.1.2 All signatures on bid securities shall be original.

B14.1.3 The Bidder shall sign the Bid Bond.

B14.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B14.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B14.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B14.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B14.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B14.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

B15. OPENING OF BIDS AND RELEASE OF INFORMATION

B15.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.

B15.1.1 Bidders or their representatives may attend.

B15.1.2 Bids determined by the Manager of Materials, or his/her designate, to not include the bid security specified in B14 will not be read out.

B15.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/

B15.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/

B15.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B16. IRREVOCABLE BID

B16.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.

B16.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work

until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

B17. WITHDRAWAL OF BIDS

B17.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B17.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.

B17.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B17.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

(a) retain the Bid until after the Submission Deadline has elapsed;

(b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and

(c) if the notice has been given by any one of the persons specified in B17.1.3(b), declare the Bid withdrawn.

B17.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B16.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B18. EVALUATION OF BIDS

B18.1 Award of the Contract shall be based on the following bid evaluation criteria:

(a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation there from (pass/fail);

(b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);

(c) Total Bid Price;

(d) economic analysis of any approved alternative pursuant to B8.

B18.2 Further to B18.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B18.3 Further to B18.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.

B18.4 Further to B18.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B18.5 Further to B18.1(c), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B19. AWARD OF CONTRACT

B19.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B19.2 The Work of this Contract is contingent upon Council approval of sufficient funding in the SEWPCC Nutrient Removal and Expansion Capital Budget. If the Capital Budget approved by Council does not include sufficient funding for the Work, the award of Contract will be subject to a Capital Budget revision by Council.

B19.3 Further to B19.2, the City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B19.3.1 Without limiting the generality of B19.1 and B19.2, the City will have no obligation to award a Contract where:

(a) the prices exceed the available City funds for the Work;

(b) the prices are materially in excess of the prices received for similar work in the past;

(c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;

(d) only one Bid is received; or

(e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B19.4 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B18.

B19.4.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.

C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm

C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix "**C**" designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Construction*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the items of work identified in detail in the Drawings and Specifications which are attached.The major components of the Work are as follows:

(a) Facility Area A – General
  (i) Supply and installation of bypass concrete chambers
  (ii) Modifications to existing outfall pipe manholes
  (iii) Supply and installation of effluent monitoring station upgrades

(b) Facility Area B – Service Building
  (i) Supply and installation of all demolition and upgrades within the existing Service Building as shown on the Drawings and Specifications. Demolition includes, but is not limited to the removal of the existing 85kW generator and ancillary equipment.
  (ii) Upgrades to existing 1000 kW natural gas generator, transfer switch, and controls.
  (iii) Upgrade existing distributed control system (DCS) to PLC based system (DCS migration)

(c) Facility Area C – Chemical / Electrical Building
  (i) Supply and installation of Chemical / Electrical Building concrete structures as shown on the Drawings and Specifications
  (ii) Supply and installation of all building and process mechanical equipment, piping, and valves as shown on the Drawings and Specifications
  (iii) Supply and installation of all electrical, instrumentation and control systems as shown on the Drawings and Specifications
  (iv) Supply and installation of diesel standby generators
  (v) Supply and install Systems Integration Work

(d) Facility Area D – Fermenters / Sludge Thickeners
  (i) Structure and equipment modifications to existing High Purity Oxygen (HPO) reactors to facilitate fermenters as shown on the Drawings and Specifications
  (ii) Structure and equipment modifications of existing Pressure Swing Absorption (PSA) area to sludge thickening as shown on the Drawings and Specifications
  (iii) Supply and install sludge thickening process systems as shown on the Drawings and Specifications
  (iv) Supply and installation of all building and process mechanical equipment, piping, and valves as shown on the Drawings and Specifications
  (v) Supply and Installation of all electrical, instrumentation and control systems as shown on the Drawings and Specifications
  (vi) Supply and install Systems Integration Work
  (vii) Asbestos abatement as shown on the Drawings and Specifications

(e) Facility Area G - Headworks
  (i) Demolition of existing raw sewage pump and supply and install new raw sewage pump, VFDs, and wet well modifications as shown on the Drawings and Specifications

(ii) Excavation and shoring to facilitate the construction of the Grit and Screenings Building

(iii) Supply and installation of primary Vortex grit removal system and upgrades to the existing grit system as shown on the Drawings and Specifications

(iv) Upgrades to the existing headworks including the supply and installation of new screens as shown on the Drawings and Specifications

(v) Supply and install mechanical and electrical equipment to facilitate the construction of the grit and screenings building and the replacement of the existing screens as shown on the Drawings and Specifications

(vi) Supply and Installation of precast concrete piles for the Grit and Screenings Handling Building as shown on the Drawings and Specifications

(vii) Supply and Installation of Grit and Screenings Handling Building concrete structures and associated process systems as shown on the Drawings and Specifications

(viii) Supply and installation of all building and process mechanical equipment, piping, and valves as shown on the Drawings and Specifications

(ix) Supply and Installation of all electrical, instrumentation and control systems as shown on the Drawings and Specifications

(x) Upgrade existing distributed control system (DCS) to PLC based system (DCS migration)

(xi) Supply and install Systems Integration Work

(xii) Asbestos abatement as shown on the Drawings and Specifications

(f) Facility Area K – High Rate Clarification Building

(i) Supply and installation of all building finishes as shown on the Drawings and Specifications

(ii) Delivery receipt, possession, unloading, care and custody in accordance with the Supply Contractor's instructions of the City Supplied Equipment specified in D2.2(f)(iii)

(iii) Installation of City Supplied Equipment in accordance with the Supply Contractor's installation instructions. City Supplied Equipment includes: High Rate Clarification Equipment (Bid Opportunity 873-2013)

(iv) Supply and Installation of all building and process mechanical equipment, piping and valves not supplied by the City as shown on the Drawings and Specifications

(v) Supply and Installation of all electrical, instrumentation and control systems as shown on the Drawings and Specifications

(vi) Supply and install Systems Integration Work

(g) Facility Area M – Administration Building

(i) Supply and installation of a plant wide control/administration fibre network as shown on the Drawings and Specifications

(ii) Supply and installation of Human Machine Interface (HMI) systems as shown on the Drawings and Specifications

(iii) Modifications to existing Administration Building including reconfiguring Control Room / Server Rooms as shown on the Drawings and Specifications

(iv) Upgrade existing distributed control system (DCS) to PLC based system (DCS migration)

(v) Supply and install Systems Integration Work

(vi) Asbestos abatement as shown on the Drawings and Specifications

(h) Facility Area P – Primary Clarifiers

(i) Supply and installation of all building and process mechanical equipment, piping and valves as shown on the Drawings and Specifications

(ii) Supply and installation of all electrical, instrumentation and control systems as shown on the Drawings and Specifications

(iii) Upgrade existing distributed control system (DCS) to PLC based system (DCS migration)

(iv) Supply and install Systems Integration Work

(v) Asbestos abatement as shown on the Drawings and Specifications

(i) Facility Area R – Bioreactors and Blower Building

(i) Supply and installation of all building finishes as shown on the Drawings and Specifications

(ii) Delivery receipt, possession, unloading, care and custody in accordance with the Supply Contractor's instructions of the City Supplied Equipment specified in D2.2(i)(iii)

(iii) Installation of City Supplied Equipment in accordance with the Supply Contractor's installation instructions. City Supplied Equipment includes: IFAS Equipment (Bid Opportunity 871-2013)

(iv) Supply and installation of all building and process mechanical equipment, piping, and valves not supplied by the City as shown on the Drawings and Specifications

(v) Supply and installation of blower equipment as shown on the Drawings and Specifications

(vi) Supply and installation of all electrical, instrumentation and control systems as shown on the Drawings and Specifications

(vii) Supply and install Systems Integration Work

(j) Facility Area S – Secondary Clarifiers

(i) Supply and installation of all building finishes as shown on the Drawings and Specifications

(ii) Supply and installation of secondary clarifier equipment for clarifiers 4 & 5

(iii) Demolition of existing secondary clarifiers 1 & 2 necessary for the supply and installation of new clarifier equipment

(iv) Supply and installation of all building and process mechanical equipment, piping, and valves as shown on the Drawings and Specifications

(v) Supply and installation of all electrical, instrumentation and control systems as shown on the Drawings and Specifications

(vi) Upgrade existing distributed control system (DCS) to PLC based system (DCS migration)

(vii) Supply and install Systems Integration Work

(viii) Asbestos abatement as shown on the Drawings and Specifications

(k) Facility Area T – Biofilter / Odour Control

(i) Structure and equipment modifications to existing High Purity Oxygen (HPO) reactors to facilitate a biofilter as shown on the Drawings and Specifications

(ii) Supply and installation of all building and process mechanical equipment, piping, and valves as shown on the Drawings and Specifications

(iii) Supply and Installation of all electrical, instrumentation and control systems as shown on the Drawings and Specifications

(iv) Supply and install Systems Integration Work

(v) Asbestos abatement as shown on the Drawings and Specifications

(l) Facility Area U – UV Disinfection Building

(i) Structure and equipment modifications to existing UV system to facilitate new UV equipment as shown on the Drawings and Specifications

(ii) Supply and installation of new UV equipment as shown on the Drawings and Specifications

(iii) Supply and installation of all building and process mechanical equipment, piping, and valves as shown on the Drawings and Specifications

(iv) Supply and Installation of all electrical, instrumentation and control systems as shown on the Drawings and Specifications

(v) Supply and install Systems Integration Work

(vi) Asbestos abatement as shown on the Drawings and Specifications

(m) Facility Area Y – Yard / Electrical Substation

(i) Supply and Installation of 66kV substation and exterior loadbank as shown on the Drawings and Specifications

(ii) Supply and installation of a new 12.47kV electrical service and distribution system to each Facility Area

(iii) Excavation and backfilling to facilitate the construction of the bypass chambers and duct banks

(iv) Supply and installation of concrete duct banks as shown on the Drawings and Specifications

(v) Supply and installation of all yard piping and valves as shown on the Drawings and Specifications

(vi) Supply and Installation of all yard lighting, electrical, instrumentation and control systems as shown on the Drawings and Specifications

(vii) Supply and installation of backfilling, final grading, and landscaping as shown on the Drawings and Specifications

(viii) Supply and installation of asphalt and concrete paving as shown on the Drawings and Specifications

(ix) Supply and installation of security fencing as shown on the Drawings and Specifications

(n) Supply and installation of PCS Demonstration System.

(o) Supply and installation of Standardized Goods.

(p) Cleaning of all piping installed under this Contract, including piping that is supplied with City Supplied Equipment, in accordance with the technical specifications and in accordance with Supply Contactor's instructions. This includes on-site pickling and passivation.

(q) Supply and Install all weldolets, threadolets, or other hardware required to mount I&C equipment to piping systems and supply and install all isolation valves required to isolate I&C equipment.

(r) Application of all pipe coatings, bandings, and touch up of all coatings on piping and equipment installed by the Contractor prior to Total Performance including touch up coatings for City Supplied Equipment using coatings supplied by the Supply Contractor.

(s) Supply and installation of instrument air piping, power, instrumentation and control wiring (regardless of voltage) to all equipment supplied pursuant to any Division of the Specifications and for all City Supplied Equipment, unless otherwise specified.

(t) Termination of all wiring and instrument air tubing, performing all loop checks and the calibration of all process instrumentation and controls, regardless of voltage and regardless of whether the equipment is City Supplied Equipment.

(u) For City Supplied Equipment and packaged Subcontractor control systems, supply and install all disconnects, standalone motor starters, power and control wiring identified as "field wiring" (or similar wording) on the Supply Contractor's Shop Drawings as not being supplied and installed by the Supply Contractor.

(v) Supply and Install all VFDs, starters mounted in MCCs and standalone motor starters and disconnect switches as specified and shown on the Drawings.

(w) Supply and Install all lighting, emergency lighting, fire alarm and detection systems, communication systems, and ancillary systems as specified and shown on the Drawings.

(x) Supply and install all metal platforms, steel stairs, pipe supports, monorails and cranes as specified and shown on the Drawings.

(y) Provide Demonstration Testing, Functional Testing, Performance Testing, Performance Verification for all equipment supplied and installed under this Contract.

(z) Provide Overall Facility Performance Verification as described in the Drawings and Specifications.

(aa) Provide Commissioning services as described in the Drawings and Specifications.

(bb) Provide training to City personnel during the Commissioning periods and Warranty period as specified.

(cc) Removal of shoring to facilitate construction

(dd) Site dewatering and ground water depressurization

(ee) Miscellaneous site maintenance

(ff) The City will apply and pay for the Building Permit. All other permits are the Contractor's responsibility.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

(a) "**ABB**" means the manufacturer ASEA Brown Boveri;

(b) "**Acceptable Shop Drawings**" means all required Shop Drawings have been reviewed by the Contract Administrator and have been annotated and stamped as "reviewed - no exceptions taken" or "reviewed – exceptions noted" in accordance with Section 013300 of this Bid Opportunity;

(c) "**Baseline Schedule**" means the time-scaled and precedence diagramming network construction schedule prepared by the Contractor. The Baseline Schedule is produced using the critical path method;

(d) "**Certified Shop Drawings**" means Shop Drawings prepared by the Contractor after all required Shop Drawings have been "reviewed" or "reviewed as modified" in accordance with Section 013300 of this Bid Opportunity and which incorporate all modifications to the Shop Drawings, comments and notations made by the Contract Administrator in the course of the review;

(e) "**City Supplied Equipment**" means equipment purchased by the City, under Bid Opportunity 871-2013 or Bid Opportunity 873-2013, and delivered into the possession of the Contractor for installation under this Contract;

(f) "**Commissioning**" means the process of verifying that equipment, Unit-Processes, systems, subsystems and Facility Areas are installed, tested and capable of being operated and maintained to perform in conformance with the Drawings and Specifications. Commissioning includes, but is not limited to, satisfactory delivery, installation, training, testing, demonstration, performance verification, and document delivery for all equipment and Unit Processes required under the Work;

(g) "**Commissioning Team**" means a team led by the Contract Administrator, which is made up of members from the Contractor, Standardization Vendor, Systems Integrator, City, and Contract Administrator. The Commissioning Team will coordinate Commissioning activities through the Contract Administrator. The Commissioning Team will collaborate to develop and finalize the Project Commissioning Plan and commissioning schedule(s);

(h) "**Contract 4**" means Bid Opportunity 976-2016;

(i) "**CSA**" means the Canadian Standards Association international, formerly the Canadian standards association;

(j) "**Current Schedule**" means the Baseline Schedule that the Contractor has updated to reflect the actual progress of the Work;

(k) "**DCS**" means distributed control system, an existing ASEA Brown Boveri INFI90 control system to be replaced as part of the Work;

(l) "**Demonstration Test**" means a test performed by the Commissioning Team, after any required Performance Tests, to demonstrate and confirm that the identified Facility Area and/or Unit Process meets the specified requirements of the Work. The Demonstration Test shall comprise of running the identified Facility Area and/or Unit Process continuously for a minimum of 3-days at the specified operating conditions without interruption, or as otherwise specified. Upon successful completion of the Demonstration Test, Form 104 – Certificate of Process Satisfactory Demonstration shall be signed, and the City will take over operation of the identified Unit Process;

(m) "**DMZ**" means de-militarized zones;

(n) "**EGM**" means Engineers Geoscientists Manitoba;

(o) "**Facility**" means the SEWPCC;

(p) "**Facility Area**" means parts of the Facility, including all of its Unit Processes;

(q) "**FAT**" means factory acceptance testing;

(r) "**Functional Test**" means a test or tests performed by the Contractor or Manufacturer's Representative in the presence of the Contract Administrator and the City to demonstrate that installed equipment meets the Manufacturer's installation, calibration, and adjustment requirements and other requirements as specified. Upon successful completion of the Functional Test, Form 102 – Certificate of Satisfactory Installation shall be signed;

(s) "**furnish**" means supply and install.

(t) "**HART**" means Highway Addressable Remote Transducer;

(u) "**HMI**" means human machine interface, a subsystem of the PCS that provides the operator user interface for the entire sewage treatment plant;

(v) "**Intelligent**" means an automation component or system that communicates with the site control system and operates via instructions given and received over a communication medium of a protocol such as Ethernet, PROFIBUS, MODBUS or HART;

(w) "**I/O**" means input/output;

(x) "**Manufacturer**" means the person, partnership or corporation responsible for the manufacture and fabrication of Standardized Goods or the equipment supplied by the Contractor for the Work;

(y) "**Manufacturer's Representative**" means a trained serviceman empowered by the Manufacturer to provide installation, testing, training and commissioning assistance to the Contractor in his performance of those functions;

(z) "**MCC**" means motor control centre;

(aa) "**Overall Facility Performance Verification**" means a test performed by the Commissioning Team, after the Performance Verification of each Facility Area has been completed, to demonstrate and confirm that all new equipment, Unit Processes, subsystems and/or components function with all existing Facility Areas in accordance with the Drawings and Specifications. The Overall Facility Performance Verification shall comprise of successfully running the SEWPCC for a minimum of 30-days consecutively;

(bb) "**PCS**" means process control system. The control system of the sewage treatment plant that provides monitoring and control of the sewage treatment process and ancillary systems, including HVAC and building services;

(cc) "**Performance Test**" means a test performed by the Contractor or Manufacturer's Representative in the presence of the Contract Administrator and the City, after any required Functional Test, to demonstrate and confirm that equipment meets the performance requirements specified in individual Specification sections. Performance Tests shall be a minimum of 1-hour in duration, unless otherwise specified. Upon successful completion of the Performance Test, Form 103 – Certificate of Equipment Satisfactory Performance shall be signed;

(dd) "**Performance Verification**" means a test performed by the Commissioning Team, after any required Demonstration Tests, to demonstrate and confirm that the identified Facility

Area and/or Unit Processes meet the specified performance requirements of the Work. The Performance Verification shall comprise of running the identified Facility Area and/or Unit Process between their specified minimum and maximum operating conditions over a 1-day period, or as otherwise specified, when flows and conditions allow. The Performance Verification may take place in conjunction with the Demonstration Test, if conditions and flows allow. Upon successful completion of the Performance Verification, Form 105 – Certificate of Process Satisfactory Performance shall be signed;

(ee) "**PLC**" means programmable logic controller, a component of the PCS that performs monitoring and control of processes within the sewage treatment plant;

(ff) "**Professional Engineer**" means an engineer registered in the Province of Manitoba;

(gg) "**Project Commissioning Plan**" means a plan created by the Contract Administrator in collaboration with the Contractor detailing the commissioning processes, roles and responsibilities, commissioning specifications and objectives, procedures, verification and certification requirements and documentation and acceptance criteria relative to the Work;

(hh) "**SAT**" means site acceptance testing;

(ii) "**SIFT**" means Systems Integration Functional Test;

(jj) "**Standardized Goods**" means the respective goods identified in D5 that have been standardized by the City;

(kk) "**Standardization Vendor**" means a contractor or supplier of Standardized Goods, as identified in D5;

(ll) "**SEWPCC**" means the South End Water Pollution Control Centre or the South End Sewage Treatment Plant;

(mm) "**Supply Contractor**" means the contractor retained by the City, under Bid Opportunity 871-2013 or Bid Opportunity 873-2013, to supply City Supplied Equipment which shall be installed by the Contractor;

(nn) "**Systems Integrator**" means a Subcontractor performing the Work identified in E9;

(oo) "**Systems Integration Work**" means the specific Work identified in E9.

(pp) "**Unit Process**" means a portion of the Facility or Facility Area that performs a specific process function;

(qq) "**Vendor Supplied**" means a grouping of Manufacturer equipment to be supplied together so that they function as a Unit Process;

(rr) "**WEWPCC**" means the West End Water Pollution Control Centre or the West End Sewage Treatment Plant.

STANDARDIZATION

D4. SYSTEMS INTEGRATOR

D4.1 The following firms have been pre-qualified to act as the Systems Integrator for this Contract:

(a) Eramosa Engineering Inc.;

(b) Schneider Electric Systems Canada Inc.; and

(c) True North Automation Inc.

D4.2 The contact information is as follows:

(a) Eramosa Engineering Inc.:

D. Nick Hallas
18 Royal Vista Link NW, Unit 208
Calgary, AB, T3R 0K4
Telephone: 403-208-7447
E-mail: nick.hallas@eramosa.com

(b) Schneider Electric Systems Canada Inc.:

Garth Eastman
4 Lake Road
Dollard des Ormeaux, QC, H9B 3H9
Telephone: 204-631-0670
E-mail: Garth.Eastman@Schneider-Electric.com

(c) True North Automation Inc.:

John Digness
7180 11 Street SE
Calgary, AB, T2H 2S9
Telephone: 403-984-2065
E-mail: John.Digness@truenorthautomation.com

D4.3 The Contractor shall engage and utilize one or more of the firms identified in D4.1 to perform the Systems Integration Work as identified in E9.

D4.4 The Systems Integrator shall be a Subcontractor of the Contractor.

D4.4.1 The City is not a party to any contract between a Contractor and the Systems Integrator.

D5. STANDARDIZED GOODS

D5.1 The following goods have been standardized by the City and will be supplied by the Contractor:

(a) Standardized Control System and Motor Control Equipment as per E5.

(b) Standardized Electric Valve Actuators as per E6.

(c) Standardized Gas Detection Systems as per E7.

(d) Standardized Instrumentation as per E8.

D6. CONTRACTUAL ARRANGEMENT

D6.1 Each Standardization Vendor shall be a Subcontractor of the Contractor.

D6.2 The City's contract with each of the Standardization Vendors defines the prices and general terms of supply to the Contractor. Each Standardization Vendor is obligated to enter into a contract with the Contractor, based upon such prices and general terms of supply.

D6.2.1 The City is not a party to any contract between a Standardization Vendor and the Contractor, or any Subcontractor.

D6.3 In the event that a potential dispute arises between the Contractor and a Standardization Vendor, the Contract Administrator shall be notified.

D6.4 Further to B6.3, the Contractor and/or subcontractor(s) receiving confidential pricing from a Standardization Vendor may be required to further enter into separate confidentiality and non-disclosure agreements.

D7. PAYMENT OF STANDARDIZATION VENDORS

D7.1 The Contractor is obligated to pay the Standardization Vendors in accordance with general terms of supply applicable to such Standardization Vendor.

D7.2 The Contractor's payment terms to the Standardization Vendor, in respect of Standardized Control System and Motor Control Equipment identified in E5, include the following:

D7.2.1 Except as indicated in D7.2.2, payment shall be in Canadian funds net thirty (30) Calendar Days after shipment.

D7.2.2 Payment for motor control centres shall be in Canadian funds net thirty (30) Calendar Days and initiated based upon the following schedule:

(a) Upon approval of the Shop Drawings or forty (40) Calendar days after the last comprehensive submittal, in the event that a response is not made to the submittal: 25% of the total value.

(b) Upon delivery of the complete MCC along with all associated as-manufactured documentation: 60% of the total value; or

(c) In the event that the delivery is intentionally delayed, upon request by the Contractor, the following payment schedule would replace the 60% payment:

(i) Upon completion of the FAT and delivery of all as-manufactured documentation to the Contractor – 30% of the total value.

(ii) Forty (40) Calendar days after delivery of the as-manufactured documentation to the Contractor, or upon delivery, whichever comes sooner – 30% of the total value.

(d) Upon successful commissioning and delivery of documentation or six (6) months after delivery, whichever comes first: 15% of the total value.

D7.3 The Contractor's payment terms to the Standardization Vendor, in respect of Standardized Electric Valve Actuators identified in E6, include the following:

D7.3.1 Payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Standardization Vendor's invoice.

D7.4 The Contractor's payment terms to the Standardization Vendor, in respect of Standardized Gas Detection Systems identified in E7, include the following:

D7.4.1 Payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Standardization Vendor's invoice.

D7.5 The Contractor's payment terms to the Standardization Vendor, in respect of Standardized Instrumentation identified in E8, include the following:

D7.5.1 Payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Standardization Vendor's invoice.

D8. CONTRACT ADMINISTRATOR

D8.1 The Contract Administrator is CH2M HILL Canada Limited, represented by:

Barry Williamson, P.Eng.
Contract Administrator

Telephone No. 204 488-2214 ext.73059
Email Address barry.williamson@ch2m.com

D8.2 At the pre-construction meeting, Mr. Barry Williamson will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D9. CONTRACTOR'S SUPERVISOR

D9.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D10. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D10.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

D10.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D10.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;

(a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;

(b) the Contract, all deliverables produced or developed; and

(c) any statement of fact or opinion regarding any aspect of the Contract.

D10.4 A Contractor who violates any provision of D10 may be determined to be in breach of Contract.

D11. NOTICES

D11.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

D11.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D11.3, D11.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at facsimile number identified in D4.1.

D11.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: 204 949-1174

D11.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:

The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services

Facsimile No.: 204 947-9155

D11.5 Bids Submissions must not be submitted to the above facsimile numbers. Bids must be submitted in accordance with B9.

D12. FURNISHING OF DOCUMENTS

D12.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him at cost.

SUBMISSIONS

D13. AUTHORITY TO CARRY ON BUSINESS

D13.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D14. SAFE WORK PLAN

D14.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D14.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/Safety/default.stm

D15. INSURANCE

D15.1 The City shall provide and maintain the following owner controlled project insurance coverage to remain in place at all times during the performance of the Work:

(a) Wrap-up liability insurance in an amount of no less than twenty-five million dollars ($25,000,000) inclusive per occurrence and twenty-five millions dollars ($25,000,000) general aggregate, covering bodily injury, damage to existing structures, personal injury, property damage and products and completed operations consistent with industry standard insurance policy wordings. Wrap up liability insurance to also include evidence of contractual liability and cross liability clauses.

(i) The Contractor shall be responsible for deductibles up to $50,000 maximum of any one loss.

(ii) The City will carry such insurance to cover the City, Province of Manitoba, and Her Majesty the Queen, contractors, subcontractors and all consultants as insured's. Provision of this insurance by the City is not intended in any way to relieve the Contractor from his obligations under the terms of the Contract. Specifically, losses relating to deductibles for insurance, as well as losses in excess of limits of coverage and any risk of loss that is not covered under the terms of the insurance provided by the City remains with the Contractor.

(iii) Wrap-up liability insurance shall be maintained from the date of the commencement of the Work until the date of Total Performance of the work and shall include an additional 24 months completed operation coverage which will take affect after Total Performance.

(b) Broad form builder's risk Insurance including testing and commissioning, insuring 100% of the total Project Cost written in the name of the City, Province of Manitoba, Her Majesty the Queen, Contractors, and subcontractors. The Contractor shall be responsible for deductibles up to a $50,000 maximum of any one loss except $100,000 for flood, sewer backup and water damage.

(c) All risks property insurance policy for the full replacement cost insuring the existing structures while under expansion, renovation and repurposing for the Southend Sewage Treatment Plant (SEWPCC) Upgrading/Expansion Project – Contract 4 – Sitewide Mechanical, Electrical, Concrete and Site Works.

(d) Equipment breakdown insurance for the full replacement cost insuring the existing structures while under expansion, renovation and re-purposing for the Southend Sewage

Treatment Plant (SEWPCC) Upgrading/Expansion Project – Contract 4 – Sitewide Mechanical, Electrical, Concrete and Site Works.

D15.2 The Contractor shall provide and maintain the following insurance coverage at all times during the performance of the work and throughout the warranty period:

(a) Commercial general liability insurance, in the minimum amount of ten million dollars ($10,000,000) inclusive per occurrence and ten million dollars ($10,000,000) general aggregate. The said commercial general liability insurance shall include coverage for products and completed operations, blanket contractual liability, non-owned automobile, and unlicensed motor vehicle liability. Such policy shall not contain any exclusions or limitations for demolition work. The Province of Manitoba, Her Majesty the Queen and their ministers, officers, employees and agents and the City shall be added as additional insureds;

(b) Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than $5,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.

(c) Property insurance for equipment and tools used on the project that may be owned, rented, leased or borrowed.

(d) Contractor's Pollution Liability (CPL) insurance in the amount of at least five million dollars ($5,000,000) per occurrence and five million dollars $(5,000,000) aggregate insuring against claims for clean-up costs, diminution in value and natural resource damages and consistent with industry standard insurance policy wordings.

D15.3 Deductibles shall be borne by the Contractor.

D15.4 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.

D15.5 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract. The Certificate must clearly state "operations to include demolition work".

D15.6 The Contractor shall require each of its subcontractors to provide comparable insurance to that set forth under D15.2 (a), (b) and (c) at all times during the performance of the work and throughout the warranty period. Subcontractors shall provide comparable insurance to that set forth under D15.2 (d) depending upon their involvement in the performance of the work.

D15.7 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D15.8 Upon request from the Contract Administrator, the Contractor shall provide, within five (5) Business Days, the Contractor's insurance loss history for the past five years together with details of their experience on similar types of projects.

D16. PERFORMANCE SECURITY

D16.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

(a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or

(b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or

(c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D16.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D16.2 If the bid security provided in his/her Bid was not a certified cheque or draft pursuant to B14.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D17. DETAILED PRICES

D17.1 The Contractor shall provide the Contract Administrator with a detailed price breakdown (Form I: Detailed Prices) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract. The Contractor shall provide additional detailed price breakdowns as may be requested by the Contract Administrator.

D17.2 The Contractor shall state a price for each item or sub-item of the Work identified on Form I: Detailed Prices. The detailed prices must be consistent with the price(s) provided in the Contractor's Bid.

D18. SUBCONTRACTOR LIST

D18.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least twenty (20) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D19. EQUIPMENT LIST

D19.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D20. DETAILED WORK SCHEDULE

D20.1 The Contractor shall provide the Contract Administrator with a Baseline Schedule at least ten (10) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D20.2 The Baseline Schedule will provide a basis for determining the progress status of the project relative to the completion time and specific dates, as well as for determining the acceptability of the Contractor's requests for payment.

D20.3 The Baseline Schedule shall include the requirements specified in section 01 32 00 – Construction Progress Documentation, conform to D22, and consist of the following:

(a) a critical path method (C.P.M.) schedule for the Work in Microsoft Project (.mpp);

(b) a Gantt chart for the Work based on the C.P.M. schedule; and

(c) a daily manpower schedule for the Work

all acceptable to the Contract Administrator.

D20.4 The Baseline Schedule shall depict all significant construction activities, procurement activities, on site receipt of major equipment, and receipts of materials and equipment which the Contractor intends to store on Site for at least one month prior to installation. Show the dependencies between activities so that it may be established what effect the progress of any one activity has on the Baseline Schedule.

D20.5 Further to D20.4, the Baseline Schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:

(a) Service building Shop Drawings, equipment delivery, and construction;;

(b) Administration building Shop Drawings, equipment delivery construction;

(c) Substation Shop Drawings, operation and maintenance manuals, equipment delivery and construction;

(d) Electrical building Shop Drawings, operation and maintenance manuals, equipment delivery (e.g. switch gear) and construction;

(e) Diesel generator Shop Drawings, operation and maintenance manuals, equipment delivery and construction;

(f) Headworks – screens replacement Shop Drawings, operation and maintenance manuals, equipment delivery, and construction;

(g) Headworks – raw sewage pump replacement Shop Drawings, operation and maintenance manuals, equipment delivery, and construction;

(h) Headworks – grit and screenings Handling building, Shop Drawings, operation and maintenance manuals, equipment delivery, and construction;

(i) Headworks – grit influent channel modifications;

(j) Headworks – grit tanks 1 & 2 Shop Drawings, operation and maintenance manuals, equipment delivery, and construction;

(k) Headworks – grit tanks 3 & 4 Shop Drawings, operation and maintenance manuals, equipment delivery, construction;

(l) Chemical building Shop Drawings, operation and maintenance manuals, equipment delivery, and construction;

(m) High rate clarification Shop Drawings, City Supplied Equipment delivery, Contractor supplied equipment delivery, and construction;

(n) Ultraviolet disinfection Shop Drawings, operation and maintenance manuals, equipment delivery and construction;

(o) Secondary clarifiers 1 & 2 Shop Drawings, operation and maintenance manuals, equipment delivery, and construction;

(p) Secondary clarifiers 4 & 5 Shop Drawings, operation and maintenance manuals, equipment delivery, and construction;

(q) Bioreactors and blower building Shop Drawings, operation and maintenance manuals, City Supplied equipment delivery, Contractor supplied equipment delivery, and construction;

(r) Odour control Shop Drawings, operation and maintenance manuals, equipment delivery, and construction;

(s) Thickening shop drawings, operation and maintenance manuals, equipment delivery, and construction;

(t) Fermenters Shop Drawings, operation and maintenance manuals, equipment delivery, and construction;

(u) Yard piping, concrete duct banks, fencing, roads, and landscaping Shop Drawings, equipment delivery, and construction;

(v) Control Systems Integration including control panel fabrication, software development, factory testing, Site integration, Site testing, and Commissioning for each Facility Area;

(w) DCS migration(s) for each Facility Area;

(x) FAT testing;

(y) Functional Tests for each Unit Process and Facility Area;

(z) Performance Tests for each Unit Process and Facility Area;

(aa) Demonstration Tests for each Unit Process and Facility Area;

(bb) Performance Verifications for each Unit Process and Facility Area;

(cc) Training on equipment, Unit Processes, and control system;

(dd) Overall Facility Performance Verification and subsequent Substantial Performance;

(ee) Total Performance

D20.6 Unless specifically approved by the Contract Administrator, the Baseline Schedule shall show activities with a duration not longer than twenty (20) Business Days. Divide activities which exceed this limit into more detailed components. Base the scheduled duration of each activity on the Work being performed with allowances made for legal holidays and reasonably expected Site weather conditions.

D20.7 The Baseline Schedule is to be created with input from Subcontractors and suppliers.

D20.8 The Baseline Schedule and related documentation that is to be submitted with the Baseline Schedule, as outlined below, shall be provided in native file format on an encrypted flash drive:

(a) Tabular listing of activities, sorted by early start and showing activity description, scheduled duration in working days, early and late start and finish dates, total float, predecessors and/or successors to each activity.

(b) Time scaled logic diagram for all scheduled activities.

(c) Projected monthly draw request (histogram and tabular).

(d) Critical path report.

(e) Narrative describing the basis of the schedule.

(f) Progress charts (“S” curves) for the Work (expressed in dollars).

D20.9 The Contract Administrator will review the Baseline Schedule and other information within ten (10) Business Days of its receipt. If the Contract Administrator finds that the submission does not comply with the specified requirements, or does not provide an acceptable schedule detail, the deficiencies will be identified in writing to the Contractor for correction and resubmittal. The Contractor shall correct and resubmit the Baseline Schedule and/or other information within five (5) Business Days after the deficiencies have been identified by the Contract Administrator. Repeat this process until the Contract Administrator reviews the submission with no deficiencies noted. A Contract Administrator accepted Baseline Schedule and related documentation is a pre-requisite for monthly progress payment approval.

D20.10 The Baseline Schedule shall form the basis for the Current Schedule.

D20.11 The Contractor shall submit proposed revisions to the accepted Baseline Schedule to the Contract Administrator for review. Changes in timing for activities may be modified with agreement of the Contractor and Contract Administrator. A change affecting the Contract Price, Substantial Performance Date, Critical Stages, Total Performance, or Work sequencing may be made only by contract change order.

(a) If an approved contract change order is for new Work, add separate activities to the Baseline Schedule for the approved change order.

(b) If an approved change order modifies an existing schedule activity, add a separate activity code for the change order and update the activity.

D20.12 Should the actual sequence of Work performed by the Contractor deviate from the planned sequence indicated in the accepted Baseline Schedule, the Contractor shall revise the Current

Schedule to reflect changes in the actual sequence or the future sequence of Work. The Current Schedule shall be submitted to the Contract Administrator within ten (10) Business Days of the deviation. Submit other information as called for in submitting the Baseline Schedule with each revision.

D20.13 The Contractor shall submit a Current Schedule in the format specified for the Baseline Schedule, and an updated progress chart on a monthly basis identifying progress achieved during the period and any approved change orders. The Contractor shall submit these items with each progress payment request and are pre-requisites for monthly progress payment approval; progress payment requests will be considered for payment only after the Contract Administrator has accepted the Current Schedule and updated progress chart and review comments have been incorporated. Payment certification will account for actual progress, as determined by the Contract Administrator, versus predicted progress shown in the Baseline Schedule.

D20.14 The Contractor shall submit a narrative monthly progress report with each progress payment request that describes the items listed below. This is a pre-requisite for monthly progress payment approval; progress payment request will be considered for payment only after the Contract Administrator has accepted the contents of the monthly progress report.

(a) Work activities accomplished in the reporting period;

(b) Variance from intended Work activities forecast in the previous monthly report;

(c) Intended Work for upcoming reporting period;

(d) Problems and actions intended by the Contractor to mitigate any problems;

(e) Work being performed out of sequence relative to accepted schedules;

(f) Status of change orders; and

(g) Changes requested.

D20.15 The Contractor shall generate, for each progress meeting, a four week look-ahead schedule that outlines the various major administration and construction activities that were undertaken during the previous two weeks and are planned for the coming four weeks. The four week look ahead schedule shall highlight areas of Work, interface requirements, and the requirements for input from others (City, Contract Administrator, Regulatory Authorities, Testing Agencies, etc.). Schedule issues should be identified so that appropriate action can be identified to offset any schedule slippage. Areas of Work are to be identified on a SEWPCC site plan and submitted with each four week look-ahead schedule.

D20.16 Further to D20.3(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each Subcontractor, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

D20.17 Further to D20.3(c), the daily manpower schedule shall list the daily number of individuals on the Site for each trade.

D21. SUBMITTAL LIST

D21.1 Within forty (40) Business Days from notification of the Award of Contract by the way of Letter of Intent, the Contractor shall submit a complete list of all required submittals with specification section numbers, description of item and estimated dates for submittals. This submittal list must be in electronic spreadsheet format in Microsoft Excel software.

SCHEDULE OF WORK

D22. COMMENCEMENT

D22.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D22.2 The Contractor shall not commence any Work on the Site until:

(a) the Contract Administrator has confirmed receipt and approval of:
  (i) evidence of authority to carry on business specified in D13;
  (ii) evidence of the workers compensation coverage specified in C6.15;
  (iii) the Safe Work Plan specified in D14;
  (iv) evidence of the insurance specified in D15;
  (v) the performance security specified in D16;
  (vi) the detailed prices specified in D17;
  (vii) the Subcontractor list specified in D18;
  (viii) the equipment list specified in D19;
  (ix) the detailed work schedule specified in D20; and
  (x) the Submittal list specified in D21.

(b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

The City intends to award this Contract by September 14, 2017

D22.2.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D23. CRITICAL STAGES

D23.1 The Contractor shall note portions of the Work must be completed during low plant flows, which typically occurs between November 1 and February 28 of the following year. Critical Stages are generally described below. The Contractor shall refer to the Drawings and Specifications for the detailed work required and shall achieve the following Critical Stages:

(a) Supply and install Primary sludge microwave density meter and Demonstration Test complete by March 31, 2018.

(b) Secondary clarifiers 1 & 2 supply and installation of clarifier mechanisms, electrical, instrumentation and control, and Demonstration Test shall be completed between November 1, 2018 and February 28, 2019;

(c) Supply and install screen inlet channel gates, supply and install new inlet channel aeration piping and concrete benching, and Demonstration Test between November 1, 2018 and February 28, 2019;

(d) Tie-in grit influent channel from grit tanks 1 & 2, install concrete dividing wall, stop logs and gates, and Demonstration Test between November 1, 2018 and February 28, 2019;

(e) Supply and install grit tanks 1, 2, 3, and 4 influent channel air piping, diffusers, and channel modifications, and Demonstration Test between November 1, 2018 and February 28, 2019;

(f) Supply and installation of the substation, electrical building, switchgear, diesel gensets, and Demonstration Tests complete by May 24, 2019;

(g) Supply and install all ductbanks complete by July 1, 2019;

(h) Supply and install grit and screenings handling building, including all equipment, new channel aeration blowers, electrical, instrumentation and control; and supply and install equipment, electrical, instrumentation and control for grit tanks 1 & 2; and Demonstration Tests complete by July 29, 2019;

(i) Supply and Install new screens, associated channel modifications, and Demonstration Test complete between November 1, 2019 and February 28, 2020;

(j) Supply and install clarifier mechanisms, bridges, mechanical equipment, electrical equipment, instrumentation and control, and Demonstration Tests for secondary clarifiers 4 and 5 complete by July 10, 2019;

(k) Install City Supplied high rate clarification equipment and supply and install ancillary mechanical, electrical, instrumentation and control equipment, and building and architectural finishes for the high rate clarification building, and Demonstration Test complete by March 17, 2020;

(l) Supply and install chemical building, mechanical, electrical, instrumentation and control equipment, architectural finishes, and Demonstration Test complete by March 17, 2020;

(m) Biological nutrient removal system including the supply and installation of blower and mixing equipment, piping, electrical, instrumentation and control, chemical feed equipment, architectural finishes for the bioreactor tanks and blower building, installation of City Supplied Equipment in the bioreactor tanks, and Demonstration Test using chemical addition for phosphorus removal complete by July 21, 2020

(n) Supply and install raw sewage pump #2, and associated piping, electrical, instrumentation and control work, and Demonstration Test complete between November 1, 2020, and February 28, 2021;

(o) Modify the existing HPO tanks for conversion to fermenters and biofilter. Modify the existing PSA building for conversion to thickening system. Modifications to the existing HPO tanks and PSA building shall not proceed until completion of D23.1(m). Supply and install all mechanical equipment, electrical, instrumentation and control equipment, and Demonstration Test with biological nutrient removal system without chemical addition for phosphorus removal complete by June 28, 2021.

D23.2 The Contractor shall note that each critical stage identified in D23.1 requires the completion of Form 104 – Certificate of Satisfactory Process Demonstration. Completion of Form 104 will signify the critical stage work has been accepted by the City and the Contract Administrator.

D23.3 If the Contractor does not complete the work within the periods identified in D23.1, further access to the work will depend on influent flow conditions to the plant. Should flow conditions require the plant to resume normal operation, the Contractor will not be allowed to access the critical stage work until such time that a low flow condition returns (e.g. the following winter period).

D24. SUBSTANTIAL PERFORMANCE

D24.1 The Contractor shall achieve Substantial Performance by August 9, 2021.

D24.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D24.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved. Successful completion of the Overall Facility Performance Verification is a requirement for issuance of Substantial Performance.

D24.4 Substantial Performance cannot be achieved without the completion of Form 106 - Certificate of Overall Facility Performance, and the completion of Form T1 Certificate of Satisfactory Classroom Training and Form T2 Certificate of Satisfactory Field Training for all equipment installed under this Contract, and submission of final Facility operations and maintenance manuals.

D25. TOTAL PERFORMANCE

D25.1 The Contractor shall achieve Total Performance by December 31, 2021.

D25.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.

D25.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D26. LIQUIDATED DAMAGES

D26.1 If the Contractor fails to achieve critical stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Business Day for each and every Business Day following the days fixed herein for same during which such failure continues:

(a) Critical Stage D23.1(a) Supply and Install Primary sludge nuclear density meter and Demonstration Test – One Thousand dollars ($1,000.00);

(b) Critical Stage D23.1(b) Secondary clarifiers 1 & 2 supply and installation of clarifier mechanisms, electrical, instrumentation and control, and Demonstration Test – Two Thousand dollars ($2,000.00);

(c) Critical Stage D23.1(c) Supply and Install screen inlet channel gates, supply and install new inlet channel aeration piping and concrete benching, and Demonstration Test – Two Thousand dollars ($2,000.00);

(d) Critical Stage D23.1(d) Tie-in grit influent channel from grit tanks 1 & 2, install concrete dividing wall, stop logs and gates, and Demonstration Test – Two Thousand dollars ($2,000.00);

(e) Critical Stage D23.1(e) Supply and Install grit tanks 1, 2, 3, and 4 influent channel air piping, diffusers, and channel modifications, and Demonstration Test – Two Thousand dollars ($2,000.00);

(f) Critical Stage D23.1(f) Supply and installation of the substation, electrical building, switchgear, diesel gensets, and Demonstration Tests – Two Thousand dollars ($2,000.00);

(g) Critical Stage D23.1(g) Supply and Install all ductbanks – Two Thousand dollars ($2,000.00);

(h) Critical Stage D23.1(h) Supply and Install grit and screenings handling building, including all equipment, new channel aeration blowers, electrical, instrumentation and control; and supply and install equipment, electrical, instrumentation and control for grit tanks 1 & 2; and Demonstration Tests – Two Thousand dollars ($2,000.00);

(i) Critical Stage D23.1(i) Supply and Install new screens, associated channel modifications, and Demonstration Test – Two Thousand dollars ($2,000.00);

(j) Critical Stage D23.1(j) Supply and Install clarifier mechanisms, bridges, mechanical equipment, electrical equipment, instrumentation and control, and Demonstration Tests for secondary clarifiers 4 and 5 – Two Thousand dollars ($2,000.00);

(k) Critical Stage D23.1(k) Install City Supplied high rate clarification equipment and supply and install ancillary mechanical, electrical, instrumentation and control equipment, and building and architectural finishes for the high rate clarification building, and Demonstration Test – Two Thousand dollars ($2,000.00);

(l) Critical Stage D23.1(l) Supply and Install chemical building, mechanical, electrical, instrumentation and control equipment, architectural finishes, and Demonstration Test – Two Thousand dollars ($2,000.00);

(m) Critical Stage D23.1(m) Biological nutrient removal system including the supply and installation of equipment, piping, electrical, instrumentation and control, chemical feed equipment, architectural finishes for the bioreactor tanks and blower building, installation of

City Supplied Equipment in the bioreactor tanks, and Demonstration Test using chemical addition for phosphorus removal – Two Thousand dollars ($2,000.00);

(n) Critical Stage D23.1(n) Supply and Install raw sewage pump #2, and associated piping, electrical, instrumentation and control work, and Demonstration Test – Two Thousand dollars ($2,000.00);

(o) Critical Stage D23.1(o) Modify the existing HPO tanks for conversion to fermenters and biofilter. Modify the existing PSA building for conversion to thickening system. Modifications to the existing facilities shall not proceed until completion of D23.1(m). Supply and install all mechanical, electrical, instrumentation and control equipment, and Demonstration Test with biological nutrient removal system without chemical addition for phosphorus removal – Two Thousand dollars ($2,000.00);

(p) Substantial Performance – Five Thousand dollars ($5,000.00);

(q) Total Performance – Five Thousand dollars ($5,000.00).

D26.2 The amounts specified for liquidated damages in D26.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

D26.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D27. JOB MEETINGS

D27.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D27.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D28. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D28.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

D28.2 During the performance of the Work, the City may engage other contractors to perform maintenance or other operationally needed work at the SEWPCC. The Contractor shall be Prime Contractor with respect to such other contractors.

D29. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D29.1 Further to B13.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

D30. COOPERATION WITH OTHERS

D30.1 The Contractor shall note that other construction contracts will be underway at the time of construction, including, but not limited to;

(a) Bid Opportunity 899-2015

D30.2 Bid Opportunities for the above are available at the City of Winnipeg Materials Management website at http://www.winnipeg.ca/matmgt/bidopp.asp.

D30.3 The Contractor will not have exclusive use of the Site. The Contractor shall coordinate activities with others and minimize disruptions to others, where possible.

D30.4 Where site access requires relocation for installation of works, the Contractor shall construct suitable, all-weather detours, as required.

D30.5 The Contractor shall note that the SEWPCC and surrounding compound will be in use during the construction period. The Contractor shall maintain reasonable access to all existing plant, mechanical and electrical facilities at all times. The Contractor shall provide all reasonable assistance to Operations personnel to provide safe, secure access to operational facilities.

MEASUREMENT AND PAYMENT

D31. INVOICES

D31.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed:

The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9

Facsimile No.: 204 949-0864
Email: CityWpgAP@winnipeg.ca

D31.2 Invoices must clearly indicate, as a minimum:

(a) the City's purchase order number;

(b) date of delivery;

(c) delivery address;

(d) type and quantity of work performed;

(e) the amount payable with GST and MRST shown as separate amounts; and

(f) the Contractor's GST registration number.

D31.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D31.4 Bid Submissions must not be submitted to the above facsimile number. Bids must be submitted in accordance with B9.

D32. PAYMENT

D32.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor’s banking institution.

D32.2 For each individual line item within Form B, up to a maximum of 97% of each line may be submitted for progress payments prior to the Total Performance of the Work. The remaining 3% will be paid out upon Total Performance of the Work.

D33. PAYMENT SCHEDULE

D33.1 The City’s payment to the Contractor, associated with Standardized Goods, will be in accordance with C12.

WARRANTY

D34. WARRANTY

D34.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire two (2) years thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D34.2 Notwithstanding C13.2 or D34.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D34.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

D34.3 Portions of the Work where the warranty period may begin prior to the date of Total Performance will include Unit Processes deemed to have been accepted by the City and Contract Administrator via the completion of Form 104 – Certificate of Satisfactory Process Demonstration. Completed Unit Processes that may have the warranty period begin prior to the date of Total Performance include:

(a) Primary sludge microwave density meter;

(b) Secondary clarifiers 1 & 2 clarifier mechanisms, electrical, instrumentation and control;

(c) Screen inlet channel gates, inlet channel aeration piping and concrete benching;

(d) Grit tanks 1 & 2 stop logs and gates equipment, electrical, instrumentation and control;

(e) Grit tanks 1, 2, 3, and 4 influent channel air piping, diffusers, and channel modifications;

(f) Substation, electrical building, switchgear, and diesel gensets;

(g) Ductbanks;

(h) Grit and screenings handling building, including all equipment, new channel aeration blowers, electrical, instrumentation and control;

(i) Influent screens, associated channel modifications;

(j) Clarifier 4 and 5 clarifier mechanisms, bridges, mechanical equipment, electrical equipment, instrumentation and control;

(k) Contractor supplied high rate clarification equipment, electrical, instrumentation and control and building finishes;

(l) Chemical building, mechanical, electrical, instrumentation and control equipment;

(m) Biological nutrient removal system including the Contractor supplied blowers and mixing equipment, piping, electrical, instrumentation and control, and building finishes;

(n) Raw sewage pump #2, and associated piping, electrical, instrumentation and control;

FORM H1: PERFORMANCE BOND
(See D16)

KNOW ALL MEN BY THESE PRESENTS THAT

_____
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____

_____ dollars ($_____.____)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

BID OPPORTUNITY NO. 976-2016

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

which is by reference made part hereof and is hereinafter referred to as the “Contract”.

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

(a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
(b) perform the Work in a good, proper, workmanlike manner;
(c) make all the payments whether to the Obligee or to others as therein provided;
(d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
(e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____ , 20____ .

SIGNED AND SEALED
in the presence of:

_____
(Witness as to Principal if no seal)

_____
(Name of Principal)

Per: _____ (Seal)

Per: _____

_____
(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)
(See D16)

_____
(Date)

The City of Winnipeg
Legal Services Department
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 976-2016

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

Pursuant to the request of and for the account of our customer,

_____ ,
(Name of Contractor)

_____
(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding in the aggregate

_____

_____ Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

_____
(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

_____ .
(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (2007 Revision), International Chamber of Commerce Publication Number 600.

_____
(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
1.0	**FACILITY AREA A - GENERAL**					
1.1	**Raise Roof of Existing Outfall Chambers #1, #2, #3, #4, #5, #6**					
1.2	**Raise Outfall Manhole Rims**					
1.3	**Supply and Install Effluent Monitoring Station Upgrades**					
2.0	**FACILITY AREA B – SERVICE BUILDING**					
2.1	**Demolition of existing 85kW generator and ancillary equipment**					
2.2	**Upgrades to existing 1000kW generator, transfer switch and controls**					
2.3	**DCS Migration for Facility Area B**					
3.0	**FACILITY AREA C – CHEMICAL / ELECTRICAL BUILDING**					
3.1	**Supply and Install Concrete Structure and Roofing System**					
3.1a	Concrete Slabs					
3.1b	Concrete Walls					
3.1c	Concrete Roof					
3.1d	OWSJ Roof					
3.2	**Supply and Install 300mm dia. pre-cast concrete piles**					
3.3	**Supply and Install 400mm dia. pre-cast concrete piles**					
3.4	**Dynamic Pile Testing (PDA)**					
3.5	**Supply and Install Process Mechanical Equipment**					
3.5a	Flushing water piping and valves					
3.5b	Chemical Piping and Valves					
3.5c	Polymer Make-up / Feed Equipment					
3.5d	Ferric Chloride Feed Equipment					
3.5e	Sodium Hypochlorite Feed Equipment					
3.5f	Sodium Hydroxide Feed Equipment					
3.5g	Sodium Bisulphite Feed Equipment					
3.5h	Ferric Chloride storage tanks					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
3.5i	Sodium Hypochlorite storage tanks					
3.5j	Sodium Hydroxide storage tank					
3.5k	Sodium Bisulphite storage tank					
3.5l	Double wall chemical containment tank					
3.5m	Concrete Equipment Pads					
3.6	**Supply and Install Building Mechanical Equipment**					
3.6a	HVAC					
3.6b	Sanitary Sump Pumps					
3.6c	Plumbing					
3.6d	Emergency Eyewash / Showers					
3.6e	Safety Systems					
3.6f	Concrete Equipment Pads					
3.7	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					
3.7a	Switchgear					
3.7b	Cable tray, conduit, disconnects, conductors					
3.7c	Lighting					
3.7d	Safety systems					
3.7e	Transformers					
3.7f	Panelboards					
3.7g	Non Standardized Instrumentation and Control Equipment					
3.7h	Concrete Equipment Pads					
3.8	**Install Standardized Electrical, Instrumentation and Control Systems**					
3.9	**Supply and Install Genset Equipment**					
3.9a	Diesel Generators					
3.9b	Diesel fuel storage tanks					
3.9c	Diesel fuel supply system					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
3.9d	Concrete Equipment Pads					
3.10	**Supply and Install Building Finishes**					
3.10a	Doors, windows, and hardware					
3.10b	Roofing, cladding, and masonry					
3.10c	Interior and Exterior coatings					
3.10d	Miscellaneous Metals					
3.11	**Chemical Line Duct Bank Excavation**					
3.12	**Chemical Line Duct Bank Shoring**					
3.13	**Supply and Install Systems Integration Work**					
3.14	**Supply Commissioning services**					
3.15	**Supply training services**					
3.16	**Supply operations and maintenance manuals**					
4.0	**FACILITY AREA D – FERMENTERS / SLUDGE THICKENERS**					
4.1	**Supply and Install concrete**					
4.2	**Building Modifications and Demolition**					
4.3	**Electrical and Instrumentation demolition and modifications to existing systems**					
4.4	**Supply and Install Process Mechanical Equipment**					
4.4a	Process Piping					
4.4b	Mixers					
4.4c	Recirculation Pumps					
4.4d	TWAS Pumps					
4.4e	FSL RDT Feed Pumps					
4.4f	TFS Pumps					
4.4g	RDT Flushing Water Booster Equipment					
4.4h	WAS Filtrate Pumps					
4.4i	FSL Filtrate Pumps					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
4.4j	WAS/FSL Rotary Drum Thickeners					
4.4k	WAS/FSL Sump Pumps					
4.4l	75mm Butterfly Valves					
4.4m	100mm Butterfly Valves					
4.4n	150mm Butterfly Valves					
4.4o	75mm Ball Valves					
4.4p	150mm Ball Valves					
4.4q	100mm Eccentric Plug Valves					
4.4r	150mm Eccentric Plug Valves					
4.4s	200mm Eccentric Plug Valves					
4.4t	250mm Eccentric Plug Valves					
4.4u	300mm Eccentric Plug Valves					
4.4v	200mm Gate Valves					
4.4w	100mm Check Valves					
4.4x	150mm Check Valves					
4.4y	75mm Check Valves					
4.4z	100mm Knife Gate Valves					
4.4aa	150mm Knife Gate Valves					
4.4bb	200mm Knife Gate Valves					
4.4cc	100mm Pressure Safety Valves					
4.4dd	Miscellaneous Valves (less than 75mm)					
4.4ee	Concrete Equipment Pads					
4.5	**Supply and Install Building Mechanical Equipment**					
4.5a	HVAC					
4.5b	Plumbing					
4.5c	Safety Systems					
4.5d	Concrete Equipment Pads					
4.6	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
4.6a	Cable tray, conduit, disconnects, conductors					
4.6b	Lighting					
4.6c	Safety Systems					
4.6d	Non Standardized Instrumentation and Control Equipment					
4.6e	Concrete Equipment Pads					
4.7	**Install Standardized Electrical, Instrumentation and Control Systems**					
4.8	**Asbestos Abatement**					
4.9	**Supply and Install Systems Integration Work**					
4.10	**Supply Commissioning services**					
4.11	**Supply training services**					
4.12	**Supply operations and maintenance manuals**					
5.0	**FACILITY AREA G – HEADWORKS**					
5.1	**Supply and Install 300mm dia. pre-cast concrete piles**					
5.2	**Supply and Install 400mm dia. pre-cast concrete piles**					
5.3	**Dynamic Pile Testing (PDA)**					
5.4	**Supply and Install concrete Structure and misc. concrete**					
5.5	**Supply and Install Process Mechanical Equipment**					
5.5a	Process Piping					
5.5b	Mechanical Screens					
5.5c	Blowers and Aeration Equipment					
5.5d	Temporary Conveyor					
5.5e	Permanent Conveyor					
5.5f	Temporary Bins					
5.5g	Raw Sewage Pump					
5.5h	Wetwell piping modifications					
5.5i	Wetwell covers					
5.5j	Hydrocyclones					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
5.5k	Sluice					
5.5l	Sluice Water Pumps					
5.5m	Grit Slurry Pumps					
5.5n	Grit Classifiers					
5.5o	Screenings Washer / Compactors					
5.5p	Grit Slurry Sluice Gates					
5.5q	Channel Inlet Sluice Gates					
5.5r	Grit Effluent Sluice Gates					
5.5s	100mm Threeway Valves					
5.5t	125mm Threeway Valves					
5.5u	100mm Pinch Valves					
5.5v	75mm Butterfly Valves					
5.5w	100mm Butterfly Valves					
5.5x	150mm Butterfly Valves					
5.5y	200mm Butterfly Valves					
5.5z	300mm Butterfly Valves					
5.5aa	300mm Eccentric Plug Valves					
5.5bb	75mm Knife Gate Valves					
5.5cc	100mm Knife Gate Valves					
5.5dd	150mm Knife Gate Valves					
5.5ee	300mm Knife Gate Valves					
5.5ff	400mm Knife Gate Valves					
5.5gg	900mm Knife Gate Valves					
5.5hh	75mm Check Valves					
5.5ii	100mm Check Valves					
5.5jj	Grit Tanks Influent Channel Inlet Stop Logs					
5.5kk	Grit Tanks Influent Channel Outlet Stop Logs					
5.5ll	Grit Tanks Outlets Stop Logs					
5.5mm	Concrete Equipment Pads					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
5.6	**Supply and Install Building Mechanical Equipment**					
5.6a	HVAC					
5.6b	Plumbing					
5.6c	Sanitary Sump Pumps					
5.6d	Safety Systems					
5.6e	Concrete Equipment Pads					
5.7	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					
5.7a	Cable tray, conduit, disconnects, conductors					
5.7b	Lighting					
5.7c	Safety Systems					
5.7d	Weigh scale Equipment					
5.7e	Non Standardized Instrumentation and Control Equipment					
5.7f	Concrete Equipment Pads					
5.8	**Supply and Install VFDs for new raw sewage pump**					
5.9	**Install Standardized Electrical, Instrumentation and Control Systems**					
5.10	**Supply and Install temporary electrical and controls for new screen installation**					
5.11	**Grit and Screenings Building Excavation**					
5.12	**Grit and Screenings Building Shoring**					
5.13	**Supply and Install Building Finishes**					
5.13a	Doors, windows, and hardware					
5.13b	Roofing, cladding, and masonry					
5.13c	Interior and Exterior coatings					
5.13d	Overhead Doors and hardware					
5.13e	Miscellaneous Metals					
5.14	**Asbestos Abatement**					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
5.15	**Electrical and Instrumentation demolition and modifications to existing systems**					
5.16	**DCS Migration for Facility Area G**					
5.17	**Supply and Install Systems Integration Work**					
5.18	**Supply Commissioning services**					
5.19	**Supply training services**					
5.20	**Supply operations and maintenance manuals**					
6.0	**FACILITY AREA K – HIGH RATE CLARIFICATION BUILDING**					
6.1	**Supply and Install Process Mechanical Equipment**					
6.1a	Process Piping					
6.1b	Sludge Pumps					
6.1c	HRC Influent Channel Isolation Gates					
6.1d	HRC Inlet Flow Control Gates					
6.1e	HRC Effluent Flow Control Gate					
6.1f	HRC Effluent Isolation Gate					
6.1g	Scum Weir Gates					
6.1h	75mm Butterfly Valves					
6.1i	100mm Butterfly Valves					
6.1j	150mm Eccentric Plug Valves					
6.1k	200mm Eccentric Plug Valves					
6.1l	300mm Eccentric Plug Valves					
6.1m	150mm Check Valves					
6.1n	300mm Check Valves					
6.1o	100mm Ball Valves					
6.1p	150mm Flap / Mud Valves					
6.1q	Miscellaneous Valves (less than 75mm)					
6.1r	Monorails					
6.1s	Influent Channels 1 & 2 Inlet Stop Logs					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
6.1t	Effluent Channels 1 & 2 Outlets Stop Logs					
6.1u	Effluent Channel Isolation Stop Logs					
6.1v	Concrete Equipment Pads					
6.2	**Supply and Install Building Mechanical Equipment**					
6.2a	HVAC					
6.2b	Plumbing					
6.2c	Sanitary Sump Pumps					
6.2d	Safety Systems					
6.2e	Concrete Equipment Pads					
6.3	**Installation of City Supplied Process Mechanical and Instrumentation Equipment**					
6.3a	Coagulation Tank Mixers					
6.3b	Injection Tank Mixers					
6.3c	Maturation Tank Mixers					
6.3d	Settling Modules					
6.3e	Scraper Drives					
6.3f	Rake Mechanisms					
6.3g	Troughs, Scum Troughs and Operators					
6.3h	Maturation Tank Baffles					
6.3i	Drive shaft and scrapper support assemblies					
6.3j	Microsand Dosing System					
6.3k	Microsand Recirculation Pumps					
6.3l	Air Scour Blowers					
6.3m	Hydrocyclones					
6.3n	Turbidity and pH Instrumentation					
6.3o	Miscellaneous appurtenances					
6.3p	Concrete Equipment Pads					
6.4	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
6.4a	Cable tray, conduit, disconnects, conductors					
6.4b	Lighting					
6.4c	Safety Systems					
6.4d	Transformers					
6.4e	Panelboards					
6.4f	Non Standardized Instrumentation and Control Equipment					
6.4g	Concrete Equipment Pads					
6.5	**Install Standardized Electrical, Instrumentation and Control Systems**					
6.6	**Supply and Install Building Finishes**					
6.6a	Doors, windows, and hardware					
6.6b	Roofing, cladding, and masonry					
6.6c	Interior and Exterior coatings					
6.6d	Miscellaneous Metals					
6.7	**Supply and Install Systems Integration Work**					
6.8	**Supply Commissioning services**					
6.9	**Supply training services**					
6.10	**Supply operations and maintenance manuals**					
7.0	**FACILITY AREA M – ADMINISTRATION BUILDING**					
7.1	**Supply and Install Building Mechanical Equipment**					
7.1a	HVAC					
7.1b	Plumbing					
7.1c	Safety Systems					
7.1d	Concrete Equipment Pads					
7.2	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					
7.2a	Cable tray, conduit, disconnects, conductors					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
7.2b	Lighting					
7.2c	Safety Systems					
7.2d	Non Standardized Instrumentation and Control Equipment					
7.3	**Install Standardized Electrical, Instrumentation and Control Systems**					
7.4	**Supply and Install Building Finishes**					
7.4a	Doors, windows, furnishings, and hardware					
7.4b	Roofing, cladding, and masonry					
7.4c	Interior and Exterior coatings					
7.4d	Miscellaneous Metals					
7.5	**Asbestos Abatement**					
7.6	**Electrical and Instrumentation demolition and modifications to existing systems**					
7.7	**DCS Migration for Facility Area M**					
7.8	**Supply and Install Systems Integration Work**					
7.9	**Supply Commissioning services**					
7.10	**Supply training services**					
7.11	**Supply operations and maintenance manuals**					
8.0	**FACILITY AREA P – PRIMARY CLARIFIERS**					
8.1	**Supply and Install Process Mechanical Equipment**					
8.1a	Process Piping					
8.1b	Primary Sludge Pumps					
8.1c	150mm Eccentric Plug Valves					
8.1d	250mm Eccentric Plug Valves					
8.1e	Concrete Equipment Pads					
8.2	**Supply and Install Building Mechanical Equipment**					
8.2a	HVAC					
8.2b	Plumbing					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
8.2c	Safety Systems					
8.2d	Concrete Equipment Pads					
8.3	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					
8.3a	Cable tray, conduit, disconnects, conductors					
8.3b	Lighting					
8.3c	Safety Systems					
8.3d	Transformers					
8.3e	Panelboards					
8.3f	Non Standardized Instrumentation and Control Equipment					
8.3g	Concrete Equipment Pads					
8.4	**Install Standardized Electrical, Instrumentation and Control Systems**					
8.5	**Asbestos Abatement**					
8.6	**Electrical and Instrumentation demolition and modifications to existing systems**					
8.7	**DCS Migration for Facility Area P**					
8.8	**Supply and Install Systems Integration Work**					
8.9	**Supply Commissioning services**					
8.10	**Supply training services**					
8.11	**Supply operations and maintenance manuals**					
9.0	**FACILITY AREA R - BIOREACTORS and BLOWER BUILDING**					
9.1	**Supply and Install 300mm dia. pre-cast concrete piles**					
9.2	**Dynamic Pile Testing (PDA)**					
9.3	**Supply and Install Process Mechanical Equipment**					
9.3a	Process Piping					
9.3b	Blowers					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
9.3c	Mixers					
9.3d	Recycle Pumps					
9.3e	WAS RDT Feed Pumps					
9.3f	WAS Mixing Pumps					
9.3g	Process Drain Pumps					
9.3h	Anaerobic Zone Chimney Gates					
9.3i	Anoxic Zone Chimney Gates					
9.3j	Recycle Pump Gates					
9.3k	Bioreactor Bypass Gate					
9.3l	Mixed Liquor Channel Outlet Gate					
9.3m	Scum Gate					
9.3n	RAS Channel Gates					
9.3o	75mm Ball Valves					
9.3p	75mm Butterfly Valves					
9.3q	100mm Butterfly Valves					
9.3r	150mm Butterfly Valves					
9.3s	200mm Butterfly Valves					
9.3t	350mm Butterfly Valves					
9.3u	400mm Butterfly Valves					
9.3v	500mm Butterfly Valves					
9.3w	600mm Butterfly Valves					
9.3x	Rectangular Butterfly Valves					
9.3y	75mm Eccentric Plug Valves					
9.3z	100mm Eccentric Plug Valves					
9.3aa	150mm Eccentric Plug Valves					
9.3bb	200mm Eccentric Plug Valves					
9.3cc	250mm Eccentric Plug Valves					
9.3dd	300mm Eccentric Plug Valves					
9.3ee	450mm Eccentric Plug Valves					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
9.3ff	350mm Knife Gate Valves					
9.3gg	600mm Knife Gate Valves					
9.3hh	750mm Knife Gate Valves					
9.3ii	150mm Check Valves					
9.3jj	200mm Check Valves					
9.3kk	350mm Check Valves					
9.3ll	150mm Mud Valves					
9.3mm	200mm Mud Valves					
9.3nn	250mm Mud Valves					
9.3oo	Miscellaneous Valves (less than 75mm)					
9.3pp	Anaerobic Zone Inlet Stop Logs					
9.3qq	Anoxic Zone Inlet Stop Logs					
9.3rr	Bioreactor Influent Channel Stop Logs					
9.3ss	Bypass Channel 2 Inlet Stop Logs					
9.3tt	Bypass Channel 2 Outlet Stop Logs					
9.3uu	Mixed Liquor Channel Outlet Stop Logs					
9.3vv	Scum to WAS Sump Stop Logs					
9.3ww	RAS Channel Stop Logs					
9.3xx	Concrete Equipment Pads					
9.4	**Supply and Install Building Mechanical Equipment**					
9.4a	HVAC					
9.4b	Plumbing					
9.4c	Safety Systems					
9.4d	Sanitary Sump Pumps					
9.4e	Concrete Equipment Pads					
9.5	**Installation of City Supplied Process Mechanical and Instrumentation Equipment**					
9.5a	Biofilm Carrier Elements (Free Floating Media)					
9.5b	Aeration Grids					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
9.5c	Cylindrical Screens					
9.5d	Sparger Systems					
9.5e	Flat Screens					
9.6	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					
9.6a	Cable tray, conduit, disconnects, conductors					
9.6b	Lighting					
9.6c	Safety Systems					
9.6d	Switchgear					
9.6e	Transformers					
9.6f	Panelboards					
9.6g	Non Standardized Instrumentation and Control Equipment					
9.6h	Concrete Equipment Pads					
9.7	**Install Standardized Electrical, Instrumentation and Control Systems**					
9.8	**Supply and Install Building Finishes**					
9.8a	Doors, windows, furnishings, and hardware					
9.8b	Roofing, cladding, and masonry					
9.8c	Interior and Exterior coatings					
9.8d	Miscellaneous Metals					
9.9	**Supply and Install Systems Integration Work**					
9.10	**Supply Commissioning services**					
9.11	**Supply training services**					
9.12	**Supply operations and maintenance manuals**					
10.0	**FACILITY AREA S - SECONDARY CLARIFIERS**					
10.1	**Supply and Install 300mm dia. pre-cast concrete piles**					
10.2	**Dynamic Pile Testing (PDA)**					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
10.3	**Supply and Install Process Mechanical Equipment**					
10.3a	Process Piping					
10.3b	Clarifiers 1 & 2 Mechanisms					
10.3c	Clarifiers 4 & 5 Mechanisms					
10.3d	Cranes / monorails					
10.3e	Sodium Bisulphite Dispersion Pumps					
10.3f	RAS Pumps					
10.3g	Scum Pumps					
10.3h	Sludge Transfer Pumps					
10.3i	Sampling Pump					
10.3j	Flushing Water Pump					
10.3k	Flood Control Pumps					
10.3l	Clarifier Outlet Gates					
10.3m	100mm Ball Valves					
10.3n	150mm Ball Valves					
10.3o	200mm Ball Valves					
10.3p	250mm Ball Valves					
10.3q	100mm Butterfly Valves					
10.3r	350mm Butterfly Valves					
10.3s	900mm Butterfly Valves					
10.3t	250mm Knife Gate Valves					
10.3u	450mm Knife Gate Valves					
10.3v	600mm Knife Gate Valves					
10.3w	100mm Eccentric Plug Valves					
10.3x	150mm Eccentric Plug Valves					
10.3y	200mm Eccentric Plug Valves					
10.3z	250mm Eccentric Plug Valves					
10.3aa	300mm Eccentric Plug Valves					
10.3bb	350mm Eccentric Plug Valves					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
10.3cc	450mm Eccentric Plug Valves					
10.3dd	150mm Check Valves					
10.3ee	350mm Check Valves					
10.3ff	400mm Check Valves					
10.3gg	450mm Check Valves					
10.3hh	200mm Gate Valves					
10.3ii	Miscellaneous Valves (less than 75mm)					
10.3jj	Clarifier 4 & 5 Inlets Stop Logs					
10.3kk	Mixed Liquor Channel Stop Logs					
10.3ll	Clarifier 4 & 5 Outlets Stop Logs					
10.3mm	Concrete Equipment Pads					
10.4	**Supply and Install Building Mechanical Equipment**					
10.4a	HVAC					
10.4b	Plumbing					
10.4c	Eyewash / Safety Shower					
10.4d	Safety Systems					
10.4e	Sanitary Sump Pumps					
10.4f	Concrete Equipment Pads					
10.5	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					
10.5a	Cable tray, conduit, disconnects, conductors					
10.5b	Lighting					
10.5c	Safety Systems					
10.5d	Switchgear					
10.5e	Transformers					
10.5f	Panelboards					
10.5g	Non Standardized Instrumentation and Control Equipment					
10.5h	Concrete Equipment Pads					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
10.6	**Install Standardized Electrical, Instrumentation and Control Systems**					
10.7	**Supply and Install Building Finishes**					
10.7a	Doors, windows, furnishings, and hardware					
10.7b	Roofing, cladding, and masonry					
10.7c	Interior and Exterior coatings					
10.7d	Miscellaneous Metals					
10.8	**Asbestos Abatement**					
10.9	**Electrical and Instrumentation demolition and modifications to existing systems**					
10.10	**DCS Migration for Facility Area S**					
10.11	**Supply and Install Systems Integration Work**					
10.12	**Supply Commissioning services**					
10.13	**Supply training services**					
10.14	**Supply operations and maintenance manuals**					
11.0	**FACILITY AREA T – BIOFILTER / ODOUR CONTROL**					
11.1	**Supply and Install concrete**					
11.2	**Supply and Install odour dispersion stack**					
11.3	**Building modifications and demolition**					
11.4	**Supply and Install Process Mechanical Equipment**					
11.4a	Process Piping					
11.4b	Recirculation Pumps					
11.4c	Winterization Skid Package					
11.4d	Feed Air Humidifier Package					
11.4e	Water Panel Skid					
11.4f	75mm Vol. Control Dampers					
11.4g	100mm Vol. Control Dampers					
11.4h	150mm Vol. Control Dampers					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
11.4i	200mm Vol. Control Dampers					
11.4j	250mm Vol. Control Dampers					
11.4k	300mm Vol. Control Dampers					
11.4l	400mm Vol. Control Dampers					
11.4m	600mm Vol. Control Dampers					
11.4n	850mm Vol. Control Dampers					
11.4o	900mm Isolation Dampers					
11.4p	1200mm Isolation Dampers					
11.4q	75mm Ball Valves					
11.4r	100mm Ball Valves					
11.4s	75mm Check Valves					
11.4t	100mm Check Valves					
11.4u	Miscellaneous Valves (less than 75mm)					
11.4v	Concrete Equipment Pads					
11.5	**Supply and Install Building Mechanical Equipment**					
11.5a	HVAC					
11.5b	Plumbing					
11.5c	Safety Systems					
11.5d	Sanitary Sump Pumps					
11.5e	Concrete Equipment Pads					
11.6	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					
11.6a	Cable tray, conduit, disconnects, conductors					
11.6b	Lighting					
11.6c	Safety Systems					
11.6d	Non Standardized Instrumentation and Control Equipment					
11.7	**Install Standardized Electrical, Instrumentation and Control Systems**					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
11.8	**Asbestos Abatement**					
11.9	**Electrical and Instrumentation demolition and modifications to existing systems**					
11.10	**Supply and Install Systems Integration Work**					
11.11	**Supply Commissioning services**					
11.12	**Supply training services**					
11.13	**Supply operations and maintenance manuals**					
12.0	**FACILITY AREA U – UV DISINFECTION BUILDING**					
12.1	**Supply and Install concrete**					
12.2	**Building modifications and demolition**					
12.3	**Supply and Install Process Mechanical Equipment**					
12.3a	Process Piping					
12.3b	Ultraviolet Disinfections Systems					
12.3c	UV Effluent Channels Gates					
12.3d	Concrete Equipment Pads					
12.3e	Outfall Chamber Stop Logs					
12.4	**Supply and Install Building Mechanical Equipment**					
12.4a	HVAC					
12.4b	Plumbing					
12.4c	Safety Systems					
12.4d	Concrete Equipment Pads					
12.5	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					
12.5a	Cable tray, conduit, disconnects, conductors					
12.5b	Lighting					
12.5c	Safety Systems					
12.5d	Transformers					
12.5e	Panelboards					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
12.5f	Non Standardized Instrumentation and Control Equipment					
12.5g	Concrete Equipment Pads					
12.6	**Install Standardized Electrical, Instrumentation and Control Systems**					
12.7	**Asbestos Abatement**					
12.8	**Electrical and Instrumentation demolition and modifications to existing systems**					
12.9	**Supply and Install Systems Integration Work**					
12.10	**Supply Commissioning services**					
12.11	**Supply training services**					
12.12	**Supply operations and maintenance manuals**					
13.0	**FACILITY AREA Y – YARD / ELECTRICAL SUBSTATION**					
13.1	**Supply and Install Substation**					
13.1a	1500 kVA Transformers					
13.1b	1200 kVA Transformers					
13.1c	3000 kVA Transformers					
13.1d	1000 kVA Transformers					
13.1e	Lighting, Granular pad, concrete pad, fencing, gates					
13.2	**Supply and Install Electrical Duct Banks**					
13.2a	Duct Bank to PB-S700					
13.2b	Duct Bank to PB-Y700 and PB-G701					
13.2c	Duct Bank to PB-R700 and PB-R701					
13.2d	Duct Bank to PB-S701					
13.3	**Supply and Install 300mm dia. pre-cast concrete piles for load bank**					
13.4	**Supply and Install Non Standardized Electrical, Instrumentation and Control Systems**					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
13.5	**Electrical and Instrumentation demolition and modifications to existing systems**					
13.6	**Supply and Install Systems Integration Work**					
13.7	**Yard lighting complete with power supply and controls**					
13.8	**Supply and Install parking lot electrical**					
13.9	**Supply and Install Chamber #7 - Concrete Structure**					
13.10	**Supply and Install 150mm Watermains / Service**					
13.11	**Supply and Install Watermains / Service Insulation**					
13.12	**Supply and Install Hydrant Assembly**					
13.13	**Supply and Install 150mm Watermain Valve**					
13.14	**Supply and Install 150mm x 150mm x 150mm Watermain Tee**					
13.15	**Supply and Install 250mm x 250mm x 150mm Watermain Tee**					
13.16	**Excavation**					
13.17	**Sub-Grade Compaction**					
13.18	**Supply and Install Fill Material – Suitable Site Material**					
13.19	**Supply and Install Fill Material – 50mm Crushed Sub-base**					
13.20	**Supply and Install Base Course Material**					
13.21	**Ditch Excavation**					
13.22	**Supply and Install Separation Geotextile Fabric**					
13.23	Removal and Disposal of Existing Railway Tie Wheel Stops in Temporary Construction Parking Lots					
13.24	Concrete Pavement Removal					
13.25	Supply and Install 200 mm Concrete Pavement Patch (Type A)					
13.26	Supply and Install 200 mm Concrete Pavement Patch (Type B)					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
13.27	Supply and Install 200 mm Concrete Pavement Patch (Type C)					
13.28	Supply and Install 200 mm Concrete Pavement Patch (Type D)					
13.29	Supply and Install 19.1mm Drilled Dowels					
13.30	Supply and Install 20 M Deformed Drilled Tie Bars					
13.31	Supply and Install 100mm Sidewalk – less than 5 sq.m.					
13.32	Supply and Install 100mm Sidewalk – 5 sq.m. to 20 sq.m.					
13.33	Supply and Install 100mm Sidewalk – greater than 20 sq.m.					
13.34	Supply and Install Curb Barrier (180 mm reveal ht, Dowelled) – less than 3 metres					
13.35	Supply and Install Curb Barrier (180 mm reveal ht, Dowelled) – 3 metres to 30 metres					
13.36	Supply and Install Curb Barrier (180 mm reveal ht, Dowelled) – greater than 30 metres					
13.37	Supply and Install Curb Ramp (8-12 mm reveal ht, Integral)					
13.38	Supply and Install Main Line Paving – Type 1A					
13.39	Supply and Install Tie-ins and Approaches – Type II					
13.40	Supply and Install Overlay Main Line Paving – Type 1A					
13.41	Overlay Tie-ins and Approaches – Type II					
13.42	Supply and Install 200mm Reinforced Concrete Pavements, Median Slabs, Bull-noses, and Safety Medians					
13.43	Supply and Install Precast Concrete Wheel Stops					
13.44	Joint and Crack Sealing					
13.45	Supply and Install sod over granular surfaced areas					
13.46	Supply and Install sod over non-granular surfaced areas					
13.47	Supply and Install Catch Basin SD-025					
13.48	Supply and Install Catch basin on 300mm dia Concrete Culvert					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
13.49	Supply and Install 250mm Diameter Drainage Connection Pipe					
13.50	Connecting to 200mm Concrete Sewer					
13.51	Supply and Install 300 mm dia. Type IV Conc Pipe Culvert					
13.52	Supply and Install CSP (300 mm dia, 2mm thick, Galvanized)					
13.53	Supply and Install CSP (450 mm dia, 2mm thick, Galvanized)					
13.54	Disconnect and abandon site trailer water and electrical service connection					
13.55	Removal and Disposal of Existing Culverts					
13.56	Supply and Install Parking Lot Hitching Rail Fence and Stall Number Tags					
13.57	Supply and Install 3.65m High Perimeter Chain Link Fence					
13.58	Supply and Install 3.65m High Non-Conductive Concrete Wall Perimeter Security Fence					
13.59	Removal of Temporary Chain Link Fence					
13.60	Supply and Install 3.65m High Chain Link Fence Swinging Security Gate					
13.61	Supply and Install 3.65m High Powered Chain Link Fence Sliding Security Gates					
13.62	Bollards					
13.63	Grouted Riprap around CB Inlets					
13.64	Place and Compact Suitable Site Material From Existing Stockpiles					
13.65	Hydro Excavation					
13.66	Hauling Unsuitable Site Material to Off-site Landfill					
13.67	Supply Commissioning services					
13.68	Supply training services					
13.69	Supply operations and maintenance manuals					
14.0	**PCS DEMONSTRATION SYSTEM**					
14.1	Supply and Install simulation system including programming, testing, and commissioning					

FORM I: DETAILED PRICES
(See D17)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

ITEM NO.	DESCRIPTION	SPEC. REF.	UNIT	APPROX. QUANTITY	UNIT PRICE	AMOUNT
15.0	**MISCELLANEOUS**					
15.1	Mobilization and Demobilization					
15.2	Insurance					
15.3	Bonds					
16.0	**STANDARDIZED GOODS** The Contractor will shall provide the price for each Standardized Goods by Facility Area					
16.1	Standardized Control System – Base Cost					
16.2	Standardized Motor Control Equipment – Base Cost					
16.3	Standardized Electric Valve Actuators – Base Cost					
16.4	Standardized Gas Detection Equipment – Base Cost					
16.5	Standardized Instrumentation – Base Cost					
17.0	**EXTRA WORK ALLOWANCE**					
18.0	**APPLICABLE MRST (PST)**					
18.1	Applicable MRST (PST) for All Mechanical and Electrical Work					

FORM J: SUBCONTRACTOR LIST
(See D18)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

Name	Address

FORM K: EQUIPMENT
(See D19)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

1. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

2. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

3. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

FORM K: EQUIPMENT
(See D19)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

4. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

5. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

6. Category/type:

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

Make/Model/Year: _____ Serial No.: _____

Registered owner: _____

FORM L: DETAILED WORK SCHEDULE

(See D20)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

For each item of Work, indicate the cumulative percentage proposed to be completed by the end of each time period until 100% completion is achieved.						
Items of Work	Time Period in Working Days					
	0	10	20	30	40	50

FORM L: DETAILED WORK SCHEDULE
(See D20)

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

For each item of Work, indicate the proposed date that each cumulative percentage to be completed will be achieved.					
Items of Work	Percentage of Work Completed				
	Start	25%	50%	75%	100%

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

E1.1 These Specifications shall apply to the Work.

E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.

E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/Spec/Default.stm

E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.

E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

E1.3 Additionally, the following specifications, whether or not specifically listed on Form B: Prices, are applicable to the Work:

Specification No.	Specification Title
NMS SPECIFICATIONS	
DIVISION 01 –	**GENERAL REQUIREMENTS**
01 11 00	Summary of Work
01 31 13	Project Coordination
01 31 19	Project Meetings
01 32 00	Construction Progress Documentation
01 33 00	Submittal Procedures
	Forms: Transmittal of Contractor's Submittal
01 35 13	Special Project Procedures
01 35 29.01	Health and Safety
	City of Winnipeg Contractor Safety Health and Environment Orientation Plan - CD-PMPC-03
01 41 00	Regulatory Requirements
01 43 33	Contractor Field Services
	Contractor's Certificate of Compliance
	Form 100: Certificate of Equipment Delivery
	Form 101: Certificate of Readiness to Install
01 45 16.13	Contractor Quality Control
01 50 00	Temporary Facilities and Controls
	Figure 1 – Temporary RAS Line Modifications
	Figure 2 – Temporary RAS Line Modifications
	Figure 3 – Temporary RAS Line Modifications
01 52 10	Construction Sequencing
	Figure 1 – Suggested Sequence of Construction
01 61 00	Common Product Requirements
01 64 00	City-Supplied Products
	Responsibilities Matrix
	Form 100 – Certificate of Equipment Delivery
	Form 101 – Certificate of Readiness to Install
	Form 102 – Certificate of Satisfactory Installation
01 77 00	Closeout Procedures
01 78 23	Operation and Maintenance Data
	Forms: Maintenance Summary Form

Drawing No.	Sheet No.	Description
A – GENERAL		
General		
Volume 1 Cover Page	006	Cover Page
Volume 1 Index	001	Drawing Index (1)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Civil		
1-0102-CGAD-A002	001	Site Plan North
1-0102-CGAD-A002	002	Site Plan South
1-0102-CGAD-A003	007	Surface Grading Plan Northeast
1-0102-CGAD-A003	008	Surface Grading Plan East
1-0102-CGAD-A003	009	Surface Grading Plan - 66kV Substation
1-0102-CGAD-A003	010	Surface Grading Plan Secondary Clarifiers
1-0102-CGAD-A003	011	Surface Grading Plan South of UV Building
1-0102-CGAD-A003	012	Surface Grading Plan South of UV Building
1-0102-CGAD-A003	013	Surface Grading Plan East of Bioreactors
1-0102-CGAD-A003	014	Excavation Plan - Grit & Screenings Building
1-0102-CRSW-A001	001	Construction Access Road North- STA 1+00 to STA 2+25
1-0102-CRSW-A001	002	Construction Access Road North - STA 2+25 to STA 3+25
1-0102-CRSW-A002	001	Perimeter Road North - STA 1+00 to STA 2+68.74
1-0102-CRSW-A002	002	Perimeter Road North - STA 2+68.74 to STA 4+25
1-0102-CRSW-A002	003	Perimeter Road North - STA 4+25 to STA 5+75
1-0102-CRSW-A002	004	Perimeter Road North - STA 5+75 to STA 6+19.15
1-0102-CRSW-A003	001	Perimeter Road South - STA 1+71.72 to STA 3+50
1-0102-CRSW-A003	002	Perimeter Road South - STA 3+50 to STA 4+85.89
1-0102-CRSW-A003	003	Perimeter Road South - STA 4+85.89 to STA 6+25
1-0102-CRSW-A003	004	Perimeter Road South - STA 6+25 to STA 86.54
1-0102-CRSW-A004	001	Construction Access Road South - STA 1+00 to STA 2+00.88
1-0102-CRSW-A004	002	Construction Access Road South - STA 2+00.88 to STA 3+50
1-0102-CRSW-A004	003	Construction Access Road South - STA 3+50 to STA 4+27.02
1-0102-CRSW-A004	004	Construction Access Road South - STA 1+00 to STA 2+00.88
1-0102-CDTL-A001	001	Miscellaneous Details
1-0102-CDTL-A001	002	Miscellaneous Details 2
1-0102-CDTL-A001	003	Miscellaneous Details 3
1-0102-CDTL-A002	001	Outfall Chambers 1 & 2 Extensions - Plans and Sections
1-0102-CDTL-A002	002	Outfall Chambers 3 & 4 Extensions - Plans and Sections
1-0102-CDTL-A002	003	Outfall Chambers 5 & 6 Extensions - Plans and Sections
1-0102-CDTL-A002	004	Outfall Chamber Extensions - Typical Details
1-0102-CDTL-A002	005	Outfall Manhole Extensions - Plan, Sections and Details
1-0102-CDTL-A002	006	Effluent Monitoring Station Flood Proofing - Plan, Sections and Details
1-0102-CDTL-A002	007	Outfall Chambers - Miscellaneous Metals
1-0102-CDTL-A002	008	Loading Ramp Retaining Wall Details
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SDTL-A002		Standard Details (1)

Drawing No.	Sheet No.	Description
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
1-0102-SDTL-A025		Odour Control Details (1)
1-0102-SDTL-A026		Odour Control Details (2)
1-0102-SDTL-A027		Odour Control Details (3)
1-0102-SDTL-A028		Odour Control Details (4)
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PBDG-A001	001	Mass Balance Drawing (1) August To October Scenario
1-0102-PBDG-A001	002	Mass Balance Drawing (2) August To October Scenario
1-0102-PBDG-A001	003	Mass Balance Drawing (3) November To July Scenario
1-0102-PBDG-A001	004	Mass Balance Drawing (4) November To July Scenario
1-0102-PBDG-A001	005	Mass Balance Drawing (5) Including Dewatering November To July Scenario
1-0102-PBDG-A001	006	Mass Balance Drawing (6) Including Dewatering November To July Scenario
1-0102-PHYD-A003		Hydraulic Profile (1) - Headworks, Primary And Secondary Treatment
1-0102-PHYD-A004		Hydraulic Profile (2) - Headworks And Wet Weather Treatment
1-0102-PHYD-A005		Hydraulic Profile (3) - Disinfection And Outfall
1-0102-PPFD-A001		Process Flow Diagram (1) - Liquid Stream
1-0102-PPFD-A002		Process Flow Diagram (2) - Biosolids Stream
1-0102-PPFD-A003		Process Flow Diagram (3) - Foul Air Stream
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend And General Notes (2)

Drawing No.	Sheet No.	Description
1-0102-MAAA-A001	003	Legend And General Notes (3)
1-0102-MGAD-A002		Existing Hydronic Heating System
1-0102-MGAD-A003		FOA System - Overall Roof Plan
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
1-0102-MDTL-A011		Fire Protection Standard Details (1)
1-0102-MDTL-A012		Fire Protection Standard Details (2)
1-0102-MDTL-A013		Fire Protection Standard Details (3)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-ECBD-A001		Electrical, Public Address System, Equipment Rack Layout
1-0102-EDTL-A002	001	Sections and Details, Duct Bank and PullBoxes
1-0102-EDTL-A002	002	Sections and Details, Duct Bank and PullBoxes
1-0102-EDTL-A002	003	Sections and Details, Duct Bank and PullBoxes
1-0102-EDTL-A003		Electrical, Direct Buried Cables and Conduit, Details
1-0102-EFAS-A001		Fire Alarm Upgrade, Legends and Details
1-0102-EFAS-A002		Fire Alarm, Riser Diagram
1-0102-EFAS-A003		Fire Alarm, Detection and Notification Circuits
1-0102-EGAD-A001		General Arrangement, Duct Bank Layout
1-0102-EGRD-A003		Electrical, Grounding Details
1-0102-EGRD-A004	001	Electrical, Lightning Protection Details
1-0102-EGRD-A004	002	Electrical, Lightning Protection Details
1-0102-ESCH-A002		Electrical, Schedule, Luminaire, and Exit Signs
1-0102-ESLD-A002	001	Single Line Diagram, Overview
1-0102-ESLD-A002	002	Single Line Diagram, Overview
1-0102-EWDG-A001		Electrical, Public Address System, Wiring Diagram
1-0102-SGAD-A001	001	General Arrangement, Duct Bank Foundation Layout
1-0102-SGAD-A001	002	General Arrangement, Duct Bank Foundation Layout
1-0102-SGAD-A001	003	General Arrangement, Duct Bank Foundation Layout
1-0102-SGAD-A002	001	Duct Bank Foundation, Sections and Details
1-0102-SGAD-A002	002	Duct Bank Foundation, Sections and Details
1-0102A-E0009		Electrical Classification Upgrades, Partial Main Floor Plan and Legend
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-A001		Facility HMI Architecture
1-0102-ABDG-AD01		Network Block Diagram, Existing Process Network, Demolition
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details

Drawing No.	Sheet No.	Description
1-0102-ADTL-A021		Profibus PA Wiring Details
1-0102-ANET-A001		Network Block Diagram, Supervisory, Control and Server Network Overview
1-0102-ANET-A002		Network Routing Plan, Fibre Network
1-0102-ANET-A005		Facility Fibre Allocation
1-0102-ANET-AD01		Network Block Diagram, INFI-90 DCS Plant Loop, Demolition
1-0102-ANET-AT01		Network Block Diagram, Supervisory, Control and Server Network Overview - Phase A
1-0102-ANET-AT02		Network Block Diagram, Supervisory, Control and Server Network Overview - Phase B
1-0102-ANET-AT03		Network Block Diagram, Supervisory, Control and Server Network Overview - Phase C & D
1-0102-ANET-AT04		Network Block Diagram, Supervisory, Control and Server Network Overview - Phase E
1-0102-ANET-AT05		Network Block Diagram, Supervisory, Control and Server Network Overview - Phase F
G – HEADWORKS		
General		
Volume 2A Cover Page	006	Cover Page
Volume 2 Index 1	001	Drawing Index (1)
Volume 2 Index 2	002	Drawing Index (2)
Volume 2 Index 3	003	Drawing Index (3)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
1-0102-CGAD-G001		Grit Tanks 1 and 2 - Weeping Tile Plan
1-0102-CGAD-G002		Grit and Screenings Building - Weeping Tile Plan
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SFDW-G002		Vortex Grit Building Piling Plan
1-0102-SFDW-G003		Grit and Screenings Building Piling Plan
1-0102-SFDW-G004		Grit Tanks 1 and 2 Piling Plan
1-0102-SFDW-G005		Grit and Screenings Building Cable Trench - Piling Plan
1-0102-SGAD-G001		Grit Tanks 1 and 2 Basement Plan
1-0102-SGAD-G002		Grit Tanks 1 and 2 Channel Level Plan
1-0102-SGAD-G003		Grit Tanks 1 and 2 Upper Level Plan
1-0102-SGAD-G004		Grit Tanks 1 and 2 Sections A and B
1-0102-SGAD-G005		Grit Tanks 1 and 2 Section C
1-0102-SGAD-G006		Grit Tanks 1 and 2 Sections D and E
1-0102-SGAD-G007		Grit Tanks 1 and 2 Sections F and G
1-0102-SGAD-G008		Grit Tanks 1 and 2 Section H
1-0102-SGAD-G010		Grit and Screenings Building Basement and Scale Pit Level Plans
1-0102-SGAD-G011		Grit and Screenings Building Ground Floor Plan
1-0102-SGAD-G012		Grit and Screenings Building Upper Level Plan
1-0102-SGAD-G013		Grit and Screenings Building Roof Plan
1-0102-SGAD-G014		Grit and Screenings Building Section A
1-0102-SGAD-G015		Grit and Screenings Building Section B
1-0102-SGAD-G016		Grit and Screenings Building Section C
1-0102-SGAD-G017		Grit and Screenings Building Section D
1-0102-SGAD-G018		Grit and Screenings Building Section E
1-0102-SGAD-G019		Grit and Screenings Building Sections F and G
1-0102-SGAD-G020		Grit and Screenings Building Section H

Drawing No.	Sheet No.	Description
1-0102-SGAD-G021		Grit and Screenings Building Sections J and K
1-0102-SGAD-G022		Pump and Screen Building Pump Well Plan
1-0102-SGAD-G023		Pump and Screen Building Wet Well Cover Plan
1-0102-SGAD-G024		Pump and Screen Building Wet Well Cover - Sections A and B
1-0102-SGAD-G025		Pump and Screen Building Channel Level Plan
1-0102-SGAD-G026		Pump and Screen Building Upper Level Plan
1-0102-SGAD-G027		Pump and Screen Building Platform Level Plan
1-0102-SGAD-G028		Pump and Screen Building Screen Room - Section A
1-0102-SGAD-G029		Pump and Screen Building Screen Room - Sections B and C
1-0102-SGAD-G030		Pump and Screen Building Screen Room - Sections D and E
1-0102-SGAD-G031		Pump and Screen Building Screen Room - Sections F and G
1-0102-SGAD-G032		Grit Building Grit Tanks 3 and 4 - Channel Level Plan
1-0102-SGAD-G033		Grit Building Grit Tanks 3 and 4 - Upper Level Plan
1-0102-SGAD-G034		Grit Building Grit Tanks 3 and 4 - Roof Plan
1-0102-SGAD-G035		Grit Building Grit Tanks 3 and 4 - Sections A and B
1-0102-SGAD-G036		Grit Building Grit Tanks 3 and 4 - Sections C and D
1-0102-SGAD-G037		Grit and Screenings Building Cable Trench - Plan and Sections
1-0102-SGAD-G038		Grit and Screenings Building Cable Trench - Sections
1-0102-SGAD-GD50		Grit Building Sections and Details
1-0102-SGAD-GD51		Pump and Screen Building Sections and Details
1-0102-SGAD-GD52		Grit Tanks 3 and 4, Channels Overall Plans
1-0102-SGAD-GD53		Pump and Screen Building Sections
1-0102-SGAD-GD54		Pump and Screen Building Plans
1-0102-SDTL-G001		Grit Tanks 1 and 2 Details 1
1-0102-SDTL-G002		Grit Tanks 3 and 4 Details 2
1-0102-SDTL-G003		Grit Tanks 3 and 4 Details 3
1-0102-SDTL-G004		Pump and Screen Building Details 4
1-0102-SDTL-G005		Pump and Screen Building Details 5
1-0102-SDTL-G006		Grit and Screenings Building Details 6
1-0102-SDTL-G007		Grit and Screenings Building Details 7
1-0102-SSCH-G001		Grit and Screenings Building Column and Beam Schedule
1-0102-SDTL-A002		Standard Details (1)
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
1-0102-SDTL-A025		Odour Control Details (1)

Drawing No.	Sheet No.	Description
1-0102-SDTL-A026		Odour Control Details (2)
1-0102-SDTL-A027		Odour Control Details (3)
1-0102-SDTL-A028		Odour Control Details (4)
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BAAA-G001		Grit and Screenings Building Building Code Matrix and Wall Types Legend
1-0102-BAAA-G002		Grit and Screenings Building Site Plan and Spatial Separation Calculation
1-0102-BGAD-G001		Grit Tanks 1 and 2 Basement Plan
1-0102-BGAD-G002		Grit Tanks 1 and 2 Upper Level Plan
1-0102-BGAD-G003		Grit Tanks 1 and 2 Section A
1-0102-BGAD-G004		Grit Tanks 1 and 2 Section B
1-0102-BGAD-G005		Grit Tanks 1 and 2 Sections C and D
1-0102-BGAD-G006		Grit Tanks 1 and 2 Plan and Section Details
1-0102-BGAD-G021		Grit and Screenings Building Basement Plan
1-0102-BGAD-G022		Grit and Screenings Building Ground Floor Plan
1-0102-BGAD-G023		Grit and Screenings Building Upper Level Plan
1-0102-BGAD-G024		Grit and Screenings Building Roof Plan
1-0102-BGAD-G025		Grit and Screenings Building Part Plan and Reflected Ceiling Plan
1-0102-BGAD-G026		Grit and Screenings Building East and West Elevations
1-0102-BGAD-G027		Grit and Screenings Building North and South Elevations
1-0102-BGAD-G028		Grit and Screenings Building Section A
1-0102-BGAD-G029		Grit and Screenings Building Section B
1-0102-BGAD-G030		Grit and Screenings Building Section C
1-0102-BGAD-G031		Grit and Screenings Building Section D
1-0102-BGAD-G032		Grit and Screenings Building Section E
1-0102-BGAD-G033		Grit and Screenings Building Section F
1-0102-BGAD-G034		Grit and Screenings Building Section G
1-0102-BGAD-GD50		Grit Building - Elevations
1-0102-BGAD-GD51		Pump and Screen Building - Ground Floor Plan and Elevations
1-0102-BGAD-GD52		Pump and Screen Building - Upper Level Plans and Roof Plan
1-0102-BDTL-G003		Grit and Screenings Building Wall Sections - Part 1
1-0102-BDTL-G004		Grit and Screenings Building Wall Sections - Part 2
1-0102-BDTL-G005		Grit and Screenings Building Wall Sections - Part 3
1-0102-BDTL-G006		Grit and Screenings Building Wall Sections - Part 4
1-0102-BDTL-G007		Grit and Screenings Building Plan Details - Part 1
1-0102-BDTL-G008		Grit and Screenings Building Plan Details - Part 2
1-0102-BDTL-G009		Grit and Screenings Building Plan Details - Part 3
1-0102-BDTL-G010		Grit and Screenings Building Section Details - Part 1
1-0102-BDTL-G011		Grit and Screenings Building Section Details - Part 2
1-0102-BSCH-G001		Grit and Screenings Building Room Finish, Door and Hardware Schedule
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)

Drawing No.	Sheet No.	Description
1-0102-PPID-G101		Raw Sewage Intake & Wet Wells
1-0102-PPID-G102		Raw Sewage Pump P-G101
1-0102-PPID-G103		Raw Sewage Pump P-G102
1-0102-PPID-G104		Raw Sewage Pump P-G103
1-0102-PPID-G105		Raw Sewage Pump P-G104
1-0102-PPID-G106		Wet Well Grit Pump P-G105
1-0102-PPID-G107		Process Drain
1-0102-PPID-G201		Mechanical Screens SCR-G211 and SCR-G212
1-0102-PPID-G202		Mechanical Screens SCR-G213 and SCR-G214
1-0102-PPID-G203		Screenings Washers/ Compactors WCP-G231 and WCP-G232 and Disposal Bins
1-0102-PPID-G204		Sluice Water Pumps P-G221 and P-G222
1-0102-PPID-G301		Grit Tanks TK-G321 & TK-G322
1-0102-PPID-G302		Grit Pumps P-G323, P-G324 & P-G325
1-0102-PPID-G303		Grit Tanks TK-G331 & TK-G332
1-0102-PPID-G304		Grit Pumps P-G335 & P-G336
1-0102-PPID-G305		Grit Classifiers GRP-G341 & GRP-G342
1-0102-PPID-G306		Grit Blowers B-G353 & B-G354
1-0102-PPID-G307		Channel Aeration Blowers B-G351 & B-G352
1-0102-PPID-G501		Flushing Water Piping
1-0102-PPID-G502		Non-Potable Water Piping
1-0102-PPID-G503		Gas Detection
1-0102-PPID-G504		Dry Well Flood Alarming and Sump Pumps
1-0102-PPID-G505		Grit Tanks 1 and 2 Sump Pumps P-G521 and P-G522
1-0102-PPID-G506		Grit and Screening Building Sump Pumps P-G531 and P-G532
1-0102-PPID-G507		Grit and Screenings Non-Potable Water
1-0102-PPID-G508		Automatic Strainers STR-G535 and STR-G536
1-0102-PPID-G509		Grit and Screening Building Domestic Water System
1-0102-PPID-G510		1000 kW Natural Gas Genset GEN-G580
1-0102-PPID-G601		Hot Water Booster Pumps P-G671 & P-G672
1-0102-PPID-G602		Glycol Heat Recovery P-G670
1-0102-PPID-G603		Control Room Air Handling Units AHU-G649 & AHU-G651
1-0102-PPID-G604		Motor Room Cooling Unit AHU-G680
1-0102-PPID-G605		Motor Room Cooling Unit AHU-G681
1-0102-PPID-G606		Electrical Room and Blower Room Cooling Unit AHU-G682
1-0102-PPID-G607		Pump Well, Motor Room, Mechanical Room, and Viewing Gallery Ventilation Unit
1-0102-PPID-G608		Screen Room Ventilation Unit AHU-G620
1-0102-PPID-G609		Grit and Screening Building Screen Room Exhaust Fans EF-B685 and EF-B686
1-0102-PPID-G610		HVAC Exhaust Fans EF-G685 and EF-G691
1-0102-PPID-G611		Unit Heaters UH-G607, UH-G698 and UH-G699
1-0102-PPID-G612		HVAC & Miscellaneous Generator Room EF-G652, EF-G653, EF-G654 and UH-G655
1-0102-PPID-G613		Wet Well Ventilation
1-0102-PPID-G614		Wet Well Upper Level AHU SF-G601
1-0102-PPID-G615		Pump & Screen Building Wet Well Supply and Exhaust Fans SF-G602, EF-G686, EF-G687
1-0102-PPID-G616		Electrical Room Exhaust Fan EF-G692
1-0102-PPID-G617		Grit and Screening Building Mechanical Room Air Handling Unit AHU-G610
1-0102-PPID-G618		Grit Room Air Handling Unit AHU-G630

Drawing No.	Sheet No.	Description
1-0102-PPID-G619		Grit and Screening Building Electrical Room Air Handling Unit AHU-G640
1-0102-PPID-G620		Grit and Screening Building Mechanical Room Exhaust Fans EF-G611, EF-G612, EF-G656 and EF-G657
1-0102-PPID-G621		Grit TANK Room Exhaust Fans EF-B687 and EF-B688
1-0102-PPID-G622		Grit Exhaust Unit EF-G693
1-0102-PPID-G623		Grit and Screen Building Mechanical Room Glycol Heat Recovery P-G674
1-0102-PPID-G624		Grit and Screen Building Hot Water Pumps P-G660 and P-G661
1-0102-PPID-G625		Grit and Screen Building Glycol Pumps P-G665 & P-G666
1-0102-PPID-G901		Miscellaneous
1-0102-PPID-G902		Lighting, Security and Miscellaneous
1-0102-PGAD-G001		Headworks Overall Plan
1-0102-PGAD-G002		Headworks Overall Upper Level Plan
1-0102-PGAD-G003		Influent Pump Station Pump Room/Motor Room/Mechanical Penthouse Plans, Section A
1-0102-PGAD-G004		Influent Pump Station Section A and B
1-0102-PGAD-G005		Screen Building Lower and Channel Level Plans
1-0102-PGAD-G006		Screen Building Upper Level Plans
1-0102-PGAD-G007		Screen Building Section A
1-0102-PGAD-G008		Screen Building Section B
1-0102-PGAD-G009		Screen Building Section C
1-0102-PGAD-G010		Screen Building Section D
1-0102-PGAD-G011		Screen Building Sections E and F
1-0102-PGAD-G012		Grit Tanks 1 and 2 Lower Level Plan
1-0102-PGAD-G013		Grit Tanks 1 and 2 Channel Level Plan
1-0102-PGAD-G014		Grit Tanks 1 and 2 Section A
1-0102-PGAD-G015		Grit Tanks 1 and 2 Section B
1-0102-PGAD-G016		Grit Tanks 1 and 2 Section C
1-0102-PGAD-G017		Grit Tanks 1 and 2 Section D and E
1-0102-PGAD-G018		Grit Tanks 3 and 4 Lower Level Plan
1-0102-PGAD-G019		Grit Tanks 3 and 4 Channel Level Plan
1-0102-PGAD-G020		Grit Tanks 3 and 4 Sections A and B
1-0102-PGAD-G021		Grit Tanks 3 and 4 Sections C and D
1-0102-PGAD-G022		Grit and Screenings Building Lower Level Plan
1-0102-PGAD-G023		Grit and Screenings Building Upper Level Plan
1-0102-PGAD-G024		Grit and Screenings Building Section A
1-0102-PGAD-G025		Grit and Screenings Building Section B
1-0102-PGAD-G026		Grit and Screenings Building Section C
1-0102-PGAD-G027		Grit and Screenings Building Sections D, E and F
1-0102-PGAD-GD50		Pump and Screen Building - Process and Equipment Piping Plans
1-0102-PGAD-GD51		Pump and Screen Building - Process and Equipment Piping Plans and Sections
1-0102-PGAD-GD52		Grit Building - Process and Equipment Piping Plans and Sections
1-0102-PGAD-GD53		Grit Building - Process and Equipment Piping Plans and Sections
1-0102-PDTL-G001		Headworks Miscellaneous Details
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)

Drawing No.	Sheet No.	Description
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MGAD-A003		FOA System - Overall Roof Plan
1-0102-MGAD-G501		Grit Tanks 1 and 2 Plumbing - Basement Plan and Roof Plan
1-0102-MGAD-G502		Grit Tanks 1 and 2 Plumbing - Isometric
1-0102-MGAD-G503		Grit Tanks 1 and 2 Plumbing - Sump Detail Layout
1-0102-MGAD-G511		Grit and Screen Building Plumbing - Basement Plan
1-0102-MGAD-G513		Grit and Screen Building Plumbing - Ground Floor Plan
1-0102-MGAD-G514		Grit and Screen Building Plumbing - Upper Level Plan
1-0102-MGAD-G515		Grit and Screen Building Plumbing - Roof Plan
1-0102-MGAD-G516		Grit and Screen Building Plumbing - Isometric
1-0102-MGAD-G601		Grit Tanks 1 and 2 HVAC - Basement and Part Upper Level Plan
1-0102-MGAD-G602		Grit and Screenings Building HVAC - Lower Level Plan
1-0102-MGAD-G603		Grit and Screenings Building HVAC - Ground Floor Plan
1-0102-MGAD-G604		Grit and Screenings Building HVAC - Upper Level Plan
1-0102-MGAD-G605		Grit and Screenings Building HVAC - Roof Plan and Fire Damper Schedule
1-0102-MGAD-G606		Grit and Screenings Building HVAC - Ground Floor Partial Plan and Section
1-0102-MGAD-G607		Grit and Screenings Building HVAC - Section (1)
1-0102-MGAD-G608		Grit and Screenings Building HVAC - Section (2)
1-0102-MGAD-G609		Grit and Screenings Building HVAC - Photos (1)
1-0102-MGAD-G610		Grit and Screenings Building HVAC - Photos (2)
1-0102-MISO-G601		Grit and Screenings Building HVAC - Hydronic Isometric
1-0102-MISO-G602		Grit and Screenings Building HVAC - Hydronic Isometric (2)
1-0102-MISO-G603		Grit and Screenings Building HVAC - Supply and Return Duct Isometric
1-0102-MISO-G604		Grit and Screenings Building HVAC - Exhaust Duct Isometric
1-0102-MGAD-GD50		Pump and Screen Building Ventilation Floor Plans, Pump and Screen Building Ventilation Floor Plans
1-0102-MGAD-GD51		Pump and Screen Building Ventilation Floor Plans
1-0102-MGAD-GD52		Grit and Service Buildings Ventilation Details
1-0102-MGAD-GD53		Grit and Service Buildings Ventilation - Roof Plans & Details
1-0102-MGAD-GD54		Demolition Photos (1)
1-0102-MGAD-GD55		Demolition Photos (2)
1-0102G-M0003-R03		Headwork Upgrades - Plan and Section - Raw Sewage Pump Suction Valve Actuator
1-0102G-M0010-R05		Ventilation and Miscellaneous Upgrades - HVAC Ducting Section - Wet Well Ventilation
SEP-2369		Service Building - Ventilation Plan In Mechanical Rooms G130 and B113
1-0102-MSLD-G601		HVAC - Air Flow Schematic
1-0102-MSLD-G602		Grit and Screenings Building - Air Flow Schematic (1)
1-0102-MSLD-G603		Grit and Screenings Building - Air Flow Schematic (2)
1-0102-MSLD-G604		Grit and Screenings Building - Secondary Hot Water Heating and Glycol Heating Loops
1-0102-MSLD-G605		Grit and Screenings Building - Recovery Glycol Heating Loops

Drawing No.	Sheet No.	Description
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-EBDG-G001		Electrical, Headworks Area - Grit & Screenings Building, MCC-G730 Generator Transfer Switch Block Diagram
1-0102-ECBD-G001		MCC/Cabinets Drawing, Headworks Area - Grit & Screenings Building, MCC-G750 Layout and Schedule
1-0102-ECBD-G002		MCC/Cabinets Drawing, Headworks Area - Grit & Screenings Building, MCC-G760 Layout and Schedule
1-0102-ECBD-G003		MCC Elevation, Headworks Area - Pump & Screen Building, MCC-G710 Layout & Schedule
1-0102-ECBD-G004		MCC Elevation, Headworks Area - Pump & Screen Building, MCC-G720 Layout & Schedule
1-0102-ECBD-G005		MCC/Cabinets Drawing, Headworks Area - Grit & Screenings Building, MCC-G770 & MCC-G780 Layout and Schedule
1-0102-ECBD-G006		Cabinet Layout, Headworks Area - Grit & Screenings Building, CP-G753
1-0102-ECBD-G007		Cabinet Layout, Headworks Area - Grit & Screenings Building, LC-G754
1-0102-ECBD-G008		Panel Layout, Headworks Area - Grit & Screenings Building, Ground Fault Detection Panel EDP-G755
1-0102-ECBD-G009		Panel Layout, Headworks Area - Grit & Screenings Building, Ground Fault Detection Panel EDP-G765
1-0102-ECBD-G010		MCC Elevation, Headworks Area - Pump & Screen Building, MCC-G730, MCC-G740 Layout & Schedule
1-0102-ECBD-G011		Cabinet Layout, Headworks Area - Grit & Screenings Building, JBA-G756
1-0102-ECDW-GT01		Headworks Area - Screen Room, Temporary Cabling
1-0102-ECRT-G001		Cable Routing, Headworks Area - Grit & Screenings Building, Cable Bus System Layout
1-0102-ECRT-G002		Cable Routing, Headworks Area - Grit & Screenings Building, Cable Bus System Section & Details
1-0102-ECRT-G003		Cable Routing, Headworks Area - Grit & Screenings Building, Cable Service Room Plan
1-0102-ECTR-G001		Cable Tray Layout, Headworks Area - Grit Tanks 1 and 2, Basement Plan
1-0102-ECTR-G002		Cable Tray, Headworks Area - Grit Tanks 1 and 2, Sections & Details
1-0102-ECTR-G003		Cable Tray Layout, Headworks Area - Grit & Screenings Building, Ground Floor Plan
1-0102-ECTR-G004		Cable Tray Layout, Headworks Area - Grit & Screenings Building, Upper Level Plan
1-0102-ECTR-G005		Cable Tray Layout, Headworks Area - Pump & Screen Building, Screen Room Plan
1-0102-ECTR-G006	001	Cable Tray, Headworks Area - Grit & Screenings Building, Sections & Details

Drawing No.	Sheet No.	Description
1-0102-ECTR-G006	002	Cable Tray, Headworks Area - Grit & Screenings Building, Sections & Details
1-0102-EDTL-G001		Electrical, Headworks Area - Grit & Screenings Building, NGR-G750 and NGR-G760 Details
1-0102-EFAS-G001		Fire Alarm Layout, Headworks Area - Grit Tanks 1 and 2, Basement Plan
1-0102-EFAS-G002		Fire Alarm Layout, Headworks Area - Grit & Screenings Building, Ground Floor Plan
1-0102-EFAS-G003		Fire Alarm Layout, Headworks Area - Grit & Screenings Building, Upper Level Plan & Cable Service Room
1-0102-EFAS-G004		Fire Alarm, Headworks Area - Grit & Screenings Building, Riser Diagram, Detection Circuits
1-0102-EFAS-G005		Fire Alarm, Headworks Area - Grit & Screenings Building, Riser Diagram, Notification Circuits
Volume 2B Cover Page		Cover Page
1-0102-EGAD-G001		Power Layout, Headworks Area - Pump & Screen Building, Electrical Room, Blower Room, Motor Room
1-0102-EGAD-G002		Power Layout, Headworks Area - Grit & Screenings Building, Electrical Room
1-0102-EGAD-G003		Power Layout, Headworks Area - Grit Tanks 1 and 2, Basement Plan
1-0102-EGAD-G004		Power Layout, Headworks Area - Grit Tanks 1 and 2, Upper Level Plan
1-0102-EGAD-G005		Power Layout, Headworks Area - Screen Room Loading Area G127A, Installations
1-0102-EGAD-G006		Power Layout, Headworks Area - Grit & Screenings Building, Ground Floor Plan
1-0102-EGAD-G007	001	Power Layout, Headworks Area - Grit & Screenings Building, Upper Level Plan
1-0102-EGAD-G007	002	Power Layout, Headworks Area - Grit & Screenings Building, Upper Level Plan
1-0102-EGAD-G008		Power Layout, Headworks Area - Grit & Screenings Building, Cable Service Room Plan
1-0102-EGAD-G009		Power Layout, Headworks Area - Pump & Screen Building, Pump Well and Galleries 1, 2, 3
1-0102-EGAD-G010		Power Layout, Headworks Area - Grit and Screenings Building, Roof Plan
1-0102-EGAD-GD01		Power Layout, Headworks Area, Truck Loading Bay G122, Demolitions
1-0102-EGAD-GD02		Demolition Plan, Headworks Area - Screen Building, Blower Room and Drywell Mechanical Room
1-0102-EGAD-GT01		General Arrangement Drawing, Headworks Area - Screen Room, Transition Process
1-0102-EGRD-G001		Grounding, Headworks Area - Grit & Screenings Building, Riser Diagram
1-0102-EGRD-G002		Grounding Layout, Headworks Area - Grit & Screenings Building, Ground Floor Plan
1-0102-EGRD-G003		Grounding Layout, Headworks Area - Pump and Screen Building, Ground Floor Plan
1-0102-EGRD-G004		Lightning Protection Layout, Headworks Area - Grit and Screenings Building, Roof Plan
1-0102-EGRD-G005		Lightning Protection Layout, Headworks Area - Pump and Screen Building, Roof Plan
1-0102-EHLC-G001		Hazardous Location, Headworks Area - Grit Tanks 1 and 2, Basement Plan

Drawing No.	Sheet No.	Description
1-0102-EHLC-G002		Hazardous Location, Headworks Area - Grit Tanks 1 and 2, Upper Level Plan
1-0102-EHLC-G003		Hazardous Location, Headworks Area - Grit Tanks 1 and 2, Section A
1-0102-EHLC-G004		Hazardous Location, Headworks Area - Grit & Screenings Building, Ground Floor & Cable Service Room
1-0102-EHLC-G005		Hazardous Location, Headworks Area - Grit & Screenings Building, Upper Level Plan
1-0102-EHLC-G006		Hazardous Location, Headworks Area - Pump & Screen Building, Ground Floor & Standby Generator
1-0102-EHLC-G007		Hazardous Location, Headworks Area - Pump & Screen Building, Screen Room Channel Level
1-0102-EHLC-G008		Hazardous Location, Headworks Area, Roof Plan
1-0102-ELTG-G001		Lighting Plan Layout, Headworks Area - Pump & Screen Building, Ground Floor Exit Sign Replacement
1-0102-ELTG-G002		Lighting Plan Layout, Headworks Area - Pump & Screen Building, Upper Level Exit Sign Replacement
1-0102-ELTG-G003		Lighting Plan Layout, Headworks Area - Grit Tanks 1 and 2, Basement Plan
1-0102-ELTG-G004		Lighting Plan Layout, Headworks Area - Grit Tanks 1 and 2, Upper Level Plan
1-0102-ELTG-G005		Lighting Plan Layout, Headworks Area - Grit & Screenings Building, Ground Floor Plan
1-0102-ELTG-G006		Lighting Plan Layout, Headworks Area - Grit & Screenings Building, Upper Level Plan
1-0102-ELTG-G007		Lighting Plan Layout, Headworks Area - Grit & Screenings Building, Cable Service Room Plan
1-0102-ELTG-G008	001	Interior Lighting Control, Headworks Area - Grit & Screenings Building, CP-G753 Schematic and Wiring Diagram
1-0102-ELTG-G008	002	Interior Lighting Control, Headworks Area - Grit & Screenings Building, CP-G753 Schematic and Wiring Diagram
1-0102-ELTG-G009		Exterior Lighting Control, Headworks Area - Grit & Screenings Building, LC-G754 Schematic and Wiring Diagram
1-0102-ELTG-G010		Lighting Control, Headworks Area - Grit & Screenings Building, JBA-G756 Schematic and Wiring Diagram
1-0102-ELTG-G011		Lighting Plan Layout, Headworks Area - Pump and Screen Building, Screen Room Plan
1-0102-EMCL-G101	001	Motor Starter Schematic, Headworks Area, P-G101 Raw Sewage Pump
1-0102-EMCL-G101	002	Motor Starter Schematic, Headworks Area, P-G101 Raw Sewage Pump
1-0102-EMCL-G101	003	Motor Starter Schematic, Headworks Area, P-G101 Raw Sewage Pump
1-0102-EMCL-G102	001	Motor Starter Schematic, Headworks Area, P-G102 Raw Sewage Pump
1-0102-EMCL-G102	002	Motor Starter Schematic, Headworks Area, P-G102 Raw Sewage Pump
1-0102-EMCL-G103	001	Motor Starter Schematic, Headworks Area, P-G103 Raw Sewage Pump
1-0102-EMCL-G103	002	Motor Starter Schematic, Headworks Area, P-G103 Raw Sewage Pump
1-0102-EMCL-G103	003	Motor Starter Schematic, Headworks Area, P-G103 Raw Sewage Pump

Drawing No.	Sheet No.	Description
1-0102-EMCL-G104	001	Motor Starter Schematic, Headworks Area, P-G104 Raw Sewage Pump
1-0102-EMCL-G104	002	Motor Starter Schematic, Headworks Area, P-G104 Raw Sewage Pump
1-0102-EMCL-G104	003	Motor Starter Schematic, Headworks Area, P-G104 Raw Sewage Pump
1-0102-EMCL-G105		Motor Starter Schematic, Headworks Area, P-G105 Grit Removal Pump
1-0102-EMCL-G221		Motor Starter Schematic, Headworks Area, P-G221 Sluice Water Pump
1-0102-EMCL-G222		Motor Starter Schematic, Headworks Area, P-G222 Sluice Water Pump
1-0102-EMCL-G303		Motor Starter Schematic, Headworks Area-Grit Tanks 1 & 2, P-G323, Grit Slurry Pump
1-0102-EMCL-G304		Motor Starter Schematic, Headworks Area-Grit Tanks 1 & 2, P-G324, Grit Slurry Pump
1-0102-EMCL-G305		Motor Starter Schematic, Headworks Area-Grit Tanks 1 & 2, P-G325, Grit Slurry Pump
1-0102-EMCL-G307		Motor Starter Schematic, Headworks Area, P-G335 Grit Pump
1-0102-EMCL-G308		Motor Starter Schematic, Headworks Area, P-G336 Grit Pump
1-0102-EMCL-G315		Motor Starter Schematic, Headworks Area, GRP-G341 Grit Classifier
1-0102-EMCL-G316		Motor Starter Schematic, Headworks Area, GRP-G342 Grit Classifier
1-0102-EMCL-G510		Motor Starter Schematic, Headworks Area, P-G561 Sump Pump
1-0102-EMCL-G511		Motor Starter Schematic, Headworks Area, P-G562 Sump Pump
1-0102-EMCL-G512		Motor Starter Schematic, Headworks Area, Truck Bay Door OD-G566
1-0102-EMCL-G513		Motor Starter Schematic, Headworks Area, P-G521 Sump Pump
1-0102-EMCL-G514		Motor Starter Schematic, Headworks Area, P-G522 Sump Pump
1-0102-EMCL-G515		Motor Starter Schematic, Headworks Area, P-G531 Sump Pump
1-0102-EMCL-G516		Motor Starter Schematic, Headworks Area, P-G532 Sump Pump
1-0102-EMCL-G530		Starter Schematic, Headworks Area - Grit and Screenings Building, TK-G533 Tank Hot Water Heater
1-0102-EMCL-G601		Motor Starter Schematic, Headworks Area, EF-G611 Grit & Screening Platform Exhaust Fan
1-0102-EMCL-G602		Motor Starter Schematic, Headworks Area, SF-G612 Grit & Screening Mechanical Room supply Fan
1-0102-EMCL-G603	001	Motor Starter Schematic, Headworks Area, Unit Heaters G614, G615, G616, G617, G624, G694, G695
1-0102-EMCL-G603	002	Motor Starter Schematic, Headworks Area, Unit Heaters G614, G615, G616, G617, G624, G694, G695
1-0102-EMCL-G604	001	Motor Starter Schematic, Headworks Area, EF-G693 Grit Pump Room Exhaust Fan
1-0102-EMCL-G604	002	Motor Starter Schematic, Headworks Area, EF-G693 Grit Pump Room Exhaust Fan
1-0102-EMCL-G614		Motor Starter Schematic, Headworks Area, EF-G652 Exhaust Fan

Drawing No.	Sheet No.	Description
1-0102-EMCL-G615		Motor Starter Schematic, Headworks Area, EF-G653 Exhaust Fan
1-0102-EMCL-G630		Motor Starter Schematic, Headworks Area, AHU-G649 Control Room Ventilation
1-0102-EMCL-G631		Motor Starter Schematic, Headworks Area, AHU-G651 Control Room Air Purification Unit
1-0102-EMCL-G635		Motor Starter Schematic, Headworks Area, P-G670 Heat Recovery System Glycol Pump
1-0102-EMCL-G636		Motor Starter Schematic, Headworks Area, P-G671 Hot Water Booster Pump
1-0102-EMCL-G637		Motor Starter Schematic, Headworks Area, P-G672 Hot Water Booster Pump
1-0102-EMCL-G640		Motor Starter Schematic, Headworks Area, AHU-G680 Motor Room Air Handling Unit
1-0102-EMCL-G641		Motor Starter Schematic, Headworks Area, AHU-G681 Motor Room Air Handling Unit
1-0102-EMCL-G643		Motor Starter Schematic, Headworks Area, AHU-G683 Pump Well Air Handling Unit
1-0102-EMCL-G645		Motor Starter Schematic, Headworks Area, EF-G685 Pump Well Exhaust Fan
1-0102-EMCL-G660		Motor Starter Schematic, Headworks Area, P-G660 Hot Water Pump
1-0102-EMCL-G661		Motor Starter Schematic, Headworks Area, P-G661 Hot Water Pump
1-0102-EMCL-G662		Motor Starter Schematic, Headworks Area, P-G665 Glycol Pump
1-0102-EMCL-G663		Motor Starter Schematic, Headworks Area, P-G666 Glycol Pump
1-0102-EMCL-G664		Motor Starter Schematic, Headworks Area, P-G674 Glycol Pump
1-0102-EMCL-G665		Motor Starter Schematic, Headworks Area, P-G677 Condensor Water Pump
1-0102-EMCL-G666		Motor Starter Schematic, Headworks Area, P-G678 Condensor Water Pump
1-0102-EMCL-G901		Starter Schematic, Headworks Area - Grit and Screenings Building, XFMR-G761 Feeder
1-0102-EMCL-GT01		Motor Schematic, Screen Replacement, G255-BS
1-0102-EMCL-GT02		Motor Schematic, Screen Replacement, G256-BS
1-0102-EMCL-GT03		Motor Schematic, Screen Replacement, G257-BS
1-0102-ESCH-G001		Headworks Area - Pump and Screen Building, Panel Schedules
1-0102-ESCH-G002		Headworks Area - Grit and Screenings Building, Panel Schedules
1-0102-ESLD-G001		Single Line Diagram, Headworks Area - Pump & Screen Building, MCC-G710
1-0102-ESLD-G002		Single Line Diagram, Headworks Area - Pump & Screen Building, MCC-G720 and Miscellaneous
1-0102-ESLD-G003		Single Line Diagram, Headworks Area - Pump & Screen Building, MCC-G730 & MCC-G740
1-0102-ESLD-G004		Single Line Diagram, Headworks Area - Grit & Screenings Building, Motor Control Centre MCC-G750
1-0102-ESLD-G005		Single Line Diagram, Headworks Area - Grit & Screenings Building, Motor Control Centre MCC-G760
1-0102-ESLD-G006		Single Line Diagram, Headworks Area - Grit & Screenings Building, Motor Control Centre MCC-G770 & MCC-G780

Drawing No.	Sheet No.	Description
1-0102-EWDG-G001		Wiring Diagram, Headworks Area - Grit and Screenings Building, Ground Detection Wiring Diagram EDP-G755
1-0102-EWDG-G002	001	Wiring Diagram, Headworks Area - Grit and Screenings Building, Ground Fault Detection MCC-G750 & MCC-G770
1-0102-EWDG-G002	002	Wiring Diagram, Headworks Area - Grit and Screenings Building, Ground Fault Detection MCC-G750 & MCC-G770
1-0102-EWDG-G003		Wiring Diagram, Headworks Area - Grit and Screenings Building, Ground Detection Wiring Diagram EDP-G765
1-0102-EWDG-G004	001	Wiring Diagram, Headworks Area - Grit and Screenings Building, Ground Fault Detection MCC-G760 & MCC-G780
1-0102-EWDG-G004	002	Wiring Diagram, Headworks Area - Grit and Screenings Building, Ground Fault Detection MCC-G760 & MCC-G780
1-0102-EWDG-G005		Wiring Diagram, Headworks Area - Grit and Screenings Building, CU-G641, G642, G643 & ACU-G641, G642, G643
1-0102-EWDG-G006		Wiring Diagram, Headworks Area - Grit and Screenings Building, UH-G644
1-0102-EWDG-G007		Wiring Diagram, Headworks Area - Grit and Screenings Building, Exhaust Fan/Duct Drain Heat Trace, Temp. Controller TC-G7611
SEP-824		Pump & Screen Building - Electrical, Lighting & Building Services Floor Plan
SEP-825		Pump & Screen Building - Electrical, Lighting & Building Services Floor Plan
SEP-826		Pump & Screen Building - Electrical, Lighting & Building Services Floor Plan
SEP-827		Pump & Screen Building - Electrical, Lighting & Building Services Floor Plan
SEP-836		Pump & Screen Building - I& C, Motor, Blower & Elect. Room, Equipment and Controls, Floor Plan
SEP-837		Pump & Screen Building - I& C, Screen Room, Equipment and Controls, Floor Plans
SEP-838		Standby Power Building - I & C, Grit Building, Equipment and Controls, Floor Plans
SEP-880		Standby Power Building - I & C, Instrumentation and Controls, Floor Plan and Details
1-102G-E0012		Electrical Classification Plan, Wetwell & Drywell
1-102G-E0013		Electrical Classification Plan, Grit Building - Lower Level
1-102G-E0015		Electrical Classification Plan, Wet Well & Foyer
1-102G-E0016		Electrical Classification Plan, Grit Building - Upper Level
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-G001		Control System Architecture, Headworks Area
1-0102-ACBD-G001		Cabinet Layout, Headworks Area, CP-G820-1 and CP-G820-2 Cabinet
1-0102-ACBD-G002	001	Power Distribution Schematic, Headworks Area, CP-G820-1 and CP-G820-2 Cabinet
1-0102-ACBD-G002	002	Power Distribution Schematic, Headworks Area, CP-G820-1 and CP-G820-2 Cabinet
1-0102-ACBD-G003	001	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Inputs

Drawing No.	Sheet No.	Description
1-0102-ACBD-G003	002	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Inputs
1-0102-ACBD-G003	003	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Inputs
1-0102-ACBD-G003	004	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Inputs
1-0102-ACBD-G003	005	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Inputs
1-0102-ACBD-G003	006	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Inputs
1-0102-ACBD-G003	007	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Inputs
1-0102-ACBD-G003	008	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Inputs
1-0102-ACBD-G003	009	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Inputs
1-0102-ACBD-G004	001	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Outputs
1-0102-ACBD-G004	002	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-1 - Discrete Outputs
1-0102-ACBD-G005	001	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-2 - Analog Inputs
1-0102-ACBD-G005	002	Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-2 - Analog Inputs
1-0102-ACBD-G006		Wiring Diagram, Headworks Area, CP-G820-1 and CP-G820-2, RIO-G800-2 - Analog Outputs
1-0102-ACBD-G010	001	Cabinet Layout, Headworks Area, CP-G821 Front View
1-0102-ACBD-G010	002	Cabinet Layout, Headworks Area, CP-G821 Front View
1-0102-ACBD-G011	001	Cabinet Layout, Headworks Area, CP-G821 Rear View
1-0102-ACBD-G011	002	Cabinet Layout, Headworks Area, CP-G821 Rear View
1-0102-ACBD-G021		Cabinet Layout, Headworks Area, PSP-G822 Power Supply Cabinet
1-0102-ACBD-G022	001	Power Distribution Schematic, Headworks Area, PSP-G822 Power Supply Cabinet
1-0102-ACBD-G022	002	Power Distribution Schematic, Headworks Area, PSP-G822 Power Supply Cabinet
1-0102-ACBD-G022	003	Power Distribution Schematic, Headworks Area, PSP-G822 Power Supply Cabinet
1-0102-ACBD-G022	004	Power Distribution Schematic, Headworks Area, PSP-G822 Power Supply Cabinet
1-0102-ACBD-G022	005	Power Distribution Schematic, Headworks Area, PSP-G822 Power Supply Cabinet
1-0102-ACBD-G023	001	Cabinet Layout, Headworks Area, CP-G822, PLC and Device Network Equipment Cabinet
1-0102-ACBD-G023	002	Cabinet Layout, Headworks Area, CP-G822, PLC and Device Network Equipment Cabinet
1-0102-ACBD-G024	001	Power Distribution Schematic, Headworks Area, CP-G822, PLC and Device Network Equipment Cabinet
1-0102-ACBD-G024	002	Power Distribution Schematic, Headworks Area, CP-G822, PLC and Device Network Equipment Cabinet
1-0102-ACBD-G025	001	Wiring Diagram, Headworks Area, CP-G822, Miscellaneous Wiring
1-0102-ACBD-G026	001	Cabinet Layout, Headworks Area, CP-G823, Process RIO Cabinet - RIO-G800-3
1-0102-ACBD-G026	002	Cabinet Layout, Headworks Area, CP-G823, Process RIO Cabinet - RIO-G800-3

Drawing No.	Sheet No.	Description
1-0102-ACBD-G027	001	Power Distribution Schematic, Headworks Area, CP-G823, Process RIO Cabinet - RIO-G800-3
1-0102-ACBD-G028	001	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Discrete Inputs
1-0102-ACBD-G028	002	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Discrete Inputs
1-0102-ACBD-G028	003	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Discrete Inputs
1-0102-ACBD-G028	004	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Discrete Inputs
1-0102-ACBD-G028	005	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Discrete Inputs
1-0102-ACBD-G029	001	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Discrete Outputs
1-0102-ACBD-G029	002	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Discrete Outputs
1-0102-ACBD-G029	003	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Discrete Outputs
1-0102-ACBD-G032	001	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Miscellaneous Wring
1-0102-ACBD-G032	002	Wiring Diagram, Headworks Area, CP-G823, RIO-G800-3 - Miscellaneous Wring
1-0102-ACBD-G037		Cabinet Layout, Headworks Area - Grit Tanks 1 and 2, ADP-G831 Profibus Equipment
1-0102-ACBD-G038		Power Distribution Schematic, Headworks Area - Grit Tanks 1 and 2, ADP-G831 Profibus Equipment
1-0102-ACBD-G039		Cabinet Layout, Headworks Area, ADP-G837, Network Protection Device Cabinet
1-0102-ACBD-G040		Cabinet Layout, Headworks Area, ADP-G102 Vibration and Temperature Monitoring Cabinet
1-0102-ACBD-G041		Cabinet Layout, Headworks Area, CP-G830, Unit Heaters Cabinet
1-0102-ACBD-G042		Cabinet Layout, Headworks Area, LCP-G230 Disposal Bins Control Panel Layout
1-0102-ACBD-G043		Cabinet Layout, Headworks - Grit Tanks 1 and 2, ADP-G2302 Sluice Level Switch IS Barrier Cabinet
1-0102-ACBD-G051	001	Cabinet Layout, Headworks Area, CP-G826, HVAC PLC Cabinet - PLC-G806
1-0102-ACBD-G051	002	Cabinet Layout, Headworks Area, CP-G826, HVAC PLC Cabinet - PLC-G806
1-0102-ACBD-G052		Power Distribution Schematic, Headworks Area, CP-G826, HVAC PLC Cabinet - PLC-G806
1-0102-ACBD-G053	001	Wiring Diagram, Headworks Area, CP-G826, PLC-G806 - Discrete Inputs
1-0102-ACBD-G053	002	Wiring Diagram, Headworks Area, CP-G826, PLC-G806 - Discrete Inputs
1-0102-ACBD-G054		Wiring Diagram, Headworks Area, CP-G826, PLC-G806 - Discrete Outputs
1-0102-ACBD-G055	001	Wiring Diagram, Headworks Area, CP-G826, PLC-G806 - Analog Inputs
1-0102-ACBD-G055	002	Wiring Diagram, Headworks Area, CP-G826, PLC-G806 - Analog Inputs
1-0102-ACBD-G055	003	Wiring Diagram, Headworks Area, CP-G826, PLC-G806 - Analog Inputs
1-0102-ACBD-G056		Wiring Diagram, Headworks Area, CP-G826, PLC-G806 - Analog Outputs

Drawing No.	Sheet No.	Description
1-0102-ACBD-G058	001	Cabinet Layout, Headworks Area, CP-G827, HVAC RIO Cabinet - RIO-G806-1
1-0102-ACBD-G058	002	Cabinet Layout, Headworks Area, CP-G827, HVAC RIO Cabinet - RIO-G806-1
1-0102-ACBD-G059		Power Distribution Schematic, Headworks Area, CP-G827, HVAC RIO Cabinet - RIO-G806-1
1-0102-ACBD-G060	001	Wiring Diagram, Headworks Area, CP-G827, RIO-G806-1 - Discrete Inputs
1-0102-ACBD-G060	002	Wiring Diagram, Headworks Area, CP-G827, RIO-G806-1 - Discrete Inputs
1-0102-ACBD-G061		Wiring Diagram, Headworks Area, CP-G827, RIO-G806-1 - Discrete Outputs
1-0102-ACBD-G062	001	Wiring Diagram, Headworks Area, CP-G827, RIO-G806-1 - Analog Inputs
1-0102-ACBD-G062	002	Wiring Diagram, Headworks Area, CP-G827, RIO-G806-1 - Analog Inputs
1-0102-ACBD-G062	003	Wiring Diagram, Headworks Area, CP-G827, RIO-G806-1 - Analog Inputs
1-0102-ACBD-G063		Wiring Diagram, Headworks Area, CP-G827, RIO-G806-1 - Analog Outputs
1-0102-ACBD-G066		Cabinet Layout, Headworks Area, Profibus PA Segment Protector Device Panels
1-0102-ACBD-G071		Cabinet Layout, Grit Tank 1 and 2 JBA-G831-1 and JBA-G831-2 Junction Boxes
1-0102-ACBD-G072		Wiring Diagram, Grit Tank 1 and 2 JBA-G831-1 and JBA-G831-2 Junction Boxes
1-0102-ACBD-G073		Cabinet Layout, Headworks Area, JBA-GDC-G2 Junction Box
1-0102-ACBD-G074		Wiring Diagram, XK-G3237, G3257, G3411, G3412, G3422, G3413, G3423, Valves Remote Control Stations
1-0102-ACBD-G081	001	Cabinet Layout, Headworks Area, Junction Boxes
1-0102-ACBD-G081	002	Cabinet Layout, Headworks Area, Junction Boxes
1-0102-ACBD-G081	003	Cabinet Layout, Headworks Area, Junction Boxes
1-0102-ACBD-G082		Cabinet Layout, Headworks Area, JBA-G230, JBA-G2332, JBA-G2342 Junction Boxes
1-0102-ACBD-G083		Cabinet Layout, Headworks Area, JBA-G620 Junction Box
1-0102-ACBD-G084		Cabinet Layout, Headworks Area - Grit & Screenings Building, Truck Bay Door Entry Control Junction Box
1-0102-ACBD-G085		Cabinet Layout, Headworks Area, JBA-G6731 Flushing Water Valve Junction Box
1-0102-ACBD-G901		Cabinet Layout, Headworks Area - Grit Area, NP-G900 Network Cabinet
1-0102-ACBD-G902		Power Distribution Schematic, Headworks Area - Grit Area, NP-G900 Network Cabinet
1-0102-ACBD-G903		Cabinet Layout, Headworks Area, NP-G901 Network Cabinet
1-0102-ACBD-G904		Power Distribution Schematic, Headworks Area, NP-G901 Network Cabinet
1-0102-ACBD-G905		Miscellaneous Wiring, Headworks Area, NP-G901 Network Cabinet
1-0102-ACBD-GD01		Cabinet Layout Demolition, Headworks Area, CP-G820-1 and CP-G820-2
1-0102-AGAD-G001		Equipment Layout, Headworks Area - Influent Pump Station, Control Room

Drawing No.	Sheet No.	Description
1-0102-AGAD-G002		Instrument Location Plan, Headworks Area - Influent Pump Station, Motor Room
1-0102-AGAD-G003		Instrument Location Plan, Headworks Area - Influent Pump Station, Pump Room Service Floor Plan
1-0102-AGAD-G004		Instrument Location Plan, Headworks Area - Influent Pump Station, Drywell Pump Room Plan
1-0102-AGAD-G005		Instrument Location Plan, Headworks Area - Screen Building, Screen Room
1-0102-AGAD-G006		Instrument Location Plan, Headworks Area - Grit Building, Grit Tank Room Lower Level Plan
1-0102-AGAD-G007		Instrument Location Plan, Headworks Area - Grit Tank Room, Grit Tank Room and Exhaust Plenums
1-0102-AGAD-G008		Instrument Location Plan, Headworks Area - Grit Building, Drywell Mechanical Room
1-0102-AGAD-G009		Instrument Location Plan, Headworks Area - Pump & Grit Building, Blower Room
1-0102-AGAD-G010		Instrument Location Plan, Headworks Area - Grit Tanks 1 and 2, Basement Floor Plan
1-0102-AGAD-G011		Instrument Location Plan, Headworks Area - Grit Tanks 1 and 2, Ground Floor Plan
1-0102-AGAD-G012		Instrument Location Plan, Headworks Area - Grit & Screenings Building, Ground Floor Plan
1-0102-AGAD-G013		Instrument Location Plan, Headworks Area - Grit & Screenings Building, Grit and Screening Platform & Roof
1-0102-AGAD-G014		Instrument Location Plan, Headworks Area - Grit & Screenings Building, Cable Service Room
1-0102-AIFS-G001	001	Profibus Segment Diagram, Headworks Area Branch 1, Profibus DP Segments ND-G840-1
1-0102-AIFS-G001	002	Profibus Segment Diagram, Headworks Area Branch 1, Profibus DP Segments ND-G840-1
1-0102-AIFS-G002		Profibus Segment Diagram, Headworks Area Branch 1, Profibus DP Segments ND-G840-2
1-0102-AIFS-G003		Profibus Segment Diagram, Headworks Area Branch 1, Profibus DP Segments ND-G840-3
1-0102-AIFS-G004		Profibus Segment Diagram, Headworks Area Branch 1, Profibus PA Segment Protector NSP-G850
1-0102-AIFS-G005		Profibus Segment Diagram, Headworks Area Branch 1, Profibus PA Segment Protector NSP-G855
1-0102-AIFS-G006		Profibus Segment Diagram, Headworks Area Branch 2, Profibus DP Segments ND-G841-1
1-0102-AIFS-G007		Profibus Segment Diagram, Headworks Area Branch 2, Profibus DP Segments ND-G841-2
1-0102-AIFS-G008		Profibus Segment Diagram, Headworks Area Branch 2, Profibus DP Segments ND-G841-3
1-0102-AILD-G101		Loop Diagram, HS-G1260, Flood Mode Selector Switch
1-0102-AILD-G102		Loop Diagram, XV-G1271 and XV-G1281, Dewatering Valves
1-0102-AILD-G103		Loop Diagram, FIT-G1051 and PSL-G1053, Grit Pump Piping
1-0102-AILD-G104		Loop Diagram, LSH-G1081 and LSH-G1101, Wet Well Level
1-0102-AILD-G105		Loop Diagram, VE-G1024, VE-G1025, VT-G1020, Raw Sewage Pump P-G102 Vibration Monitoring
1-0102-AILD-G106	001	Loop Diagram, TT-G1020, Temperature Monitoring Raw Sewage Pump P-G102

Drawing No.	Sheet No.	Description
1-0102-AILD-G106	002	Loop Diagram, TT-G1020, Temperature Monitoring Raw Sewage Pump P-G102
1-0102-AILD-G107		Loop Diagram, XV-G1063, P-G101 Recycle Flushing Water Valve
1-0102-AILD-G108		Loop Diagram, FIT-G1061, Raw Sewage Pump P-G101 Flow Transmitter
1-0102-AILD-G109		Loop Diagram, FIT-G1121, Raw Sewage Pump P-G102 Flow Transmitter
1-0102-AILD-G110		Loop Diagram, LIT-G1071 East Wet Well Level
1-0102-AILD-G111		Loop Diagram, LIT-G1091 and LI-G1091, West Wet Well Level
1-0102-AILD-G113		Loop Diagram, FIT-G1111, Raw Sewage Magnetic Flow Meter
1-0102-AILD-G115		Loop Diagram, FIT-G1131, Raw Sewage Magnetic Flow Meter
1-0102-AILD-G116		Loop Diagram, FIT-G1141, Raw Sewage Magnetic Flow Meter
1-0102-AILD-G201		Loop Diagram, LSH-G2021, Discharge Channel Level
1-0102-AILD-G202		Loop Diagram, LIT-G2011, Discharge Channel Level
1-0102-AILD-G203		Loop Diagram, TIT-G2012, Discharge Channel Temperature
1-0102-AILD-G211	001	Loop Diagram, SCR-G211, Mechanical Screen
1-0102-AILD-G211	002	Loop Diagram, SCR-G211, Mechanical Screen
1-0102-AILD-G212	001	Loop Diagram, SCR-G212, Mechanical Screen
1-0102-AILD-G212	002	Loop Diagram, SCR-G212, Mechanical Screen
1-0102-AILD-G213	001	Loop Diagram, SCR-G213, Mechanical Screen
1-0102-AILD-G213	002	Loop Diagram, SCR-G213, Mechanical Screen
1-0102-AILD-G214	001	Loop Diagram, SCR-G214, Mechanical Screen
1-0102-AILD-G214	002	Loop Diagram, SCR-G214, Mechanical Screen
1-0102-AILD-G230	001	Loop Diagram, LCP-G230, Disposal bins TK-G233 & G234 Control Panel
1-0102-AILD-G230	002	Loop Diagram, LCP-G230, Disposal bins TK-G233 & G234 Control Panel
1-0102-AILD-G231		Loop Diagram, WCP-G231, Screenings Washer/ Compactor
1-0102-AILD-G232		Loop Diagram, WCP-G232, Screenings Washer/ Compactor
1-0102-AILD-G233		Loop Diagram, XV-G2301, Screening Sluice Gate
1-0102-AILD-G234		Loop Diagram, LSH-G2302, Sluice level Switch
1-0102-AILD-G235		Loop Diagram, PSL-G2303, Screening Washer/ Compactor Non-Potable Water Pressure Switch
1-0102-AILD-G236		Loop Diagram, XV-G2303, Screening Washer/ Compactor Non-Potable Water Valve Switch
1-0102-AILD-G237		Loop Diagram, WIT-G2331, Disposal Bin Weigh Scale
1-0102-AILD-G238		Loop Diagram, WIT-G2341, Disposal Bin Weigh Scale
1-0102-AILD-G239		Loop Diagram, ZS-G2332-1 and ZS-G2332-2, Disposal Bin TK-G233 Position IR Sensors
1-0102-AILD-G240		Loop Diagram, ZS-G2342-1 and ZS-G2342-2, Disposal Bin TK-G234 Position IR Sensors
1-0102-AILD-G241		Loop Diagram, YL-G2306-2 and YL-G2307-2, Disposal Bins TK-G233 and G234 Ready For Hauler Lights
1-0102-AILD-G301		Loop Diagram, Girt Tank HV-G3311, Sluice Gate Position
1-0102-AILD-G302		Loop Diagram, HV-G3321, Sluice Gate Position
1-0102-AILD-G303		Loop Diagram, XV-G3313, Grit Pump Suction Valve
1-0102-AILD-G304		Loop Diagram, XV-G3323, Grit Removal Valve

Drawing No.	Sheet No.	Description
1-0102-AILD-G306		Loop Diagram, FIT-G3231 & FIT-G3251, Grit Pumps Flow Transmitters
1-0102-AILD-G320		Loop Diagram, LIT-G3201, Screen Effluent Channel Level
1-0102-AILD-G321		Loop Diagram, XV-G3211 Grit Tank TK-G321 Flushing Water Valve
1-0102-AILD-G322		Loop Diagram, HV-G3212, Grit Tank TK-G321 Intake Gate
1-0102-AILD-G323		Loop Diagram, XV-G3221 Grit Tank TK-G322 Flushing Water Valve
1-0102-AILD-G324		Loop Diagram, HV-G3222, Grit Tank TK-G322 Intake Gate
1-0102-AILD-G325		Loop Diagram, AIT-G3613, Grit Effluent Channel Sample Line Analyzer
1-0102-AILD-G326		Loop Diagram, FSL-G3614, Grit Effluent Channel Sample Line Flow Switch
1-0102-AILD-G327		Loop Diagram, LIT-G3615, Grit Tanks 1 & 2 Effluent Level
1-0102-AILD-G330		Loop Diagram, LIT-G3333, Screen Effluent Channel Level
1-0102-AILD-G331		Loop Diagram, PSL-G3401 Grit Classifier Flushing Water Pressure Switch
1-0102-AILD-G332		Loop Diagram, XV-G3401 Grit Classifier Non-Potable Water Valve
1-0102-AILD-G333		Loop Diagram, XV-G3414 Grit Tank TK-G341 Flushing Water Valve
1-0102-AILD-G334		Loop Diagram, XV-G3424 Grit Tank TK-G342 Flushing Water Valve
1-0102-AILD-G335		Loop Diagram, SSL-G3415 & SSL-G3425, Grit Classifier Motion Detector
1-0102-AILD-G336		Loop Diagram, B-G351, Channel Aeration Blower
Volume 2C Cover Page		Cover Page
1-0102-AILD-G337		Loop Diagram, B-G352, Channel Aeration Blower
1-0102-AILD-G338		Loop Diagram, B-G353, Grit Blower
1-0102-AILD-G339		Loop Diagram, B-G354, Grit Blower
1-0102-AILD-G340		Loop Diagram, PDSH-G3511 & PDSH-G3521, Differential Pressure Switches
1-0102-AILD-G341		Loop Diagram, FIT-G3502 & FIT-G3503, Grit and Channel Aeration Blowers Flow Transmitters
1-0102-AILD-G502		Loop Diagram, AAH-G5030, Screen Room and Loading Area Gas Alarm
1-0102-AILD-G503		Loop Diagram, TSH-G5061, G5071, G5081, G5091, G5101, G5761, High Temperature Switches
1-0102-AILD-G504		Loop Diagram, AAH-G5911, AAH-G5911-2 & XV-G5911, Standby Generator Room Gas Alarm
1-0102-AILD-G505		Loop Diagram, GDC-G1, GDC-G2, GDC-G3, Gas Detection Common Fault Alarms
1-0102-AILD-G506		Loop Diagram, FSL-G5012, FSL-G5013, HS-G5010, ADP-G2 Sample Panel Equipment
1-0102-AILD-G507		Loop Diagram, AAH-G5020-1 & AAH-G5020-2, G502 Dry Well Gas Alarm
1-0102-AILD-G508		Loop Diagram, AAH-G5040-1 & AAH-G5040-2, G504 Grit Tank Room Gas Alarm
1-0102-AILD-G509		Loop Diagram, LT-G5631 & LT-G5641, Dry Well Flood Levels

Drawing No.	Sheet No.	Description
1-0102-AILD-G510		Loop Diagram, AAH-G5010 & QA-G6071, Wet Well Gas Alarm & Ventilation Failure
1-0102-AILD-G511		Loop Diagram, SA-G511, Raw Sewage Sampler
1-0102-AILD-G512		Loop Diagram, SA-G512, Raw Sewage Sampler
1-0102-AILD-G513		Loop Diagram, SA-G513, Raw Sewage Sampler
1-0102-AILD-G514		Loop Diagram, SA-G514, Raw Sewage Sampler
1-0102-AILD-G515		Loop Diagram, GDC-G2, Gas Detection Common Fault Alarm
1-0102-AILD-G516		Loop Diagram, LSH-G5212, Sump Level
1-0102-AILD-G517		Loop Diagram, LSH-G5312, Sump Level
1-0102-AILD-G521		Loop Diagram, XV-G5341, SCR-G211 Hot Wash Water Valve
1-0102-AILD-G522		Loop Diagram, XV-G5342, SCR-G212 Hot Wash Water Valve
1-0102-AILD-G523		Loop Diagram, XV-G5343, SCR-G213 Hot Wash Water Valve
1-0102-AILD-G524		Loop Diagram, XV-G5344, SCR-G214 Hot Wash Water Valve
1-0102-AILD-G525		Loop Diagram, XV-G5345, TK-G533 Hot Water Heater Tank
1-0102-AILD-G526		Loop Diagram, PSL-G5345 Automatic Strainers Pressure Switch
1-0102-AILD-G527		Loop Diagram, STR-G535, Automatic Strainer
1-0102-AILD-G528		Loop Diagram, STR-G536, Automatic Strainer
1-0102-AILD-G529		Loop Diagram, F-G581, Remote Radiator Fan
1-0102-AILD-G601		Loop Diagram, TSH-G6431 & TSH-G6471 High Temperature Switches
1-0102-AILD-G610	001	Loop Diagram, AHU-G610, Screen Room Air Handling Unit
1-0102-AILD-G610	002	Loop Diagram, AHU-G610, Screen Room Air Handling Unit
1-0102-AILD-G610	003	Loop Diagram, AHU-G610, Screen Room Air Handling Unit
1-0102-AILD-G611		Loop Diagram, TV-G6106, AHU-G610 Temp Valve
1-0102-AILD-G612		Loop Diagram, FV-G6108, AHU-G640 Intake Damper
1-0102-AILD-G613		Loop Diagram, FIT-G6108, AHU-G640 Intake Air Flow Meter
1-0102-AILD-G614		Loop Diagram, FIT-G6112, EF-611 Exhaust Fan Flow
1-0102-AILD-G615		Loop Diagram, TT-G6142, TT-G6152, TT-G6162, TT-G6172 Temperature Transmitter
1-0102-AILD-G620	001	Loop Diagram, AHU-G620, Screen Room Air Handling Unit
1-0102-AILD-G620	002	Loop Diagram, AHU-G620, Screen Room Air Handling Unit
1-0102-AILD-G620	003	Loop Diagram, AHU-G620, Screen Room Air Handling Unit
1-0102-AILD-G621		Loop Diagram, TV-G6206, AHU-G620 Temp Valve
1-0102-AILD-G622		Loop Diagram, FV-G6208, AHU-G649 Intake Damper
1-0102-AILD-G623		Loop Diagram, FIT-G6208, AHU-G649 Intake Air Flow Meter
1-0102-AILD-G624		Loop Diagram,TT-G6242, TT-G6252 Screen Room Temperature Transmitters
1-0102-AILD-G630	001	Loop Diagram, AHU-G630, Screen Room Air Handling Unit
1-0102-AILD-G630	002	Loop Diagram, AHU-G630, Screen Room Air Handling Unit

Drawing No.	Sheet No.	Description
1-0102-AILD-G630	003	Loop Diagram, AHU-G630, Screen Room Air Handling Unit
1-0102-AILD-G631		Loop Diagram, TV-G6306, AHU-G630 Temp Valve
1-0102-AILD-G632		Loop Diagram, TT-G6341, Grit Tank Room G138 Temperature
1-0102-AILD-G640	001	Loop Diagram, AHU-G640, Electrical Room Air Handling Unit
1-0102-AILD-G640	002	Loop Diagram, AHU-G640, Electrical Room Air Handling Unit
1-0102-AILD-G641		Loop Diagram, CU-G641 & ACU-G641, Electrical Room Air Conditioning Unit
1-0102-AILD-G642		Loop Diagram, CU-G642 & ACU-G642, Electrical Room Air Conditioning Unit
1-0102-AILD-G643		Loop Diagram, CU-G643 & ACU-G643, Electrical Room Air Conditioning Unit
1-0102-AILD-G644		Loop Diagram, TT-G6407, Electrical Room Temperature Transmitter
1-0102-AILD-G650		Loop Diagram, LSL-G6641 & LSL-G6751, Glycol Feed Package FDR-G664 and FDR-G675 Tank Level Switches
1-0102-AILD-G651		Loop Diagram, TV-G6631, Hot Water Temperature Valve
1-0102-AILD-G652		Loop Diagram, TT-G6631 & TT-G6632, Glycol Temperature
1-0102-AILD-G653		Loop Diagram, FIT-G6621, Supply Hot Water Flow
1-0102-AILD-G654		Loop Diagram, TT-G6622 & TT-G6623, Hot Water Temperature Transmitters
1-0102-AILD-G655		Loop Diagram, XV-G6731 Heat Exchanger HE-G673 Flushing Water Valve
1-0102-AILD-G656		Loop Diagram, TV-G6761, Condenser Water Pump Temperature Valve
1-0102-AILD-G657		Loop Diagram, TT-G6731, TT-G6735 & TT-G6761, Temperature Transmitters
1-0102-AILD-G658		Loop Diagram, TT-G6942 & TT-G6952, Grit Pump Room Temperature Transmitters
1-0102-AILD-G901		Loop Diagram, ZS-G9621, G9631, G9641, Door Switches
1-0102-AILD-G902		Loop Diagram, ZSC-G9611, G9612 & HS-G5661, Switches & Grit Hauler Push Button
1-0102-AILD-G903		Loop Diagram, XS-G9711 and XS-G9721, Motion Detectors
1-0102-AILD-G904		Loop Diagram, XS-G9731 and XS-G9741, Gallery Motion Detectors
1-0102-AILD-G905		Loop Diagram, ZSC-G9651, ZSC-G9652 & ZSC-G9653, Door Switches
1-0102-AILD-G906		Loop Diagram, ZSC-G9654, ZSC-G9655 & ZSC-G9656, Door Switches
1-0102-AILD-G907		Loop Diagram, ZSC-G9671 & ZSC-G9691, Door Switches
1-0102-AILD-G908		Loop Diagram, ZSC-G9681 & XS-G9682, Door Switch and Window Break Detector
1-0102-AILD-G909		Loop Diagram, NGR-G750 & NGR-G760, Neutral Grounding Alarm
1-0102-AILD-G910		Loop Diagram, ET-G5800, G301, Standby Power System Emergency Generator
1-0102-AILD-G911		Loop Diagram, G308, MCC-G730 and MCC-G740 Tie Breaker

Drawing No.	Sheet No.	Description
1-0102-AILD-G912		Loop Diagram, G309, CB-G580 Generator Breaker Position, G309
1-0102-AILD-G913		Loop Diagram, G311, Standby Power System Transfer Switch
1-0102-AILD-G914		Loop Diagram, ZS-G9601 & ZS-G9602, Door Switches
1-0102-AILD-G915		Loop Diagram, G306, MCC-G740 Main Breaker Position
1-0102-AILD-G916		Loop Diagram, G305, MCC-G730 Main Breaker Position
1-0102-AILD-G917		Loop Diagram, TC-G7611, Exhaust Fan/Duct Drain Heat Trace, Temp. Controller Fault
1-0102-AILD-G918		Loop Diagram, HS-G9657, YY-G9657, ZL-G9657-1, ZL-G9657-2 Truck Bay Door Entry Control
1-0201-AILD-G919		Loop Diagram, UPS-G715, Alarms
1-0102-AILD-GT01		Loop Diagram, CNV-G251, Temporary Grit Conveyor
1-0102-ANET-G001		Network Diagram, Headworks Area, Supervisory Network
1-0102-ANET-G002	001	Network Diagram, Headworks Area, Control Network
1-0102-ANET-G002	002	Network Diagram, Headworks Area, Control Network
1-0102-ANET-G002	003	Network Diagram, Headworks Area, Control Network
1-0102-ANET-G002	004	Network Diagram, Headworks Area, Control Network
1-0102-ANET-G002	005	Network Diagram, Headworks Area, Control Network
1-0102-ANET-G003	001	Network Diagram, Headworks Area, Device Network
1-0102-ANET-G003	002	Network Diagram, Headworks Area, Device Network
1-0102-ANET-G003	003	Network Diagram, Headworks Area, Device Network
1-0102-ANET-G003	004	Network Diagram, Headworks Area, Device Network
1-0102-ANET-G003	005	Network Diagram, Headworks Area, Device Network
1-0102-ANET-G004		Network Diagram, Headworks Area, Administration and Security Network
1-0102-ANET-G005		Network Diagram, Grit/Screening Building, Server Network
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
P – PRIMARY CLARIFIERS		
General		
Volume 3A Cover Page	006	Cover Page
Volume 3 Index 1	001	Drawing Index (1)
Volume 3 Index 2	001	Drawing Index (2)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SFDW-P001		Primary Clarifiers - Stair Piling Plan
1-0102-SGAD-P001		Primary Clarifiers - Plans and Sections
1-0102-SGAD-PD50		Primary Clarifiers - Gallery and Plant By-pass Plan
1-0102-SGAD-PD51		Primary Clarifiers - Floor Plans at EL 769'-0 and EL 763'-0
SEP-241		Primary Clarifiers - Plan Above 229.665

Drawing No.	Sheet No.	Description
SEP-242		Primary Clarifiers - Plan Above 234.390
SEP-244		Primary Clarifiers - Part Plans, Section and Details
SEP-246		Primary Clarifiers - Section - Sheet 2
1-0102-SDTL-A002		Standard Details (1)
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
1-0102-SDTL-A025		Odour Control Details (1)
1-0102-SDTL-A026		Odour Control Details (2)
1-0102-SDTL-A027		Odour Control Details (3)
1-0102-SDTL-A028		Odour Control Details (4)
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BGAD-P001		Primary Clarifiers - Plan and Section
1-0102-BGAD-P002		Primary Clarifiers - Plan Details and Schedules
1-0102-BGAD-P003		Primary Clarifiers - Section Details
1-0102-BGAD-P011		Primary Clarifiers - Ground Floor Part Plan and Section
1-0102-BGAD-PD50		Primary Clarification Building - Existing Floor Plan EL 752'-00"
1-0102-BGAD-PD51		Primary Clarification Building - Existing Floor Plan EL 769'-0"
1-0102-BGAD-PD52		Primary Clarification Building - Existing North Elevation
1-0102-BGAD-PD53		Primary Clarification Building - Existing STAir and Miscellaneous Details
1-0102-BSCH-P001		Primary Clarification Building - Room Finish, Door and Hardware Schedules
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-P101		Clarifiers 1 & 2
1-0102-PPID-P102		Clarifier 3
1-0102-PPID-P103		Primary Effluent Splits
1-0102-PPID-P104		Sampling System
1-0102-PPID-P201		Clarifier 1 Sludge Removal System (P-P105)
1-0102-PPID-P202		Clarifier 2 Sludge Removal System (P-P106)
1-0102-PPID-P203		Clarifier 3 Sludge HOPPERS

Drawing No.	Sheet No.	Description
1-0102-PPID-P204		Clarifier 3 Sludge Transfer Pumps P-P111 & P-P116
1-0102-PPID-P205		Sludge Discharge Piping
1-0102-PPID-P301		Clarifiers 1 & 2 Scum REMOVAL System
1-0102-PPID-P302		Clarifiers 1 & 2 Scum Pumps P-P201 & P-P202
1-0102-PPID-P303		Clarifier 3 Scum Removal System
1-0102-PPID-P304		Clarifier 3 Scum Pumps P-P211 & P-P212
1-0102-PPID-P401		Clarifier 1 Travelling Bridge Collector
1-0102-PPID-P402		Clarifier 2 Travelling Bridge Collector
1-0102-PPID-P403		Clarifier 3 Travelling Bridge Collector
1-0102-PPID-P501		Sump Pumps
1-0102-PPID-P502		Potable and Non-Potable Water Headers
1-0102-PPID-P503		Flushing Water Header
1-0102-PPID-P504		Process Air and Instrument Air Headers
1-0102-PPID-P601		Hot Water Booster Pumps P-P671 & P-P672
1-0102-PPID-P602		Secondary Clarifiers Clarifiers 1 & 2 Heat Recovery System P-P662
1-0102-PPID-P603		Secondary Clarifiers Clarifiers 3 Heat Recovery System P-P663
1-0102-PPID-P604		Clarifier 1 & 2 Building Ventilation EF-P631, EF-P632, & EF-P633
1-0102-PPID-P605		Clarifiers 3 Building Ventilation AHU-P634
1-0102-PPID-P606		Clarifier 3 Building Ventilation EF-P636, EF-P637, & EF-P638
1-0102-PPID-P607		Electrical Room P102 Air Handling Unit AHU-P666
1-0102-PPID-P608		Control Room P101 Pressurization Unit AHU-P667
1-0102-PPID-P609		Control Room P101 Air Circulation Unit AHU-P668
1-0102-PPID-P610		Clarifiers 1 & 2 Building Ventilation AHU-P681
1-0102-PPID-P611		Clarifiers 1 & 2 Building Ventilation AHU-P682
1-0102-PPID-P612		Exhaust Fans EF-P685, EF-P686 and EF-P687
1-0102-PPID-P613		Existing Primary Clarifiers Electrical Room B Air Handling Units AHU-P640 & ACU-P641
1-0102-PPID-P614		Storage Room P113 HVAC AHU-B610
1-0102-PPID-P901		Miscellaneous
1-0102-PGAD-P001		Primary Clarifiers Lower Level Plan
1-0102-PGAD-P002		Primary Clarifiers Upper Level Plan
1-0102-PGAD-P003		Primary Clarifiers Lower Level - Part Plan 2
1-0102-PGAD-P004		Primary Clarifiers Section A
1-0102-PGAD-P005		Primary Clarifiers Section B
1-0102-PGAD-P006		Primary Clarifiers Section C
1-0102-PGAD-PD51		Sample Pump SA-P502 Relocation
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MGAD-A003		FOA System - Overall Roof Plan
1-0102-MGAD-P601		Primary Clarifiers -Partial Plan
1-0102-MGAD-P602		Primary Clarifiers -Partial Plans
1-0102-MGAD-PD51		Primary Clarifiers -Partial Plans and Section
1-0102-MGAD-PD52		Primary Clarifiers -Storage Room - Demolition
1-0102-MGAD-PD53		Primary Clarifiers - Photo's
SEP-255		Part Plan Above 229.665

Drawing No.	Sheet No.	Description
SEP-257		Part Plans and Section
SEP-258		Section
SEP-260		Section
SEP-267		Main Floor Plan, Section and Details
SEP-271		Main Floor and Penthouse Plan, Heat, Vent and Ductwork
1-0102-MSLD-P601		Primary Clarifiers - Air Flow Schematic
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-ECBD-P001		MCC/Cabinets Drawing, Primary Clarifiers, MCC-P710 Layout and Schedule
1-0102-ECBD-P002		MCC/Cabinets Drawing, Primary Clarifiers, MCC-P720 Layout and Schedule
1-0102-ECBD-P003		Cabinet Layout, Primary Clarifiers, JBA-P711
1-0102-EFAS-P002		Fire Alarm Layout, Primary Clarifiers, Clarifiers 1 & 2
1-0102-EFAS-P003		Fire Alarm, Primary Clarifiers, Electrical Room B, Penthouses & Storage Room
1-0102-EGAD-P001		Power Layout, Primary Clarifiers, Electrical Room A and Control Room
1-0102-EGAD-P002		Power Layout, Primary Clarifiers, Electrical Room B and Storage Room
1-0102-EGAD-PD02		Demolition Plan, Primary Clarifiers, East End
1-0102-EGAD-PD03		Demolition Plan, Primary Clarifiers, West End
1-0102-EGAD-PD04		Demolition Plan, Primary Clarifiers, Electrical Room A and Control Room
1-0102-EGAD-PD05		Demolition Plan, Primary Clarifiers, Clarfiers 1, 2 & 3 Main Level
1-0102-EGRD-P001		Grounding Layout, Primary Clarifiers, Ground Floor Plan
1-0102-EGRD-P002	001	Lightning Protection Layout, Primary Clarifiers, Roof Plan
1-0102-EGRD-P002	002	Lightning Protection Layout, Primary Clarifiers, Roof Plan
1-0102-ELTG-P001		Lighting Plan Layout, Primary Clarifiers, Stairwell
1-0102-EMCL-P101		Motor Starter Schematic, U-P101, Primary Clarifier 1 Scum Cross Collector
1-0102-EMCL-P102		Motor Starter Schematic, U-P102, Primary Clarifier 2 Scum Cross Collector
1-0102-EMCL-P105		Motor Starter Schematic, P-P105 Primary Clarifiers 1 & 2 Sludge Pump
1-0102-EMCL-P106		Motor Starter Schematic, P-P106 Primary Clarifiers 1 & 2 Sludge Pump
1-0102-EMCL-P111		Motor Starter Schematic, P-P111 Primary Clarifier 3 Sludge Pump
1-0102-EMCL-P116		Motor Starter Schematic, P-P116 Primary Clarifier 3 Sludge Pump
1-0102-EMCL-P201		Motor Starter Schematic, P-P201, Primary Clarifier 1 & 2 Scum Pump

Drawing No.	Sheet No.	Description
1-0102-EMCL-P202		Motor Starter Schematic, P-P202, Primary Clarifier 1 & 2 Scum Pump
1-0102-EMCL-P208		Motor Starter Schematic, P-P208, Primary Clarifier 1 & 2 Scum Recirculation Pump
1-0102-EMCL-P211		Motor Starter Schematic, P-P211, Primary Clarifier 3 Scum Pump
1-0102-EMCL-P212		Motor Starter Schematic, P-P212, Primary Clarifier 3 Scum Pump
1-0102-EMCL-P217		Motor Starter Schematic, P-P217, Primary Clarifier 3 Scum Recirculation Pump
1-0102-EMCL-P219		Motor Starter Schematic, U-P219, Primary Clarifier 3 Scum Cross Collector
1-0102-EMCL-P301	001	Motor Starter Schematic, TBC-P301, Primary Clarifier 1 Travelling Bridge Collector
1-0102-EMCL-P301	002	Motor Starter Schematic, TBC-P301, Primary Clarifier 1 Travelling Bridge Collector
1-0102-EMCL-P302	001	Motor Starter Schematic, TBC-P302, Primary Clarifier 2 Travelling Bridge Collector
1-0102-EMCL-P302	002	Motor Starter Schematic, TBC-P302, Primary Clarifier 2 Travelling Bridge Collector
1-0102-EMCL-P303	001	Motor Starter Schematic, CM-P303, Primary Clarifier 1 Collector Mechanism
1-0102-EMCL-P303	002	Motor Starter Schematic, CM-P303, Primary Clarifier 1 Collector Mechanism
1-0102-EMCL-P304	001	Motor Starter Schematic, CM-P304, Primary Clarifier 2 Collector Mechanism
1-0102-EMCL-P304	002	Motor Starter Schematic, CM-P304, Primary Clarifier 2 Collector Mechanism
1-0102-EMCL-P311	001	Motor Starter Schematic, TBC-P311, Primary Clarifier 3 Travelling Bridge Collector
1-0102-EMCL-P311	002	Motor Starter Schematic, TBC-P311, Primary Clarifier 3 Travelling Bridge Collector
1-0102-EMCL-P313	001	Motor Starter Schematic, CM-P313, Primary Clarifier 3 Collector Mechanism
1-0102-EMCL-P313	002	Motor Starter Schematic, CM-P313, Primary Clarifier 3 Collector Mechanism
1-0102-EMCL-P512		Motor Starter Schematic, P-P512, Gallery P110 Sump Pump
1-0102-EMCL-P513		Motor Starter Schematic, P-P513, Sump Pump
1-0102-EMCL-P514		Motor Starter Schematic, P-P514, Gallery P124 Sump Pump
1-0102-EMCL-P515		Motor Starter Schematic, P-P515, Sump Pump
1-0102-EMCL-P516		Motor Starter Schematic, P-P516, Sump Pump
1-0102-EMCL-P517		Motor Starter Schematic, P-P517, Gallery P127 Sump Pump
1-0102-EMCL-P518		Motor Starter Schematic, P-P518, Gallery P127 Sump Pump
1-0102-EMCL-P535		Motor Starter Schematic, P-P535, Gallery P106 Sump Pump
1-0102-EMCL-P611		Motor Starter Schematic, EF-P631, Primary Clarifier 1 & 2 Exhaust Fan
1-0102-EMCL-P612		Motor Starter Schematic, EF-P632, Primary Clarifier 1 & 2 Exhaust Fan
1-0102-EMCL-P613		Motor Starter Schematic, EF-P633, Primary Clarifier 1 & 2 Exhaust Fan

Drawing No.	Sheet No.	Description
1-0102-EMCL-P614		Motor Starter Schematic, Primary Clarifiers, UH-P614 Unit Heater
1-0102-EMCL-P616		Motor Starter Schematic, EF-P636, Primary Clarifier 3 Exhaust Fan
1-0102-EMCL-P617		Motor Starter Schematic, EF-P637, Primary Clarifier 3 Exhaust Fan
1-0102-EMCL-P618		Motor Starter Schematic, EF-P638, Primary Clarifier 3 Exhaust Fan
1-0102-EMCL-P630		Motor Starter Schematic, P-P662, Primary Clarifier 1 & 2 Glycol Heat Recovery Pump
1-0102-EMCL-P631		Motor Starter Schematic, P-P663, Primary Clarifier 3 Glycol Heat Recovery Pump
1-0102-EMCL-P633		Motor Starter Schematic, AHU-P666, Electrical Room Air Handling Unit
1-0102-EMCL-P634		Motor Starter Schematic, AHU-P667 Control Room Pressurization Unit
1-0102-EMCL-P635		Motor Starter Schematic, AHU-P668, Control Room Air Handling Unit
1-0102-EMCL-P637		Motor Starter Schematic, P-P671, Hot Water Booster Pump
1-0102-EMCL-P638		Motor Starter Schematic, P-P672, Hot Water Booster Pump
1-0102-EMCL-P641	001	Motor Starter Schematic, AHU-P681, Primary Clarifier 1 & 2 Air Handling Unit
1-0102-EMCL-P641	002	Motor Starter Schematic, AHU-P681, Primary Clarifier 1 & 2 Air Handling Unit
1-0102-EMCL-P642	001	Motor Starter Schematic, AHU-P682, Primary Clarifier 1 & 2 Air Handling Unit
1-0102-EMCL-P642	002	Motor Starter Schematic, AHU-P682, Primary Clarifier 1 & 2 Air Handling Unit
1-0102-EMCL-P643		Motor Starter Schematic, P-P683, Glycol Pump for AHU-P681
1-0102-EMCL-P644		Motor Starter Schematic, P-P684, Glycol Pump for AHU-P682
1-0102-EMCL-P645		Motor Starter Schematic, EF-P685, Primary Clarifier 3 Gallery P127 Exhaust Fan
1-0102-EMCL-P646		Motor Starter Schematic, EF-P686, Primary Clarifier 3 Gallery P124 Exhaust Fan
1-0102-EMCL-P647		Motor Starter Schematic, EF-P687, Primary Clarifiers 1 & 2 Gallery P110 Exhaust Fan
1-0102-ESCH-P001	001	Primary Clarifiers, Panel Schedules
1-0102-ESCH-P001	002	Primary Clarifiers, Panel Schedules
1-0102-ESLD-P001		Single Line Diagram, Primary Clarifiers, MCC-P710
1-0102-ESLD-P002		Single Line Diagram, Primary Clarifiers, MCC-P720 and Miscellaneous
1-0102-EWDG-P001		Wiring Diagram, Primary Clarifiers, CU-P641 & ACU-P641
1-0102-EWDG-P002		Wiring Diagram, Primary Clarifier, Exhaust Duct Drain Heat Trace, Temp. Controller TC-P7211
1-0102-EWDG-P003		Wiring Diagram, Primary Clarifiers, Unit Heater UH-P643
SEP-277		Existing Clarifiers, El. 234 M & 238 M, Electrical- Lighting
SEP-278		Existing Clarifiers - El. 227.38 M, & El. 229 M & 230.12 M, Electrical- Lighting
SEP-279		Primary Clarifier Expansion - Electrical, New Clarifier - El. 234.390 M & El. 239.635 M, Electrical - Lighting

Drawing No.	Sheet No.	Description
SEP-280		Primary Clarifier Expansion - Electrical, New Clarifier - El. 229.665 M, Electrical - Lighting
SEP-282		Primary Clarifier Expansion - Electrical, Room Plan, Primary Clarifier Electrical and Control
SEP-283		Primary Clarifier Expansion - Electrical, New Electrical and Control Room Sections
SEP-285		Primary Clarifier Expansion - Electrical, Primary Clarifiers 1 & 2, Basement Floor Plan
SEP-286		Primary Clarifier Expansion - Electrical, Primary Clarifier 3, Main Floor & Penthouse, Floor Plans
SEP-287		Primary Clarifier Expansion - Electrical, Primary Clarifier 3, Basement Floor Plan
1-0102P-E0013	001	Electrical Classification Plan, Primary Clarifier - Lower Level
1-0102P-E0014	001	Electrical Classification Plan, Primary Clarifier - Main Level
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-P001		Primary Clarifiers, Control System Architecture
1-0102-ACBD-P001		Cabinet Layout, Primary Clarifiers, CP-P820-1 and CP-P820-2
1-0102-ACBD-P002	001	Power Distribution Schematic, Primary Clarifiers, CP-P820-1 and CP-P820-2
1-0102-ACBD-P002	002	Power Distribution Schematic, Primary Clarifiers, CP-P820-1 and CP-P820-2
1-0102-ACBD-P003	001	Wiring Diagram, Primary Clarifiers, CP-P820-1 and CP-P820-2, RIO-P800-1 - Discrete Inputs
1-0102-ACBD-P003	002	Wiring Diagram, Primary Clarifiers, CP-P820-1 and CP-P820-2, RIO-P800-1 - Discrete Inputs
1-0102-ACBD-P003	003	Wiring Diagram, Primary Clarifiers, CP-R820-1 and CP-P820-2, RIO-P800-1 - Discrete Inputs
1-0102-ACBD-P003	004	Wiring Diagram, Primary Clarifiers, CP-P820-1 and CP-P820-2, RIO-P800-1 - Discrete Inputs
1-0102-ACBD-P003	005	Wiring Diagram, Primary Clarifiers, CP-P820-1 and CP-P820-2, RIO-P800-1 - Discrete Inputs
1-0102-ACBD-P004	001	Wiring Diagram, Primary Clarifiers, CP-P820-1 and CP-P820-2, RIO-P800-1 - Discrete Outputs
1-0102-ACBD-P004	002	Wiring Diagram, Primary Clarifiers, CP-P820-1 and CP-P820-2, RIO-P800-1 - Discrete Outputs
1-0102-ACBD-P005		Wiring Diagram, Primary Clarifiers, CP-P820-1 and CP-P820-2, RIO-P800-1 - Analog Inputs
1-0102-ACBD-P006		Wiring Diagram, Primary Clarifiers, CP-P820-1 and CP-P820-2, RIO-P800-1 - Analog Outputs
1-0102-ACBD-P008		Cabinet Layout, Primary Clarifiers, CP-P820-3 and CP-P820-4
1-0102-ACBD-P009	001	Power Distribution Schematic, Primary Clarifiers, CP-P820-3 and CP-P820-4
1-0102-ACBD-P009	002	Power Distribution Schematic, Primary Clarifiers, CP-P820-3 and CP-P820-4
1-0102-ACBD-P010	001	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Inputs
1-0102-ACBD-P010	002	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Inputs
1-0102-ACBD-P010	003	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Inputs

Drawing No.	Sheet No.	Description
1-0102-ACBD-P010	004	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Inputs
1-0102-ACBD-P010	005	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Inputs
1-0102-ACBD-P010	006	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Inputs
1-0102-ACBD-P010	007	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Inputs
1-0102-ACBD-P010	008	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Inputs
1-0102-ACBD-P011	001	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Outputs
1-0102-ACBD-P011	002	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Outputs
1-0102-ACBD-P011	003	Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-2 - Discrete Outputs
1-0102-ACBD-P012		Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-3 - Analog Inputs
1-0102-ACBD-P013		Wiring Diagram, Primary Clarifiers, CP-P820-3 and CP-P820-4, RIO-P800-3 - Analog Outputs
1-0102-ACBD-P015	001	Cabinet Layout, Primary Clarifiers, CP-P821, Front View
1-0102-ACBD-P015	002	Cabinet Layout, Primary Clarifiers, CP-P821, Front View
1-0102-ACBD-P016	001	Cabinet Layout, Primary Clarifiers, CP-P821, Rear View
1-0102-ACBD-P016	002	Cabinet Layout, Primary Clarifiers, CP-P821, Rear View
1-0102-ACBD-P021		Cabinet Layout, Primary Clarifiers, PSP-P822 Power Supply Cabinet
1-0102-ACBD-P022	001	Power Distribution Schematic, Primary Clarifiers, PSP-P822 Power Supply Cabinet
1-0102-ACBD-P022	002	Power Distribution Schematic, Primary Clarifiers, PSP-P822 Power Supply Cabinet
1-0102-ACBD-P031	001	Cabinet Layout, Primary Clarifiers, CP-P826, HVAC PLC Cabinet - PLC-P806
1-0102-ACBD-P031	002	Cabinet Layout, Primary Clarifiers, CP-P826, HVAC PLC Cabinet - PLC-P806
1-0102-ACBD-P032		Power Distribution Schematic, Primary Clarifiers, CP-P826, HVAC PLC Cabinet - PLC-P806
1-0102-ACBD-P033		Wiring Diagram, Primary Clarifiers, CP-P826, PLC-P806 - Discrete Inputs
1-0102-ACBD-P034		Wiring Diagram, Primary Clarifiers, CP-P826, PLC-P806 - Discrete Outputs
1-0102-ACBD-P035		Wiring Diagram, Primary Clarifiers, CP-P826, PLC-P806 - Analog Inputs
1-0102-ACBD-P036		Wiring Diagram, Primary Clarifiers, CP-P826, PLC-P806 - Analog Outputs
1-0102-ACBD-P081		Cabinet Layout, Primary Clarifiers, Junction Boxes
1-0102-ACBD-P082		Cabinet Layout, Primary Clarifiers, JBA-P614 , Unit Heater UH-P614 Junction Box
1-0102-ACBD-P083		Cabinet Layout, JBA-P641 Air Conditioning Unit ACU-P641 Junction Box
1-0102-ACBD-P084		Cabinet Layout, JBA-P6401, Electrical Room B Intake Damper Junction Box
1-0102-ACBD-P901		Cabinet Layout, Primary Clarifiers, NP-P900 Network Cabinet
1-0102-ACBD-P902		Power Distribution Schematic, Primary Clarifiers, NP-P900 Network Cabinet

Drawing No.	Sheet No.	Description
1-0102-ACBD-PD01		Cabinet Layout, Primary Clarifiers, CP-P820-1, CP-P820-2, CP-P820-3 and CP-P820-4
1-0102-AGAD-P001		Equipment Layout, Primary Clarifiers, Control Room
1-0102-AILD-P101		Loop Diagram, XV-P1311, Primary Clarifier 3 Influent Sluice Gate
1-0102-AILD-P102		Loop Diagram, HV-P1171, Primary Clarifier 1 Influent Sluice Gate
1-0102-AILD-P103		Loop Diagram, HV-P1181, Primary Clarifier 1 Influent Sluice Gate
1-0102-AILD-P104		Loop Diagram, HV-P1211, Primary Clarifier 2 Influent Sluice Gate
1-0102-AILD-P105		Loop Diagram, HV-P1221, Primary Clarifier 2 Influent Sluice Gate
1-0102-AILD-P106		Loop Diagram, XV-P1031, Primary Clarifier 1 Sludge Transfer Valve
1-0102-AILD-P107		Loop Diagram, XV-P1041, Primary Clarifier 2 Sludge Transfer Valve
1-0102-AILD-P108		Loop Diagram, XV-P1121, Primary Clarifier 3 Sludge Transfer Valve
1-0102-AILD-P109		Loop Diagram, XV-P1131, Primary Clarifier 3 Sludge Transfer Valve
1-0102-AILD-P110		Loop Diagram, XV-P1141, Primary Clarifier 3 Sludge Transfer Valve
1-0102-AILD-P111		Loop Diagram, XV-P1151, Primary Clarifier 3 Sludge Transfer Valve
1-0102-AILD-P112		Loop Diagram, FIT-P1081, Sludge Flow Transmitter
1-0102-AILD-P113		Loop Diagram, DIT-P1091, Primary Clarifiers Sludge Density Transmitter
1-0102-AILD-P114		Loop Diagram, ZSC-P1092, Primary Sludge to Sludge Holding Tanks Valve
1-0102-AILD-P201		Loop Diagram, LIT-P2101, Primary Clarifier 1 & 2 Scum Pit Level
1-0102-AILD-P202		Loop Diagram, LIT-P2201, Primary Clarifier 3 Scum Pit Level
1-0102-AILD-P203		Loop Diagram, ZS-P2151, Sludge Tank Line Crossover Valve
1-0102-AILD-P204		Loop Diagram, XV-P2041, Primary Clarifier 1 & 2 Scum Pit Scum Line Flush Valve
1-0102-AILD-P205		Loop Diagram, XV-P2051, Primary Clarifier 1 & 2 Scum Transfer Valve For P-P201
1-0102-AILD-P206		Loop Diagram, XV-P2061, Primary Clarifier 1 & 2 Scum Transfer Valve For P-P202
1-0102-AILD-P207		Loop Diagram, XV-P2071, Primary Clarifier 1 & 2 Scum Trough Flush Valve
1-0102-AILD-P208		Loop Diagram, XV-P2091, Primary Clarifier 3 Scum Transfer Valve For P-P211
1-0102-AILD-P209		Loop Diagram, XV-P2131, Primary Clarifier 3 Scum Transfer Valve for P-P212
1-0102-AILD-P210		Loop Diagram, XV-P2141, Primary Clarifier 3 Scum Tank Scum Lin Flush Valve
1-0102-AILD-P211		Loop Diagram, XV-P2211, Primary Clarifier 3 Scum Tank Scum Line Flush Valve
1-0102-AILD-P212		Loop Diagram, HV-P2161, Primary Sludge Storage Tank Line Crossover Valve
1-0102-AILD-P301		Loop Diagram, ZS-P3051, Primary Clarifier 1 Scum Collection Limit Switch

Drawing No.	Sheet No.	Description
1-0102-AILD-P302		Loop Diagram, ZS-P3061, Primary Clarifier 2 Scum Collection Limit Switch
1-0102-AILD-P303		Loop Diagram, ZS-P3171, Primary Clarifier 3 Scum Collection Limit Switch
1-0102-AILD-P401		Loop Diagram, LSH-P4051, Primary Clarifier 1 Effluent High Level Switch
1-0102-AILD-P402		Loop Diagram, LSH-P4061, Primary Clarifier 2 Effluent High Level Switch
1-0102-AILD-P502		Loop Diagram, SA-P502, Primary Clarifiers 1 Effluent Sample Pump
Volume 3B Cover Page		Cover Page
1-0102-AILD-P503		Loop Diagram, SA-P503, Primary Clarifier 1 & 2 Sludge Sampler
1-0102-AILD-P534		Loop Diagram, FACP-P1, Main Alarms
1-0102-AILD-P537		Loop Diagram, SA-P537, Primary Clarifiers 3 Effluent Sample Pump
1-0102-AILD-P601		Loop Diagram, XV-P6342, Primary Clarifier 3 Relief Air Damper
1-0102-AILD-P602		Loop Diagram, AHU-P634, Primary Clarifier 3 Gas Fired Air Handling Unit
1-0102-AILD-P603		Loop Diagram, FSL-P6441, Hot Water Flow Switch
1-0102-AILD-P604		Loop Diagram, TT-P6781, Primary Clarifier 1 & 2 Air Temperature
1-0102-AILD-P605		Loop Diagram, TT-P6791, Primary Clarifier 3 Air Temperature
1-0102-AILD-P640	001	Loop Diagram, AHU-P640, Electrical Room B Air Handling Unit
1-0102-AILD-P640	002	Loop Diagram, AHU-P640, Electrical Room B Air Handling Unit
1-0102-AILD-P641		Loop Diagram, ACU-P641, Electrical Room B Air Conditioning Unit
1-0102-AILD-P642		Loop Diagram, TT-P6406 & TT-P6142, Room Temperature Transmitters
1-0102-AILD-P643		Loop Diagram, XV-P6401 Electrical Room B Intake Damper
1-0102-AILD-P901		Loop Diagram, ZSC-P9611, P9612, P9624, P9701, P9632, Door Switches
1-0102-AILD-P902		Loop Diagram, ZSC-P9631, P9621, P9622, P9623, P9633, Door Switches
1-0102-AILD-P903		Loop Diagram, XS-P9641, XS-P9651, Gallery P110 & P107 Motion Detectors
1-0102-AILD-P904		Loop Diagram, XS-P9661, XS-P9671, Gallery P106 & P107 Motion Detectors
1-0102-AILD-P905		Loop Diagram, XS-P9681, XS-P9681, Gallery P127 Motion Detector Monitoring and Alarm
1-0102-AILD-P906		Loop Diagram, XS-P9691, XS-P9692, Gallery P124 Motion Detector Monitoring and Alarm
1-0102-AILD-P907		Loop Diagram, ET-P7101, ET-P7201, MCC-P710 & MCC-P720 Monitoring
1-0102-AILD-P911		Loop Diagram, TC-P7211, Exhaust Duct Drain Heat Trace, Temp. Controller Fault
1-0102-ANET-P001	001	Network Diagram, Primary Clarifiers, Supervisory Network
1-0102-ANET-P001	002	Network Diagram, Primary Clarifiers, Supervisory Network
1-0102-ANET-P002	001	Network Diagram, Primary Clarifiers, Control Network

Drawing No.	Sheet No.	Description
1-0102-ANET-P002	002	Network Diagram, Primary Clarifiers, Control Network
1-0102-ANET-P002	003	Network Diagram, Primary Clarifiers, Control Network
1-0102-ANET-P003	001	Network Diagram, Primary Clarifiers, Device Network
1-0102-ANET-P003	002	Network Diagram, Primary Clarifiers, Device Network
1-0102-ANET-P004	001	Network Diagram, Primary Clarifiers, Administration and Security Network
1-0102-ANET-P004	002	Network Diagram, Primary Clarifiers, Administration and Security Network
1-0102-ANET-P005	001	Network Diagram, Primary Clarifiers, Server Network
1-0102-ANET-P005	002	Network Diagram, Primary Clarifiers, Server Network
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
R – BNR FACILITY (BIOREACTORS + BLOWER BUILDING)		
General		
Volume 4A Cover Page	006	Cover Page
Volume 4 Index 1	001	Drawing Index (1)
Volume 4 Index 2	002	Drawing Index (2)
Volume 4 Index 3	002	Drawing Index (2)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Civil		
1-0102-CGAD-R001		Bioreactors/Blower Building Weeping Tile Plan
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SFDW-R001		Blower Building Overall Piling Plan
1-0102-SFDW-R002		Blower Building Part Piling Plan (1)
1-0102-SFDW-R003		Blower Building Part Piling Plan (2)
1-0102-SFDW-R004		Blower Building Part Piling Plan (3)
1-0102-SFDW-R005		Blower Building Part Piling Plan (4)
1-0102-SFDW-R006		Bioreactors Part Piling Plan
1-0102-SFDW-R007		Blower Building Cable Trench Piling Plan
1-0102-SGAD-R001		Bioreactors/Blower Building Overall Lower Level Plan
1-0102-SGAD-R002		Bioreactor 1 Lower Level Plan
1-0102-SGAD-R003		Bioreactor 2 Lower Level Plan
1-0102-SGAD-R004		Bioreactor 3 Lower Level Plan
1-0102-SGAD-R005		Bioreactors/Blower Building Overall Channel Level Plan
1-0102-SGAD-R006		Bioreactor 1 Channel Level Plan
1-0102-SGAD-R007		Bioreactor 2 Channel Level Plan
1-0102-SGAD-R008		Bioreactor 3 Channel Level Plan
1-0102-SGAD-R009		Bioreactors/Blower Building Overall Upper Level/Roof Plan
1-0102-SGAD-R010		Bioreactor 1 Roof Plan
1-0102-SGAD-R011		Bioreactor 2 Roof Plan
1-0102-SGAD-R012		Bioreactor 3 Roof Plan

Drawing No.	Sheet No.	Description
1-0102-SGAD-R013		Blower Building Upper Level Plan
1-0102-SGAD-R014		Blower Building Roof Plan
1-0102-SGAD-R015		Bioreactors/Blower Building Section A - Part A
1-0102-SGAD-R016		Bioreactors/Blower Building Section A - Part B
1-0102-SGAD-R017		Bioreactors/Blower Building Section B - Part A
1-0102-SGAD-R018		Bioreactors/Blower Building Section B - Part B
1-0102-SGAD-R019		Bioreactors/Blower Building Section C - Part A
1-0102-SGAD-R020		Bioreactors/Blower Building Section C - Part B
1-0102-SGAD-R021		Bioreactors/Blower Building Section D - Part A
1-0102-SGAD-R022		Bioreactors/Blower Building Section D - Part B
1-0102-SGAD-R023		Bioreactors/Blower Building Section E - Part A
1-0102-SGAD-R024		Bioreactors/Blower Building Section E - Part B
1-0102-SGAD-R025		Bioreactors/Blower Building Section F - Part A
1-0102-SGAD-R026		Bioreactors/Blower Building Section F - Part B
1-0102-SGAD-R027		Bioreactors/Blower Building Section G
1-0102-SGAD-R028		Bioreactors/Blower Building Section H and J
1-0102-SGAD-R029		Bioreactors/Blower Building Section K
1-0102-SGAD-R030		Bioreactors/Blower Building Section L
1-0102-SGAD-R031		Bioreactors/Blower Building Section M - Part A
1-0102-SGAD-R032		Bioreactors/Blower Building Section M - Part B
1-0102-SGAD-R033		Bioreactors/Blower Building Section N - Part A
1-0102-SGAD-R034		Bioreactors/Blower Building Section N - Part B
1-0102-SGAD-R035		Bioreactors/Blower Building Section N - Part C
1-0102-SGAD-R036		Bioreactors/Blower Building Section P
1-0102-SGAD-R037		Bioreactors/Blower Building Section Q
1-0102-SGAD-R038		Bioreactors/Blower Building Section R, S, T, U, V and W
1-0102-SGAD-R040		Blower Building Cable Trench Plan and Section
1-0102-SDTL-R001		Bioreactors/Blower Building Precast Double Tee Roof Details
1-0102-SDTL-R002		Bioreactors/Blower Building Details
1-0102-SDTL-R003		Bioreactors/Blower Building Details
1-0102-SDTL-R004		Bioreactors/Blower Building Details
1-0102-SDTL-R005		Bioreactors/Blower Building Details
1-0102-SDTL-R006		Bioreactors/Blower Building Details
1-0102-SDTL-R007		Bioreactors/Blower Building Details
1-0102-SDTL-R008		Bioreactors/Blower Building Details
1-0102-SDTL-R009		Bioreactors/Blower Building Details
1-0102-SSCH-R001		Bioreactors/Blower Building Column and Beam Schedule
1-0102-SSST-R001		Bioreactors/Blower Building Structural Steel Overall Upper Level/Roof Plan
1-0102-SSST-R002		Bioreactor 1 Structural Steel Roof Plan
1-0102-SSST-R003		Bioreactor 2 Structural Steel Roof Plan
1-0102-SSST-R004		Bioreactor 3 Structural Steel Roof Plan
1-0102-SSST-R005		Bioreactors/Blower Building Structural Steel Section and Details (1)
1-0102-SSST-R006		Bioreactors/Blower Building Structural Steel Section and Details (2)
1-0102-SSST-R007		Bioreactors/Blower Building Structural Steel Section and Details (3)
1-0102-SSST-R008		Bioreactors/Blower Building Structural Steel Section and Details (4)
1-0102-SSST-R010		Bioreactors/Blower Building Structural Steel - Pipe Support Details (1)
1-0102-SSST-R011		Bioreactors/Blower Building Structural Steel - Pipe Support Details (2)

Drawing No.	Sheet No.	Description
1-0102-SDTL-A002		Standard Details (1)
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BAAA-R001		Bioreactors/ Blower Building Wall Types Legend
1-0102-BAAA-R002		Bioreactors/ Blower Building Site Plan and Spatial Separation Calculation
1-0102-BGAD-R001		Building Bioreactors/Blower Building Overall Floor Plans
1-0102-BGAD-R002		Building Bioreactors/Blower Building Lower Level Plan - Part A
1-0102-BGAD-R003		Building Bioreactors/Blower Building Lower Level Plan - Part B
1-0102-BGAD-R004		Building Bioreactors/Blower Building Ground Floor Plan
1-0102-BGAD-R005		Building Bioreactors/Blower Building Roof Plan & Blower Room Ceiling Plan
1-0102-BGAD-R006		Building Bioreactors/Blower Building NORTH and SOUTH Elevations
1-0102-BGAD-R007		Building Bioreactors/Blower Building East Elevation
1-0102-BGAD-R008		Building Bioreactors/Blower Building West Elevation
1-0102-BGAD-R009		Building Bioreactors/Blower Building Section A - Part A
1-0102-BGAD-R010		Building Bioreactors/Blower Building Section A - Part B
1-0102-BGAD-R011		Building Bioreactors/Blower Building Section B & C
1-0102-BGAD-R012		Building Bioreactors/Blower Building Section D - Part A
1-0102-BGAD-R013		Building Bioreactors/Blower Building Section D - Part B
1-0102-BGAD-R014		Building Bioreactors/Blower Building Section D - Part C
1-0102-BGAD-R015		Building Bioreactors/Blower Building Section E - Part A
1-0102-BGAD-R016		Building Bioreactors/Blower Building Section E - Part B
1-0102-BGAD-R017		Building Bioreactors/Blower Building Plan Details
1-0102-BDTL-R003		Building Bioreactors/Blower Building Wall Section
1-0102-BDTL-R004		Building Bioreactors/Blower Building Wall Section
1-0102-BDTL-R005		Building Bioreactors/Blower Building Plan Details
1-0102-BDTL-R006		Building Bioreactors/Blower Building Section Details
1-0102-BSCH-R001		Bioreactors/ Blower Building Room, Door and Hardware Schedules
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)

Drawing No.	Sheet No.	Description
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-R101		Bioreactor NO. 1 Influent Pre-Anoxic, Anaerobic and Anoxic Zones
1-0102-PPID-R102		Bioreactor No. 1 Anoxic IFAS and Post Aerobic Zones
1-0102-PPID-R103		Bioreactor No. 2 Influent Pre-Anoxic, Anaerobic, Anoxic Zones
1-0102-PPID-R104		Bioreactor No. 2 Anoxic IFAS and Post Aerobic Zones
1-0102-PPID-R105		Bioreactor No. 3 Influent Pre-Anoxic, Anaerobic and Anoxic Zones
1-0102-PPID-R106		Bioreactor No. 3 Anoxic IFAS and Post Aerobic Zones
1-0102-PPID-R107		Bioreactor Bypass Channels and Mixed Liquor Channel
1-0102-PPID-R108		Ras Header and Channel
1-0102-PPID-R109		Bioreactors Instrument Air For Self Cleaning Heads
1-0102-PPID-R110		Bioreactors IFAS Tank Screen Heaters
1-0102-PPID-R201		Process Air Blowers R201 & R202
1-0102-PPID-R202		Process Air Blowers R203 & R204
1-0102-PPID-R203		Process Air Blowers R205 & R206
1-0102-PPID-R301		WAS Sump TK-R300 and WAS RDT Feed Pumps P-R301, P-R302 and P-R303
1-0102-PPID-R501		Bioreactors Sump Pumps P-R501 and P-R502
1-0102-PPID-R502		Bioreactors Potable Water System
1-0102-PPID-R503		Bioreactors Non-Potable Water System
1-0102-PPID-R504		Bioreactors Natural Gas Piping
1-0102-PPID-R601		Bioreactors Ventilation System
1-0102-PPID-R602		Bioreactors Air Exhaust Fans EF-R601 and EF-R602
1-0102-PPID-R603		Blower Building Mechanical Room No. 1 Pipe Gallery Air Handling Unit AHU-R610
1-0102-PPID-R604		Blower Building Mechanical Room 2 Air Handling Unit AHU-R620
1-0102-PPID-R605		Electrical Room, Automation Room and Control Room Air Handling Unit AHU-R640
1-0102-PPID-R606		Pipe Gallery Exhaust Fans EF-R611 and EF-R612
1-0102-PPID-R607		Blower Room Exhaust Fans EF-R621, EF-R622 and EF-R623
1-0102-PPID-R608		Miscellaneous Exhaust Fans EF-R651, EF-R652 and EF-R653
1-0102-PPID-R901		LIGHTING, SECURITY and Miscellaneous
1-0102-PGAD-R001		Bioreactors/Blower Building Overall Lower Level Plan
1-0102-PGAD-R002		Bioreactor 1 Lower Level Plan - Part A
1-0102-PGAD-R003		Bioreactor 2 Lower Level Plan - Part B
1-0102-PGAD-R004		Bioreactor 3 Lower Level Plan - Part C
1-0102-PGAD-R005		Bioreactors/Blower Building Overall Upper Level Plan
1-0102-PGAD-R006		Bioreactor 1 Upper Level Plan - Part A
1-0102-PGAD-R007		Bioreactor 2 Upper Level Plan - Part B
1-0102-PGAD-R008		Bioreactor 3 Upper Level Plan - Part C
1-0102-PGAD-R009		Bioreactors/Blower Building Overall Roof Plan
1-0102-PGAD-R010		Bioreactor 1 Roof Plan - Part A
1-0102-PGAD-R011		Bioreactor 2 Roof Plan - Part B
1-0102-PGAD-R012		Bioreactor 3 Roof Plan - Part C
1-0102-PGAD-R013		Bioreactors/Blower Building Blower Room Plan and Detail
1-0102-PGAD-R014		Bioreactors/Blower Building Section A, A1 and B

Drawing No.	Sheet No.	Description
1-0102-PGAD-R015		Bioreactors/Blower Building Section C and D
1-0102-PGAD-R016		Bioreactors/Blower Building Section E and F
1-0102-PGAD-R017		Bioreactors/Blower Building Section G, H, H1 and Detail
1-0102-PGAD-R018		Bioreactors/Blower Building Section J and Details
1-0102-PGAD-R019		Bioreactors/Blower Building Section K
1-0102-PGAD-R020		Bioreactors/Blower Building Section L
1-0102-PGAD-R021		Bioreactors/Blower Building Section M and Detail
1-0102-PGAD-R022		Bioreactors/Blower Building Section N and Detail
1-0102-PGAD-R023		Bioreactors/Blower Building Section P and R
1-0102-PGAD-R024		Bioreactors/Blower Building Section Q and S
1-0102-PDTL-R001		Bioreactors/Blower Building Details (1)
1-0102-PDTL-R002		Bioreactors/Blower Building Details (2)
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MGAD-A003		FOA System - Overall Roof Plan
1-0102-MGAD-R501		Bioreactor/Blower Building Plumbing - Overall Lower Level Plan
1-0102-MGAD-R502		Bioreactor/Blower Building Plumbing - Lower Level Plan - Part A
1-0102-MGAD-R503		Bioreactor/Blower Building Plumbing - Lower Level Plan - Part B
1-0102-MGAD-R504		Bioreactor/Blower Building Plumbing - Lower Level Plan - Part C
1-0102-MGAD-R505		Bioreactor/Blower Building Plumbing - Lower Level Plan - Part D
1-0102-MGAD-R506		Bioreactor/Blower Building Plumbing - Overall Ground Floor Plan
1-0102-MGAD-R507		Bioreactor/Blower Building Plumbing - Ground Floor Plan - Part A
1-0102-MGAD-R508		Bioreactor/Blower Building Plumbing - Ground Floor Plan - Part B
1-0102-MGAD-R509		Bioreactor/Blower Building Plumbing - Roof Plan
1-0102-MGAD-R510		Bioreactor/Blower Building Plumbing - Sump Detail Layout
1-0102-MISO-R501		Bioreactor/Blower Building Plumbing - Drainage System Isometric - Part 1
1-0102-MISO-R502		Bioreactor/Blower Building Plumbing - Drainage System Isometric - Part 2
1-0102-MISO-R503		Bioreactor/Blower Building Plumbing - Water System Isometric
1-0102-MISO-R504		Bioreactor/Blower Building Plumbing - Roof Drainage System Isometric
1-0102-MGAD-R601		Bioreactor/Blower Building HVAC - Overall Lower Level Plan
1-0102-MGAD-R602		Bioreactor/Blower Building HVAC - Lower Level Plan - Part A
1-0102-MGAD-R603		Bioreactor/Blower Building HVAC - Lower Level Plan - Part B

Drawing No.	Sheet No.	Description
1-0102-MGAD-R604		Bioreactor/Blower Building HVAC - Lower Level Plan - Part C
1-0102-MGAD-R605		Bioreactor/Blower Building HVAC - Lower Level Plan - Part D
1-0102-MGAD-R606		Bioreactor/Blower Building HVAC - Lower Level Plan - Part E
1-0102-MGAD-R607		Bioreactor/Blower Building HVAC - Overall Ground Floor Plan
1-0102-MGAD-R608		Bioreactor/Blower Building HVAC - Ground Floor Plan - Part A
1-0102-MGAD-R609		Bioreactor/Blower Building HVAC - Ground Floor Plan - Part B
1-0102-MGAD-R610		Bioreactor/Blower Building HVAC - Ground Floor Plan - Part C
1-0102-MGAD-R611		Bioreactor/Blower Building HVAC - Overall Roof Plan
1-0102-MGAD-R612		Bioreactor/Blower Building HVAC - Section A
1-0102-MGAD-R613		Bioreactor/Blower Building HVAC - Section B
1-0102-MGAD-R621		Bioreactor/Blower Building FOA - Overall Ground Floor Plan
1-0102-MGAD-R622		Bioreactor/Blower Building FOA - Section A and B
1-0102-MISO-R601		Bioreactor/Blower Building HVAC - Overall ISO - Part 1
1-0102-MISO-R602		Bioreactor/Blower Building HVAC - Overall ISO - Part 2
1-0102-MISO-R603		Bioreactor/Blower Building HVAC - Mechanical Room ISO
1-0102-MISO-R604		Bioreactor/Blower Building HVAC - Pipe Gallery 1 Exhaust ISO
1-102-MSLD-R601		Bioreactor/Blower Building HVAC - Air Flow Schematic
1-102-MSLD-R602		Bioreactor/Blower Building HVAC - Air Glycol Heat Recovery System Schematic
1-102-MSLD-R603		Bioreactor/Blower Building HVAC - Natural Gas System Schematic
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-EBDG-R001		Electrical, Bioreactors/Blower Building, Flushing water & Ferric Chloride Heat Tracing Block Diagram
1-0102-ECBD-R001	001	MCC/Cabinets Drawing, Bioreactors/Blower Building, MCC-R710 Layout and Schedule
1-0102-ECBD-R001	002	MCC/Cabinets Drawing, Bioreactors/Blower Building, MCC-R710 Layout and Schedule
1-0102-ECBD-R002	001	MCC/Cabinets Drawing, Bioreactors/Blower Building, MCC-R720 Layout and Schedule
1-0102-ECBD-R002	002	MCC/Cabinets Drawing, Bioreactors/Blower Building, MCC-R720 Layout and Schedule
1-0102-ECBD-R003	001	MCC/Cabinets Drawing, Bioreactors/Blower Building, MCC-R730 Layout and Schedule

Drawing No.	Sheet No.	Description
1-0102-ECBD-R003	002	MCC/Cabinets Drawing, Bioreactors/Blower Building, MCC-R730 Layout and Schedule
1-0102-ECBD-R004		MCC/Cabinets Drawing, Bioreactors/Blower Building, MCC-R750 & MCC-R760 Layout and Schedule
1-0102-ECBD-R005		MCC/Cabinets Drawing, Bioreactors/Blower Building, SGR-R701 & SGR-R702 Layout
1-0102-ECBD-R006		Cabinet Layout, Bioreactors/Blower Building, CP-R734
1-0102-ECBD-R007		Cabinet Layout, Bioreactors/Blower Building, LC-R733
1-0102-ECBD-R008	001	Panel Layout, Bioreactors/Blower Building, Ground Fault Detection Panel EDP-R715
1-0102-ECBD-R008	002	Panel Layout, Bioreactors/Blower Building, Ground Fault Detection Panel EDP-R715
1-0102-ECBD-R009	001	Panel Layout, Bioreactors/Blower Building, Ground Fault Detection Panel EDP-R735
1-0102-ECBD-R009	002	Panel Layout, Bioreactors/Blower Building, Ground Fault Detection Panel EDP-R735
1-0102-ECRT-R001		Cable Routing, Bioreactors/Blower Building, Cable Bus System Layout
1-0102-ECRT-R002		Cable Routing, Bioreactors/Blower Building, Cable Bus System Sections & Details
1-0102-ECTR-R001	001	Cable Tray Layout, Bioreactors/Blower Building, Ground Floor Plan
1-0102-ECTR-R001	002	Cable Tray Layout, Bioreactors/Blower Building, Ground Floor Plan
1-0102-ECTR-R001	003	Cable Tray Layout, Bioreactors/Blower Building, Ground Floor Plan
1-0102-ECTR-R001	004	Cable Tray Layout, Bioreactors/Blower Building, Ground Floor Plan
1-0102-ECTR-R002	001	Cable Tray Layout, Bioreactors/Blower Building, Basement Plan
1-0102-ECTR-R002	002	Cable Tray Layout, Bioreactors/Blower Building, Basement Plan
1-0102-ECTR-R002	003	Cable Tray Layout, Bioreactors/Blower Building, Basement Plan
1-0102-ECTR-R002	004	Cable Tray Layout, Bioreactors/Blower Building, Basement Plan
1-0102-ECTR-R003	001	Cable Tray Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-ECTR-R003	002	Cable Tray Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-ECTR-R003	003	Cable Tray Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-ECTR-R004	001	Cable Tray, Bioreactors/Blower Building, Sections and Details
1-0102-ECTR-R004	002	Cable Tray, Bioreactors/Blower Building, Sections and Details
1-0102-EDTL-R001		Bioreactors/Blower Building, Power and Systems Support Details
1-0102-EDTL-R002	001	Bioreactors/Blower Building, Cable Seal Details
1-0102-EDTL-R002	002	Bioreactors/Blower Building, Cable Seal Details
1-0102-EDTL-R003		Bioreactors/Blower Building, NGR-R701 and NGR-R702 Details
1-0102-EFAS-R001		Fire Alarm Layout, Bioreactors/Blower Building, Basement Plan
1-0102-EFAS-R002		Fire Alarm Layout, Bioreactors/Blower Building, Ground Floor Plan

Drawing No.	Sheet No.	Description
1-0102-EFAS-R003		Fire Alarm, Bioreactors/Blower Buidling, Riser Diagram Detection Circuits
1-0102-EFAS-R004		Fire Alarm, Bioreactors/Blower Building, Riser Diagram Notification Circuits
1-0102-EGAD-R001		Power Layout, Bioreactors/Blower Building, Electrical Room Layout
1-0102-EGAD-R002		Power Layout, Bioreactors/Blower Building, Basement Plan
1-0102-EGAD-R003	001	Power Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-EGAD-R003	002	Power Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-EGAD-R003	003	Power Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-EGAD-R004	001	Power Layout, Bioreactors/Blower Building, Ground Floor Plan
1-0102-EGAD-R004	002	Power Layout, Bioreactors/Blower Building, Ground Floor Plan
1-0102-EGAD-R005	001	Heat Tracing Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-EGAD-R005	002	Heat Tracing Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-EGAD-R006		Heat Tracing Layout, Bioreactors/Blower Building, Roof Plan
1-0102-EGRD-R001		Grounding, Bioreactors/Blower Building, Riser Diagram
1-0102-EGRD-R002	001	Grounding Layout, Bioreactors/Blower Building, Upper Level/Ground Floor Plan
1-0102-EGRD-R002	002	Grounding Layout, Bioreactors/Blower Building, Upper Level/Ground Floor Plan
1-0102-EGRD-R003		Lightning Protection Layout, Bioreactors/Blower Building, Roof Plan
1-0102-EHLC-R001		Hazardous Location, Bioreactors/Blower Building, Basement Plan
1-0102-EHLC-R002		Hazardous Location, Bioreactors/Blower Building, Upper Level/Ground Floor Plan
1-0102-EHLC-R003		Hazardous Location, Bioreactors/Blower Building, RAS Channel Plan
1-0102-ELTG-R001	001	Lighting Layout, Bioreactors/Blower Building, Basement Plan
1-0102-ELTG-R001	002	Lighting Layout, Bioreactors/Blower Building, Basement Plan
1-0102-ELTG-R001	003	Lighting Layout, Bioreactors/Blower Building, Basement Plan
1-0102-ELTG-R001	004	Lighting Layout, Bioreactors/Blower Building, Basement Plan
1-0102-ELTG-R002	001	Lighting Layout, Bioreactors/Blower Building, Ground Floor Plan
1-0102-ELTG-R002	002	Lighting Layout, Bioreactors/Blower Building, Ground Floor Plan
1-0102-ELTG-R003	001	Lighting Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-ELTG-R003	002	Lighting Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan
1-0102-ELTG-R003	003	Lighting Layout, Bioreactors/Blower Building, Bioreactor Upper Level Plan

Drawing No.	Sheet No.	Description
1-0102-ELTG-R004	001	Interior Lighting Control, Bioreactors/Blower Building, CP-R734 Schematic and Wiring Diagram
1-0102-ELTG-R004	002	Interior Lighting Control, Bioreactors/Blower Building, CP-R734 Schematic and Wiring Diagram
1-0102-ELTG-R005		Exterior Lighting Control, Bioreactors/Blower Building, LC-R733 Schematic and Wiring Diagram
1-0102-ELTG-R006		Lighting Layout, Bioreactors/Blower Building, Stairs R-101 and R-102
Volume 4B Cover Page		Cover Page
1-0102-EMCL-R101		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R151-1 Pre-Anoxic Zone Mixer
1-0102-EMCL-R102		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R151-2 Pre-Anoxic Zone Mixer
1-0102-EMCL-R103		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R152-1 Anaerobic Zone Mixer
1-0102-EMCL-R104		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R152-2 Anaerobic Zone Mixer
1-0102-EMCL-R105		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R152-3 Anaerobic Zone Mixer
1-0102-EMCL-R106		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R152-4 Anaerobic Zone Mixer
1-0102-EMCL-R107		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R153-1 Anoxic Zone Mixer
1-0102-EMCL-R108		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R153-2 Anoxic Zone Mixer
1-0102-EMCL-R109		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R153-3 Anoxic Zone Mixer
1-0102-EMCL-R110		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R153-4 Anoxic Zone Mixer
1-0102-EMCL-R111		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R155-1 Post Aerobic Zone Mixer
1-0102-EMCL-R112		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R155-2 Post Aerobic Zone Mixer
1-0102-EMCL-R113		Motor Starter Schematic, Bioreactors/Blower Building, P-R156 Bioreactor 1 Internal Recycle Pump
1-0102-EMCL-R114		Motor Starter Schematic, Bioreactors/Blower Building, HTR-R108-1 To HTR-R108-3 Bioreactor 1 Heaters
1-0102-EMCL-R115		Motor Starter Schematic, Bioreactors/Blower Building, HTR-R108-4 To HTR-R108-6 Bioreactor 2 Heaters
1-0102-EMCL-R116		Motor Starter Schematic, Bioreactors/Blower Building, HTR-R108-7 To HTR-R108-9 Bioreactor 3 Heaters
1-0102-EMCL-R121		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R161-1 Pre-Anoxic Zone Mixer
1-0102-EMCL-R122		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R161-2 Pre-Anoxic Zone Mixer
1-0102-EMCL-R123		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R162-1 Anaerobic Zone Mixer
1-0102-EMCL-R124		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R162-2 Anaerobic Zone Mixer
1-0102-EMCL-R125		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R162-3 Anaerobic Zone Mixer
1-0102-EMCL-R126		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R162-4 Anaerobic Zone Mixer
1-0102-EMCL-R127		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R163-1 Anoxic Zone Mixer

Drawing No.	Sheet No.	Description
1-0102-EMCL-R128		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R163-2 Anoxic Zone Mixer
1-0102-EMCL-R129		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R163-3 Anoxic Zone Mixer
1-0102-EMCL-R130		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R163-4 Anoxic Zone Mixer
1-0102-EMCL-R131		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R165-1 Post Aerobic Zone Mixer
1-0102-EMCL-R132		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R165-2 Post Aerobic Zone Mixer
1-0102-EMCL-R133		Motor Starter Schematic, Bioreactors/Blower Building, P-R166 Bioreactor 2 Internal Recycle Pump
1-0102-EMCL-R134		Motor Starter Schematic, Bioreactors/Blower Building, HTR-R118-1 To HTR-R118-3 Bioreactor 1 Heaters
1-0102-EMCL-R135		Motor Starter Schematic, Bioreactors/Blower Building, HTR-R118-4 To HTR-R118-6 Bioreactor 2 Heaters
1-0102-EMCL-R136		Motor Starter Schematic, Bioreactors/Blower Building, HTR-R118-7 To HTR-R118-9 Bioreactor 3 Heaters
1-0102-EMCL-R141		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R171-1 Pre-Anoxic Zone Mixer
1-0102-EMCL-R142		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R171-2 Pre-Anoxic Zone Mixer
1-0102-EMCL-R143		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R172-1 Anaerobic Zone Mixer
1-0102-EMCL-R144		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R172-2 Anaerobic Zone Mixer
1-0102-EMCL-R145		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R172-3 Anaerobic Zone Mixer
1-0102-EMCL-R146		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R172-4 Anaerobic Zone Mixer
1-0102-EMCL-R147		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R173-1 Anoxic Zone Mixer
1-0102-EMCL-R148		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R173-2 Anoxic Zone Mixer
1-0102-EMCL-R149		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R173-3 Anoxic Zone Mixer
1-0102-EMCL-R150		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R173-4 Anoxic Zone Mixer
1-0102-EMCL-R151		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R175-1 Post Aerobic Zone Mixer
1-0102-EMCL-R152		Motor Starter Schematic, Bioreactors/Blower Building, MXR-R175-2 Post Aerobic Zone Mixer
1-0102-EMCL-R153		Motor Starter Schematic, Bioreactors/Blower Building, P-R176 Bioreactor 3 Internal Recycle Pump
1-0102-EMCL-R154		Motor Starter Schematic, Bioreactors/Blower Building, HTR-R128-1 To HTR-R128-3 Bioreactor 1 Heaters
1-0102-EMCL-R155		Motor Starter Schematic, Bioreactors/Blower Building, HTR-R128-4 To HTR-R128-6 Bioreactor 2 Heaters
1-0102-EMCL-R156		Motor Starter Schematic, Bioreactors/Blower Building, HTR-R128-7 To HTR-R128-9 Bioreactor 3 Heaters
1-0102-EMCL-R160		Motor Starter Schematic, Bioreactors/Blower Building, P-R140 Process Drain Pump
1-0102-EMCL-R301		Motor Starter Schematic, Bioreactors/Blower Building, P-R301 WAS RTD Feed Pump
1-0102-EMCL-R302		Motor Starter Schematic, Bioreactors/Blower Building, P-R302 WAS RTD Feed Pump

Drawing No.	Sheet No.	Description
1-0102-EMCL-R303		Motor Starter Schematic, Bioreactors/Blower Building, P-R303 WAS RTD Feed Pump
1-0102-EMCL-R304		Motor Starter Schematic, Bioreactors/Blower Building, P-R304 WAS Mixing Pump
1-0102-EMCL-R501		Motor Starter Schematic, Bioreactors/Blower Building, P-R501 Sump Pump
1-0102-EMCL-R502		Motor Starter Schematic, Bioreactors/Blower Building, P-R502 Sump Pump
1-0102-EMCL-R601		Motor Starter Schematic, Bioreactors/Blower Building, EF-R601 Bioreactor Exhaust Fan
1-0102-EMCL-R602		Motor Starter Schematic, Bioreactors/Blower Building, EF-R602 Bioreactor Exhaust Fan
1-0102-EMCL-R603		Motor Starter Schematic, Bioreactors/Blower Building, EF-R611 Gallery 8/5B Exhaust Fan
1-0102-EMCL-R604		Motor Starter Schematic, Bioreactors/Blower Building, EF-R612 Gallery 8A Exhaust Fan
1-0102-EMCL-R605		Motor Starter Schematic, Bioreactors/Blower Building, EF-R621 Blower Room Exhaust Fan
1-0102-EMCL-R606		Motor Starter Schematic, Bioreactors/Blower Building, EF-R622 Blower Room Exhaust Fan
1-0102-EMCL-R607		Motor Starter Schematic, Bioreactors/Blower Building, EF-R623 Blower Room Exhaust Fan
1-0102-EMCL-R608	001	Motor Starter Schematic, Bioreactors/Blower Building, EF-R651 Mechanical Room Exhaust Fan
1-0102-EMCL-R608	002	Motor Starter Schematic, Bioreactors/Blower Building, EF-R651 Mechanical Room Exhaust Fan
1-0102-EMCL-R901		Starter Schematic, Bioreactors/Blower Building, XFMR-R711 Feeder
1-0102-EMCL-R902		Starter Schematic, Bioreactors/Blower Building, XFMR-R723 Feeder
1-0102-EMCL-R903		Starter Schematic, Bioreactors/Blower Building, XFMR-R731 Feeder
1-0102-EMCL-R904		Starter Schematic, Bioreactors/Blower Building, XFMR-R732 Feeder
1-0102-ESCH-R001	001	Electrical, Bioreactors/Blower Building, Panel Schedules & Details
1-0102-ESCH-R001	002	Electrical, Bioreactors/Blower Building, Panel Schedules & Details
1-0102-ESLD-R001		Single Line Diagram, Bioreactors/Blower Building, 600V Distribution SGR-R701 and SGR-R702
1-0102-ESLD-R002	001	Single Line Diagram, Bioreactors/Blower Building, Motor Control Centre MCC-R710
1-0102-ESLD-R002	002	Single Line Diagram, Bioreactors/Blower Building, Motor Control Centre MCC-R710
1-0102-ESLD-R003	001	Single Line Diagram, Bioreactors/Blower Building, Motor Control Centre MCC-R720
1-0102-ESLD-R003	002	Single Line Diagram, Bioreactors/Blower Building, Motor Control Centre MCC-R720
1-0102-ESLD-R004	001	Single Line Diagram, Bioreactors/Blower Building, Motor Control Centre MCC-R730
1-0102-ESLD-R004	002	Single Line Diagram, Bioreactors/Blower Building, Motor Control Centre MCC-R730
1-0102-ESLD-R005		Single Line Diagram, Bioreactors/Blower Building, Motor Control Centre MCC-R750 & MCC-R760
1-0102-EWDG-R001		Bioreactors/Blower Building, Ground Fault Detection Wiring Diagram EDP-R715

Drawing No.	Sheet No.	Description
1-0102-EWDG-R002		Bioreactors/Blower Building, Ground Fault Detection Wiring Diagram EDP-R735
1-0102-EWDG-R003	001	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R701, MCC-R710, R730, R750
1-0102-EWDG-R003	002	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R701, MCC-R710, R730, R750
1-0102-EWDG-R003	003	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R701, MCC-R710, R730, R750
1-0102-EWDG-R003	004	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R701, MCC-R710, R730, R750
1-0102-EWDG-R003	005	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R701, MCC-R710, R730, R750
1-0102-EWDG-R003	006	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R701, MCC-R710, R730, R750
1-0102-EWDG-R004	001	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R702, MCC-R720, R760
1-0102-EWDG-R004	002	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R702, MCC-R720, R760
1-0102-EWDG-R004	003	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R702, MCC-R720, R760
1-0102-EWDG-R004	004	Wiring Diagram, Bioreactors/Blower Building, Ground Fault Detection SGR-R702, MCC-R720, R760
1-0102-EWDG-R006		Wiring Diagram, Bioreactors/Blower Building, CU-R641, ACU-R641-1/2, CU-R642 and ACU-R642-1/2
1-0102-EWDG-R007		Wiring Diagram, Bioreactors/Blower Building, CU-R643, ACU-R643, CU-R644 and ACU-R644
1-0102-EWDG-R008		Wiring Diagram, Bioreactors/Blower Building, Electric Convectors, Radiant and Unit Heaters
1-0102-EWDG-R009		Wiring Diagram, Bioreactors/Blower Building, Roof Drain Piping Heat Trace, Temp. Controller TC-R7311
1-0102-EWDG-R010		Wiring Diagram, Bioreactors/Blower Building, Roof Drain Piping Heat Trace, Temp. Controller TC-R7312
1-0102-EWDG-R011		Wiring Diagram, Bioreactors/Blower Building, WAS Vent Piping Heat Trace, Temp. Controller TC-R7141
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-R001		Control System Architecture, Bioreactors/Blower Building
1-0102-ACBD-R001		Cabinet Layout, Bioreactors/Blower Building, PSP-R820 Power Supply Cabinet
1-0102-ACBD-R002	001	Power Distribution Schematic, Bioreactors/Blower Building, PSP-R820 Power Supply Cabinet
1-0102-ACBD-R002	002	Power Distribution Schematic, Bioreactors/Blower Building, PSP-R820 Power Supply Cabinet
1-0102-ACBD-R002	003	Power Distribution Schematic, Bioreactors/Blower Building, PSP-R820 Power Supply Cabinet
1-0102-ACBD-R002	004	Power Distribution Schematic, Bioreactors/Blower Building, PSP-R820 Power Supply Cabinet
1-0102-ACBD-R002	005	Power Distribution Schematic, Bioreactors/Blower Building, PSP-R820 Power Supply Cabinet
1-0102-ACBD-R003	001	Cabinet Layout, Bioreactors/Blower Building, CP-R820 PLC and Device Network Equipment Cabinet
1-0102-ACBD-R003	002	Cabinet Layout, Bioreactors/Blower Building, CP-R820 PLC and Device Network Equipment Cabinet
1-0102-ACBD-R004	001	Power Distribution Schematic, Bioreactors/Blower Building, CP-R820 PLC and Device Network Equipment Cabinet

Drawing No.	Sheet No.	Description
1-0102-ACBD-R004	002	Power Distribution Schematic, Bioreactors/Blower Building, CP-R820 PLC and Device Network Equipment Cabinet
1-0102-ACBD-R005		Wiring Diagram, Bioreactors/Blower Building, CP-R820 Miscellaneous Wiring
1-0102-ACBD-R006		Cabinet Layout, Bioreactors/Blower Building, PSP-R821 Power Supply Cabinet
1-0102-ACBD-R007	001	Power Distribution Schematic, Bioreactors/Blower Building, PSP-R821 Power Supply Cabinet
1-0102-ACBD-R007	002	Power Distribution Schematic, Bioreactors/Blower Building, PSP-R821 Power Supply Cabinet
1-0102-ACBD-R010		Cabinet Layout, Bioreactors/Blower Building, CP-R821, Process RIO Cabinet - RIO-R800-1
1-0102-ACBD-R011		Power Distribution Schematic, Bioreactors/Blower Building, CP-R821, Process RIO Cabinet - RIO-R800-1
1-0102-ACBD-R012	001	Wiring Diagram, Bioreactors/Blower Building, CP-R821, RIO-R800-1 - Discrete Inputs
1-0102-ACBD-R012	002	Wiring Diagram, Bioreactors/Blower Building, CP-R821, RIO-R800-1 - Discrete Inputs
1-0102-ACBD-R013		Wiring Diagram, Bioreactors/Blower Building, CP-R821, RIO-R800-1 - Discrete Outputs
1-0102-ACBD-R014		Wiring Diagram, Bioreactors/Blower Building, CP-R821, RIO-R800-1 - Analog Inputs
1-0102-ACBD-R016		Wiring Diagram, Bioreactors/Blower Building, CP-R821, RIO-R800-1 - Miscellaneous Wring
1-0102-ACBD-R031	001	Cabinet Layout, Bioreactors/Blower Building, CP-R826, HVAC PLC Cabinet - PLC-R806
1-0102-ACBD-R031	002	Cabinet Layout, Bioreactors/Blower Building, CP-R826, HVAC PLC Cabinet - PLC-R806
1-0102-ACBD-R032		Power Distribution Schematic, Bioreactors/Blower Building, CP-R826, HVAC PLC Cabinet - PLC-R806
1-0102-ACBD-R033	001	Wiring Diagram, Bioreactors/Blower Building, CP-R826, PLC-R806 - Discrete Inputs
1-0102-ACBD-R033	002	Wiring Diagram, Bioreactors/Blower Building, CP-R826, PLC-R806 - Discrete Inputs
1-0102-ACBD-R034		Wiring Diagram, Bioreactors/Blower Building, CP-R826, PLC-R806 - Discrete Outputs
1-0102-ACBD-R035	001	Wiring Diagram, Bioreactors/Blower Building, CP-R826, PLC-R806 - Analog Inputs
1-0102-ACBD-R035	002	Wiring Diagram, Bioreactors/Blower Building, CP-R826, PLC-R806 - Analog Inputs
1-0102-ACBD-R035	003	Wiring Diagram, Bioreactors/Blower Building, CP-R826, PLC-R806 - Analog Inputs
1-0102-ACBD-R036		Wiring Diagram, Bioreactors/Blower Building, CP-R826, PLC-R806 - Analog Outputs
1-0102-ACBD-R037	001	Cabinet Layout, Bioreactors/Blower Building, CP-R827, HVAC RIO Cabinet - RIO-R806-1
1-0102-ACBD-R037	002	Cabinet Layout, Bioreactors/Blower Building, CP-R827, HVAC RIO Cabinet - RIO-R806-1
1-0102-ACBD-R038		Power Distribution Schematic, Bioreactors/Blower Building, CP-R827, HVAC RIO Cabinet - RIO-R806-1
1-0102-ACBD-R039	001	Wiring Diagram, Bioreactors/Blower Building, CP-R827, RIO-R806-1 - Discrete Inputs
1-0102-ACBD-R039	002	Wiring Diagram, Bioreactors/Blower Building, CP-R827, RIO-R806-1 - Discrete Inputs

Drawing No.	Sheet No.	Description
1-0102-ACBD-R040		Wiring Diagram, Bioreactors/Blower Building, CP-R827, RIO-R806-1 - Discrete Outputs
1-0102-ACBD-R041		Wiring Diagram, Bioreactors/Blower Building, CP-R827, RIO-R806-1 - Analog Inputs
1-0102-ACBD-R051		Cabinet Layout, Bioreactors/Blower Building, ADP-R150, ADP-R160 and ADP-R170 Relay Cabinets
1-0102-ACBD-R052		Power Distribution Schematic, Bioreactors/Blower Building, ADP-R150, ADP-R160 and ADP-R170 Relay Cabinets
1-0102-ACBD-R053		Wiring Diagram, Bioreactors/Blower Building, ADP-R150, ADP-R160 and ADP-R170 Relay Reset
1-0102-ACBD-R054		Cabinet Layout, Bioreactors/Blower Building, CP-R830 Bioreactor Heaters
1-0102-ACBD-R055		Wiring Diagram, Bioreactors/Blower Building, Bioreactor Heaters Control
1-0102-ACBD-R056		Wiring Diagram, Bioreactors/Blower Building, Flow Valves Remote Control Stations
1-0102-ACBD-R061		Cabinet Layout, Bioreactors/Blower Building, ADP-R831, R832 and R833 Profibus Equipment Cabinets
1-0102-ACBD-R062		Power Distribution Schematic, Bioreactors/Blower Building, ADP-R831, R832 and R833 Profibus Equipment Cabinets
1-0102-ACBD-R063		Cabinet Layout, Bioreactors/Blower Building, ADP-R834, R835 and R836 Profibus Equipment Cabinets
1-0102-ACBD-R064		Power Distribution Schematic, Bioreactors/Blower Building, ADP-R834, R835 and R836 Profibus Equipment Cabinets
1-0102-ACBD-R065		Cabinet Layout, Bioreactors/Blower Building, ADP-R837-1, 2 & 3, Network Protection Devices
1-0102-ACBD-R066		Cabinet Layout, Bioreactors/Blower Building, Profibus PA Device Panel
1-0102-ACBD-R081	001	Cabinet Layout, Bioreactors/Blower Building, Junction Boxes
1-0102-ACBD-R081	002	Cabinet Layout, Bioreactors/Blower Building, Junction Boxes
1-0102-ACBD-R081	003	Cabinet Layout, Bioreactors/Blower Building, Junction Boxes
1-0102-ACBD-R081	004	Cabinet Layout, Bioreactors/Blower Building, Analyzer Sensors Junction Boxes
1-0102-ACBD-R082		Cabinet Layout, Bioreactor/Blower Building, Level Transmitter Junction Boxes
1-0102-ACBD-R083		Cabinet Layout, Bioreactors/Blower Building, JBA-R150, JBA-R160, JBA-R170 Bioreactor Field Junction Boxes
1-0102-ACBD-R084		Wiring Diagram, Bioreactors/Blower Building, JBA-R150, JBA-R160, JBA-R170 Submersible Equip. Junction Boxes
1-0102-ACBD-R085		Cabinet Layout, Bioreactors/Blower Building, Unit Heater Junction Boxes
1-0102-ACBD-R086		Cabinet Layout, Bioreactors/Blower Building, JBA-R6209-1 Blower Room Air Intake Damper XV-R6209 Junction Box
1-0102-ACBD-R087		Cabinet Layout, Bioreactors/Blower Building, NH3 Analyzers Junction Boxes
1-0102-ACBD-R101		Cabinet Layout, Bioreactors/Blower Building, ADP-R1001-1, R1002-1, R1101-1, R1102-1, R1201-1 & R1202-1 Analyzer Panels

Drawing No.	Sheet No.	Description
1-0102-ACBD-R102		Power Distribution Schematic, Bioreactors/Blower Building, ADP-R1001-1, R1002-1, R1101-1 & R1102-1 Analyzer Panels Power
1-0102-ACBD-R103		Power Distribution Schematic, Bioreactors/Blower Building, ADP-R1201-1 & R1202-1 Analyzer Panels Power
1-0102-ACBD-R901		Cabinet Layout, Bioreactors/Blower Building, NP-R900 Network Cabinet
1-0102-ACBD-R902		Power Distribution Schematic, Bioreactors/Blower Building, NP-R900 Network Cabinet
1-0102-ACBD-R905		Cabinet Layout, Bioreactors/Blower Building, CP-R901 Server Cabinet
1-0102-ADTL-R001	001	Installation Details, Bioreactors/Blower Building, Analyzer Instruments
1-0102-ADTL-R001	002	Installation Details, Bioreactors/Blower Building, Analyzer Instruments
1-0102-ADTL-R002		Installation Details, Bioreactors/Blower Building, Flow Instruments
1-0102-ADTL-R003		Installation Details, Bioreactors/Blower Building, Level Instruments
1-0102-AGAD-R001		Equipment Layout, Bioreactors/Blower Building, Control Room and Automation Room Layout
1-0102-AGAD-R002		Instrument Location Plan, Bioreactors/Blower Building, Mechanical Room Layout
1-0102-AGAD-R003		Instrument Location Plan, Bioreactors/Blower Building, Blower Room Layout
1-0102-AGAD-R004		Instrument Location Plan, Bioreactors/Blower Building, WAS Pump Room & Gallery 5B Layout
1-0102-AGAD-R005		Instrument Location Plan, Bioreactors/Blower Building, Gallery 8 Layout
1-0102-AGAD-R006		Instrument Location Plan, Bioreactors/Blower Building, Gallery 8A Layout
1-0102-AGAD-R007		Instrument Location Plan, Bioreactors/Blower Building, Bioreactor 1 Layout
1-0102-AGAD-R008		Instrument Location Plan, Bioreactors/Blower Building, Bioreactor 2 Layout
1-0102-AGAD-R009		Instrument Location Plan, Bioreactors/Blower Building, Bioreactor 3 Layout
1-0102-AIFS-R001	001	Profibus Segment Diagram, Bioreactor 1, Profibus DP Segments ND-R840-1
1-0102-AIFS-R001	002	Profibus Segment Diagram, Bioreactor 1, Profibus DP Segments ND-R840-1
1-0102-AIFS-R002		Profibus Segment Diagram, Bioreactor 1, Profibus DP Segments ND-R840-2
1-0102-AIFS-R003	001	Profibus Segment Diagram, Bioreactor 1, Profibus DP Segments ND-R840-3
1-0102-AIFS-R003	002	Profibus Segment Diagram, Bioreactor 1, Profibus DP Segments ND-R840-3
1-0102-AIFS-R004		Profibus Segment Diagram, Bioreactor 2, Profibus DP Segments ND-R841-1
1-0102-AIFS-R005		Profibus Segment Diagram, Bioreactor 2, Profibus DP Segments ND-R841-2
1-0102-AIFS-R006		Profibus Segment Diagram, Bioreactor 2, Profibus DP Segments ND-R841-3
1-0102-AIFS-R007		Profibus Segment Diagram, Bioreactor 3, Profibus DP Segments ND-R842-1

Drawing No.	Sheet No.	Description
1-0102-AIFS-R008		Profibus Segment Diagram, Bioreactor 3, Profibus DP Segments ND-R842-2
1-0102-AIFS-R009		Profibus Segment Diagram, Bioreactor 3, Profibus DP Segments ND-R842-3
1-0102-AILD-R101	001	Loop Diagram, AT-R1001, Loops R1022, R1032, R1041-1, R1042-1, R1044-1, Bioreactor 1 Analyzer 1 and Sensors
1-0102-AILD-R101	002	Loop Diagram, AT-R1001, Loops R1022, R1032, R1041-1, R1042-1, R1044-1, Bioreactor 1 Analyzer 1 and Sensors
1-0102-AILD-R102	001	Loop Diagram, AT-R1002, Loops R1041-2, R1042-2, R1044-2, R1051, R1052, Bioreactor 1 Analyzer 2 and Sensors
1-0102-AILD-R102	002	Loop Diagram, AT-R1002, Loops R1041-2, R1042-2, R1044-2, R1051, R1052, Bioreactor 1 Analyzer 2 and Sensors
1-0102-AILD-R103		Loop Diagram, FIT-R1003, FE-R1021, FE-R1031, Bioreactor 1 Influent Channels Flow Meters
1-0102-AILD-R104		Loop Diagram, FIT-R1011 & FIT-R1012, Bioreactor 1 Influent Flow Meters
1-0102-AILD-R105		Loop Diagram, FIT-R1013 & FIT-R1023, Bioreactor 1 Aeration Flow Meters
1-0102-AILD-R106		Loop Diagram, FIT-R1047, FIT-R1056 & FIT-R1057, Bioreactor 1 Aeration Flow Meters
1-0102-AILD-R107		Loop Diagram, LT-R1045-1 and LT-R1045-2, Bioreactor 1 IFAS Zone Level Transmitters
1-0102-AILD-R108		Loop Dagram, AIT-R1043, AE-R1043, AX-R1043-1, AX-R1043-2 Bioreactor 1 Aerobic IFAS Zone TK-R104 NH3 Analyzer
1-0102-AILD-R111	001	Loop Diagram, AT-R1101, Loops R1122, R1132, R1141-1, R1142-1, R1144-1, Bioreactor 2 Analyzer 1 and Sensors
1-0102-AILD-R111	002	Loop Diagram, AT-R1101, Loops R1122, R1132, R1141-1, R1142-1, R1144-1, Bioreactor 2 Analyzer 1 and Sensors
1-0102-AILD-R112	001	Loop Diagram, AT-R1102, Loops R1141-2, R1142-2, R1144-2, R1151, R1152, Bioreactor 2 Analyzer 2 and Sensors
1-0102-AILD-R112	002	Loop Diagram, AT-R1102, Loops R1141-2, R1142-2, R1144-2, R1151, R1152, Bioreactor 2 Analyzer 2 and Sensors
1-0102-AILD-R113		Loop Diagram, FIT-R1103, FE-R1121, FE-R1131, Bioreactor 2 Influent Channels Flow Meters
1-0102-AILD-R114		Loop Diagram, FIT-R1111 & FIT-R1112, Bioreactor 2 Influent Flow Meters
1-0102-AILD-R115		Loop Diagram, FIT-R1113 & FIT-R1123, Bioreactor 2 Aeration Flow Meters
1-0102-AILD-R116		Loop Diagram, FIT-R1147, FIT-R1156 & FIT-R1157, Bioreactor 2 Aeration Flow Meters
1-0102-AILD-R117		Loop Diagram, LT-R1145-1 and LT-R1145-2, Bioreactor 2 IFAS Zone Level Transmitters
1-0102-AILD-R118		Loop Diagram, AIT-R1143, AE-R1143, AX-R1143-1, AX-R1143-2 Bioreactor 2 Aerobic IFAS Zone TK-R114 NH3 Analyzer

Drawing No.	Sheet No.	Description
1-0102-AILD-R121	001	Loop Diagram, AT-R1201, Loops R1222, R1232, R1241-1, R1242-1, R1244-1, Bioreactor 3 Analyzer 1 and Sensors
1-0102-AILD-R121	002	Loop Diagram, AT-R1201, Loops R1222, R1232, R1241-1, R1242-1, R1244-1, Bioreactor 3 Analyzer 1 and Sensors
1-0102-AILD-R122	001	Loop Diagram, AT-R1202, Loops R1241-2, R1242-2, R1244-2, R1251, R1252, Bioreactor 3 Analyzer 2 and Sensors
1-0102-AILD-R122	002	Loop Diagram, AT-R1202, Loops R1241-2, R1242-2, R1244-2, R1251, R1252, Bioreactor 3 Analyzer 2 and Sensors
1-0102-AILD-R123		Loop Diagram, FIT-R1203, FE-R1221, FE-R1231, Bioreactor 3 Influent Channels Flow Meters
1-0102-AILD-R124		Loop Diagram, FIT-R1211 & FIT-R1212, Bioreactor 3 Influent Flow Meters
1-0102-AILD-R125		Loop Diagram, FIT-R1213 & FIT-R1223, Bioreactor 3 Aeration Flow Meters
1-0102-AILD-R126		Loop Diagram, FIT-R1247, FIT-R1256 & FIT-R1257, Bioreactor 3 Aeration Flow Meters
1-0102-AILD-R127		Loop Diagram, LT-R1245-1 and LT-R1245-2, Bioreactor 3 IFAS Zone Level Transmitters
1-0102-AILD-R128		Loop Diagram, AIT-R1243, AE-R1243, AX-R1243-1, AX-R1243-2, Bioreactor 3 Aerobic IFAS Zone TK-R124 NH3 Analyzer
1-0102-AILD-R131		Loop Diagram, LT-R1301-1 and LT-R1303, Mixed Liquor and Bioreactor Bypass Channels Level Transmitters
1-0102-AILD-R132		Loop Diagram, FSL-R1403, Process Drain Pump Low Flow Switch
1-0102-AILD-R133		Loop Diagram, FIT-R1801 and LT-R1803, WAS To WAS Pump Flow Meter and RAS Channels Flow Transmitters
1-0102-AILD-R134		Loop Diagram, LIT-R1304 and LE-R1304, Bioreactor Bypass Channel 2 Level Transmitter
1-0102-AILD-R135		Loop Diagram, LIT-R1804 and LE-R1804, RAS Channel Level Transmitter
1-0102-AILD-R201		Loop Diagram, B-R201 Process Air Blower
1-0102-AILD-R202		Loop Diagram, B-R202 Process Air Blower
1-0102-AILD-R203		Loop Diagram, B-R203 Process Air Blower
1-0102-AILD-R204		Loop Diagram, B-R204 Process Air Blower
1-0102-AILD-R205		Loop Diagram, B-R205 Process Air Blower
1-0102-AILD-R206		Loop Diagram, B-R206 Process Air Blower
1-0102-AILD-R207		Loop Diagram, TIT-R2001 & MIT-R2002 Air Intake Planum Temperature & Humidity Transmitters
1-0102-AILD-R501		Loop Diagram, LSH-R5012, Sump Level Switch
1-0102-AILD-R601		Loop Diagram, FIT-R6001, Bioreactor EF-R601 and EF-R602 Exhaust Fans Flow
1-0102-AILD-R602		Loop Diagram, FSL-R6013, Bioreactor Exhaust Fan EF-R601 Low Flow Switch
1-0102-AILD-R603		Loop Diagram, FSL-R6023, Bioreactor Exhaust Fan EF-R602 Low Flow Switch
1-0102-AILD-R610	001	Loop Diagram, AHU-R610, Blower Building Mechanical Room Air Handling Unit
1-0102-AILD-R610	002	Loop Diagram, AHU-R610, Blower Building Mechanical Room Air Handling Unit
1-0102-AILD-R610	003	Loop Diagram, AHU-R610, Blower Building Mechanical Room Air Handling Unit

Drawing No.	Sheet No.	Description
1-0102-AILD-R610	004	Loop Diagram, AHU-R610, Blower Building Mechanical Room Air Handling Unit
1-0102-AILD-R611		Loop Diagram, FIT-R6108, AHU-R640 Intake Air Flow Meter
1-0102-AILD-R612		Loop Diagram, FV-R6108, AHU-R640 Intake Air Flow Damper
1-0102-AILD-R613		Loop Diagram, FIT-R6112 & FIT-R6122, Pipe Galleries 8/5B and 8A Air Flow Meters
1-0102-AILD-R614		Loop Diagram, TT-R6131, TT-R6141 Pipe Galleries No. 5B and 8A Temperature
1-0102-AILD-R620	001	Loop Diagram, AHU-R620, Blower Building Mechanical Room Air Handling Unit
1-0102-AILD-R620	002	Loop Diagram, AHU-R620, Blower Building Mechanical Room Air Handling Unit
1-0102-AILD-R620	003	Loop Diagram, AHU-R620, Blower Building Mechanical Room Air Handling Unit
1-0102-AILD-R620	004	Loop Diagram, AHU-R620, Blower Building Mechanical Room Air Handling Unit
1-0102-AILD-R621		Loop Diagram, UH-R624, UH-R625, TT-R6242 & TT-R6252, Blower Room Gas Unit Heaters & Temperature Transmitters
1-0102-AILD-R622		Loop Diagram, TV-R6202 and TT-R6207, Heat Reclaim Valve & Outdoor Temp Transmitter
1-0102-AILD-R623	001	Loop Diagram, XV-R6209 Blower Room Air Intake Damper
1-0102-AILD-R623	002	Loop Diagram, XV-R6209 Blower Room Air Intake Damper
1-0102-AILD-R640	001	Loop Diagram, AHU-R640, Blower Building Mechanical Room Air Handling Unit
1-0102-AILD-R640	002	Loop Diagram, AHU-R640, Blower Building Mechanical Room Air Handling Unit
1-0102-AILD-R641		Loop Diagram, ACU-R641-1, Electrical Room Air Conditioning Unit
1-0102-AILD-R642		Loop Diagram, ACU-R642-1, Electrical Room Air Conditioning Unit
1-0102-AILD-R643		Loop Diagram, ACU-R643, Automation Room Air Conditioning Unit
1-0102-AILD-R644		Loop Diagram, ACU-R644, Control Room Air Conditioning Unit
1-0102-AILD-R645		Loop Diagram, TT-R6406, TT-R6407, TT-R6408, Room Temperature
1-0102-AILD-R651		Loop Diagram, UH-R654 & TT-R6542, Mechanical Room Gas Unit Heater & Temperature Transmitter
1-0102-AILD-R901		Loop Diagram, ZSC-R9631, ZSC-R9632, ZSC-R9633, ZSC-R9641, ZSC-R9651, Door Switches
1-0102-AILD-R902		Loop Diagram, ZSC-R9661, ZSC-R9662, ZSC-R9671, ZSC-R9672, Door Switches
1-0102-AILD-R903		Loop Diagram, ZSC-R9681, ZSC-R9682, ZSC-R9683, ZSC-R9691, ZSC-R9692, Door Switches
1-0102-AILD-R904		Loop Diagram, XS-R9711, XS-R9712 and XS-9721, Motion Detectors
1-0102-AILD-R905		Loop Diagram, CP-R736, Flushing Water & Ferric Chloride Heat Trace Panel Fault
1-0102-AILD-R906		Loop Diagram, RLY-R715-1 and RLY-R735-1, Neutral Grounding Alarm

Drawing No.	Sheet No.	Description
1-0102-AILD-R907		Loop Diagram, TC-R7311, Roof Drain Piping Heat Trace Temp. Controller Fault
1-0102-AILD-R908		Loop Diagram, TC-R7312, Roof Drain Piping Heat Trace Temp. Controller Fault
1-0102-AILD-R909		Loop Diagram, TC-R7141, WAS Vent Piping Heat Trace Temp. Controller Fault
1-0102-ANET-R001		Network Diagram, Bioreactors/Blower Building, Supervisory Network
1-0102-ANET-R002	001	Network Diagram, Bioreactors/Blower Building, Control Network
1-0102-ANET-R002	002	Network Diagram, Bioreactors/Blower Building, Control Network
1-0102-ANET-R002	003	Network Diagram, Bioreactors/Blower Building, Control Network
1-0102-ANET-R003	001	Network Diagram, Bioreactors/Blower Building, Device Network
1-0102-ANET-R003	002	Network Diagram, Bioreactors/Blower Building, Device Network
1-0102-ANET-R003	003	Network Diagram, Bioreactors/Blower Building, Device Network
1-0102-ANET-R003	004	Network Diagram, Bioreactors/Blower Building, Device Network
1-0102-ANET-R004		Network Diagram, Bioreactors/Blower Building, Administration and Security Network
1-0102-ANET-R005		Network Diagram, Bioreactors/Blower Building, Server Network
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
S – SECONDARY CLARIFIERS		
General		
Volume 5A Cover Page	006	Cover Page
Volume 5 Index 1	001	Drawing Index (1)
Volume 5 Index 2	002	Drawing Index (2)
Volume 5 Index 3	003	Drawing Index (3)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Civil		
1-0102-CGAD-S001		Secondary Clarifiers - Weeping Tile Plan
SEP-334		Secondary Clarifiers - Yard Piping Plan & Details
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SFDW-S001		Secondary Clarifier 4 - Piling Plan
1-0102-SFDW-S002		Secondary Clarifier 5 - Piling Plan
1-0102-SFDW-S003		Secondary Clarifiers Storage, Pump and Mechanical Room - Piling Plan

Drawing No.	Sheet No.	Description
1-0102-SFDW-S004		Secondary Clarifiers Cable Trench - Piling Plan
1-0102-SGAD-S001		Secondary Clarifiers 4 and 5 Overall Basement Plan
1-0102-SGAD-S002		Secondary Clarifier 5 Lower Level Plan AT EL 228.680
1-0102-SGAD-S003		Secondary Clarifier 4 Lower Level Plan AT EL 228.680
1-0102-SGAD-S004		Secondary Clarifiers 4 and 5 Basement Plan - Part A
1-0102-SGAD-S005		Secondary Clarifiers 4 and 5 Basement Plan - Part B
1-0102-SGAD-S006		Secondary Clarifiers 4 and 5 Overall Channel Level Plan
1-0102-SGAD-S007		Secondary Clarifier 5 Channel Level Plan
1-0102-SGAD-S008		Secondary Clarifier 4 Channel Level Plan
1-0102-SGAD-S009		Secondary Clarifiers 4 and 5 Channel Level Plan - Part A
1-0102-SGAD-S010		Secondary Clarifiers 4 and 5 Channel Level Plan - Part B
1-0102-SGAD-S011		Secondary Clarifiers 4 and 5 Overall Ground Floor Plan
1-0102-SGAD-S012		Secondary Clarifier 5 Ground Floor Plan
1-0102-SGAD-S013		Secondary Clarifier 4 Ground Floor Plan
1-0102-SGAD-S014		Secondary Clarifiers 4 and 5 Ground Floor Plan - Part A
1-0102-SGAD-S015		Secondary Clarifiers 4 and 5 Ground Floor Plan - Part B
1-0102-SGAD-S016		Secondary Clarifiers 4 and 5 Overall Roof Plan
1-0102-SGAD-S017		Secondary Clarifiers 4 and 5 Roof Plan - Part A
1-0102-SGAD-S018		Secondary Clarifiers 4 and 5 Roof Plan - Part B
1-0102-SGAD-S019		Secondary Clarifiers 4 and 5 Section A
1-0102-SGAD-S020		Secondary Clarifiers 4 and 5 Section B
1-0102-SGAD-S021		Secondary Clarifiers 4 and 5 Section C - Part A
1-0102-SGAD-S022		Secondary Clarifiers 4 and 5 Section C - Part B
1-0102-SGAD-S023		Secondary Clarifiers 4 and 5 Section C - Part C
1-0102-SGAD-S024		Secondary Clarifiers 4 and 5 Section D - Part A
1-0102-SGAD-S025		Secondary Clarifiers 4 and 5 Section D - Part B
1-0102-SGAD-S026		Secondary Clarifiers 4 and 5 Section E
1-0102-SGAD-S027		Secondary Clarifiers 4 and 5 Section F and G
1-0102-SGAD-S028		Secondary Clarifiers 4 and 5 Section H and J
1-0102-SGAD-S029		Secondary Clarifiers 4 and 5 Section K and L
1-0102-SGAD-S030		Secondary Clarifiers 4 and 5 Section M and N
1-0102-SGAD-S031		Secondary Clarifiers 4 and 5 Section P and Q
1-0102-SGAD-S032		Secondary Clarifiers 4 and 5 Section R, S and T
1-0102-SGAD-S033		Secondary Clarifiers 4 and 5 Section U and V
1-0102-SGAD-S035		Secondary Clarifiers Cable Trench Ground Floor Plan
1-0102-SGAD-S036		Secondary Clarifiers Cable Trench - Section
1-0102-SGAD-SD55		Secondary Clarifiers - Concrete and CMU Removals Tie-Ins (3)
SEP-408		Secondary Clarifiers - Plan AT ELEV. 226.466
SEP-409		Secondary Clarifiers - Plan AT ELEV. 233.172
SEP-411		Secondary Clarifiers - Partial Plans and Section
SEP-412		Secondary Clarifiers - Section and Details
SEP-413		Secondary Clarifiers - Section and Details
1-0102-SDTL-S001		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S002		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S003		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S004		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S005		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S006		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S007		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S008		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S009		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S010		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S011		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S012		Secondary Clarifiers 4 and 5 Details

Drawing No.	Sheet No.	Description
1-0102-SDTL-S013		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S014		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S015		Secondary Clarifiers 4 and 5 Details
1-0102-SDTL-S016		Secondary Clarifiers 4 and 5 Details
1-0102-SSCH-S001		Secondary Clarifiers 4 and 5 Column and Beam Schedule
1-0102-SDTL-A002		Standard Details (1)
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BAAA-S001		Secondary Clarifiers 4 and 5 Building Code Matrix and Wall Types Legend
1-0102-BAAA-S002		Secondary Clarifiers 4 and 5 Site Plan and Spatial Separation Calculation
1-0102-BGAD-S001		Secondary Clarifiers 4 and 5 Overall Basement Plan
1-0102-BGAD-S002		Secondary Clarifiers 4 and 5 Basement Plan - Part A
1-0102-BGAD-S003		Secondary Clarifiers 4 and 5 Basement Plan - Part B
1-0102-BGAD-S004		Secondary Clarifiers 4 and 5 Overall Ground Floor Plan
1-0102-BGAD-S005		Secondary Clarifiers 4 and 5 Ground Floor Plan - Part A
1-0102-BGAD-S006		Secondary Clarifiers 4 and 5 Ground Floor Plan - Part B
1-0102-BGAD-S007		Secondary Clarifiers 4 and 5 Laboratory Details
1-0102-BGAD-S008		Secondary Clarifiers 4 and 5 Roof Plan
1-0102-BGAD-S009		Secondary Clarifiers 4 and 5 North and South Elevations
1-0102-BGAD-S010		Secondary Clarifiers 4 and 5 East and West Elevations
1-0102-BGAD-S011		Secondary Clarifiers 4 and 5 Section A - Part A
1-0102-BGAD-S012		Secondary Clarifiers 4 and 5 Section A - Part B
1-0102-BGAD-S013		Secondary Clarifiers 4 and 5 Section B - Part A
1-0102-BGAD-S014		Secondary Clarifiers 4 and 5 Section B - Part B
1-0102-BGAD-S015		Secondary Clarifiers 4 and 5 Section C and D
1-0102-BGAD-S016		Secondary Clarifiers 4 and 5 Section E and F
1-0102-BGAD-S017		Secondary Clarifiers 4 and 5 Section G and H
1-0102-BGAD-S018		Secondary Clarifier Expansion - Elevations
SEP-400		Secondary Clarifiers 4 and 5 Section H and J
1-0102-BDTL-S003		Secondary Clarifiers 4 and 5 Wall Section - Part 1
1-0102-BDTL-S004		Secondary Clarifiers 4 and 5 Wall Section - Part 2
1-0102-BDTL-S005		Secondary Clarifiers 4 and 5 Wall Section - Part 3
1-0102-BDTL-S006		Secondary Clarifiers 4 and 5 Wall Section - Part 4
1-0102-BDTL-S007		Secondary Clarifiers 4 and 5 Wall Section - Part 5
1-0102-BDTL-S008		Secondary Clarifiers 4 and 5 Plan and Section Details - Part 1

Drawing No.	Sheet No.	Description
1-0102-BDTL-S009		Secondary Clarifiers 4 and 5 Plan and Section Details - Part 2
1-0102-BDTL-S010		Secondary Clarifiers 4 and 5 Section Details
1-0102-BDTL-S011		Secondary Clarifiers 4 and 5 Furniture Details - Part 1
1-0102-BDTL-S012		Secondary Clarifiers 4 and 5 Furniture Details - Part 2
1-0102-BSCH-S001		Secondary Clarifiers 4 and 5 Room, Door and Hardware Schedules
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-S101		Secondary Clarifiers Influent Channel
1-0102-PPID-S102		Secondary Clarifier 1 TK-S110
1-0102-PPID-S103		Secondary Clarifier 2 TK-S120
1-0102-PPID-S104		Secondary Clarifier 3 TK-S130
1-0102-PPID-S105		Secondary Clarifier 4 TK-S140
1-0102-PPID-S106		Secondary Clarifier 5 TK-S150
1-0102-PPID-S107		Secondary Clarifier Effluent & Sampling System
1-0102-PPID-S108		Sodium Bisulphite Dispersion Pumps P-S181 and P-S182
1-0102-PPID-S201		Return Activated Sludge Pump P-S101
1-0102-PPID-S202		Return Activated Sludge Pumps P-S102 & P-S103
1-0102-PPID-S203		Return Activated Sludge Pumps P-S108 & P-S109
1-0102-PPID-S204		Return Activated Sludge Pump P-S216
1-0102-PPID-S205		Return Activated Sludge Pumps P-S217 and P-S218
1-0102-PPID-S206		Waste Activated Sludge Pumps P-S202 and P-S203
1-0102-PPID-S207		Sludge Holding Tanks
1-0102-PPID-S208		Sludge Transfer Pumps P-S401 & P-S402
1-0102-PPID-S209		TRUCK LOADING
1-0102-PPID-S301		Scum TANK V-S305
1-0102-PPID-S302		Scum TANK V-S314
1-0102-PPID-S303		Scum TANK V-S315
1-0102-PPID-S304		Scum Header
1-0102-PPID-S501		Instrument Air System Supply Air Fan F-S537
1-0102-PPID-S502		Instrument Air System Air Compressors
1-0102-PPID-S503		Instrument Air Header
1-0102-PPID-S504		Potable Water Header
1-0102-PPID-S505		Non-Potable Water System
1-0102-PPID-S506		Flushing Water Pumps & Suction Header P-S550 & P-S552
1-0102-PPID-S507		Flushing Water Pumps P-S551 & P-S553
1-0102-PPID-S508		Flood Control Pumps
1-0102-PPID-S509		Flushing Water Header
1-0102-PPID-S510		Sump Pumps
1-0102-PPID-S511		Secondary Clarifier 4 and 5 Area Sump Pumps
1-0102-PPID-S512		Secondary Clarifier Potable Water System
1-0102-PPID-S601		Glycol Heat Recovery - Clarifiers 1 & 2 P-S609
1-0102-PPID-S602		Glycol Heat Recovery - Clarifiers 3 P-S622
1-0102-PPID-S603		Glycol Heat Recovery - Air Handler Units P-S662
1-0102-PPID-S604		Clarifiers 1 & 2 Building HVAC AHU-S601
1-0102-PPID-S605		Clarifiers 1 & 2 Exhaust Fans EF-S606 & EF-S607

Drawing No.	Sheet No.	Description
1-0102-PPID-S606		Clarifiers 1 & 2 Exhaust Fans EF-S608 & EF-S605
1-0102-PPID-S607		Clarifier 3 Building HVAC AHU-S614 & EF-S617
1-0102-PPID-S608		Clarifier 3 Exhaust Fans EF-S619 & EF-S620
1-0102-PPID-S609		Clarifier 3 Exhaust Fans EF-S621 & EF-S618
1-0102-PPID-S610		Electrical Room Ventilation AHU-S683
1-0102-PPID-S611		Truck Bay and Scrubber Room Ventilation AHU-S684
1-0102-PPID-S612		Secondary Pump Room Ventilation AHU-S685
1-0102-PPID-S613		Secondary Clarifiers 1 & 2 Building Ventilation AHU-S689
1-0102-PPID-S614		Control Room S107 Air Purification System AHU-S690
1-0102-PPID-S615		Truck Bay HVAC AHU-S688, EF-S687 and EF-S694
1-0102-PPID-S616		HVAC Unit Heaters
1-0102-PPID-S617		Exhaust Fan EF-S686 and EF-S691
1-0102-PPID-S618		Exhaust Fan EF-S604 and EF-S692
1-0102-PPID-S619		Thermal Oxidizer U-S693
1-0102-PPID-S620		Chilled Water Cooling System CHLR-S648, P-S667, P-S668, P-S679 and P-S680
1-0102-PPID-S621		Hot Water Booster Pumps and Distribution P-S671 & P-S672
1-0102-PPID-S622		Pump Room and Mechanical Room Air Handling Unit AHU-S630
1-0102-PPID-S623		Miscellaneous Rooms Air Handling Unit AHU-S650
1-0102-PPID-S624		Laboratory and Control Room, and Electrical Room Air Handling Unit AHU-S640
1-0102-PPID-S625		Pump Room and Mechanical Room Exhaust Units EF-S631 and EF-S632
1-0102-PPID-S626		Miscellaneous Rooms Exhaust Fans EF-S651, EF-S652, EF-S653 and EF-S654
1-0102-PPID-S627		Effluent Water Heat Recovery System P-S638
1-0102-PPID-S901		Security and Miscellaneous
1-0102-PPID-S902		Lighting, Security and Miscellaneous
1-0102-PGAD-S001		Secondary Clarifiers 4 and 5 Overall Lower Level Plan
1-0102-PGAD-S002		Secondary Clarifiers 4 and 5 Lower Level Plan - Part A
1-0102-PGAD-S003		Secondary Clarifiers 4 and 5 Lower Level Plan - Part B
1-0102-PGAD-S004		Secondary Clarifiers 4 and 5 Lower Level Plan - Part C
1-0102-PGAD-S005		Secondary Clarifiers 4 and 5 Lower Level Plan - Part D
1-0102-PGAD-S006		Secondary Clarifiers 4 and 5 Overall Channel Level Plan
1-0102-PGAD-S007		Secondary Clarifiers 4 and 5 Channel Level Plan - Part A, B, C, D
1-0102-PGAD-S008		Secondary Clarifiers 4 and 5 Overall Ground Floor Plan
1-0102-PGAD-S009		Secondary Clarifiers 5 Ground Floor Plan - Part A
1-0102-PGAD-S010		Secondary Clarifiers 5 Section A, A1 and A2
1-0102-PGAD-S011		Secondary Clarifiers 4 and 5 Section B and C
1-0102-PGAD-S012		Secondary Clarifiers 4 and 5 Section D
1-0102-PGAD-S013		Secondary Clarifiers 4 and 5 Section E
1-0102-PGAD-S014		Secondary Clarifiers 4 and 5 Section F and G
1-0102-PGAD-S015		Secondary Clarifiers 1 and 2 Section H
1-0102-PGAD-S016		Secondary Clarifiers 1 and 2 Section J and K
1-0102-PGAD-S017		Secondary Clarifiers 4 and 5 CENTRAL Lower Level Plan
1-0102-PGAD-SD50		Unox and Sludge Thickening - Secondary Pump Gallery - Section and Details
1-0102-PGAD-SD51		Unox and Sludge Thickening - Secondary Pump Gallery - Section
1-0102-PGAD-SD52		Secondary Clarifiers - Process Equipment and Piping
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)

Drawing No.	Sheet No.	Description
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MGAD-S501		Secondary Clarifiers 4 and 5 Plumbing - Overall Basement Plan
1-0102-MGAD-S502		Secondary Clarifiers 4 and 5 Plumbing - Basement Plan - Part A
1-0102-MGAD-S503		Secondary Clarifiers 4 and 5 Plumbing - Basement Plan - Part B
1-0102-MGAD-S504		Secondary Clarifiers 4 and 5 Plumbing - Basement Plan - Part C
1-0102-MGAD-S505		Secondary Clarifiers 4 and 5 Plumbing - Ground Floor Plan - Part A
1-0102-MGAD-S506		Secondary Clarifiers 4 and 5 Plumbing - Ground Floor Plan - Part B
1-0102-MGAD-S507		Secondary Clarifiers 4 and 5 Plumbing - Roof Plan
1-0102-MGAD-S508		Secondary Clarifiers 4 and 5 Plumbing - Typical Sump Pump Detail Layout
1-0102-MGAD-S601		Secondary Clarifiers 4 and 5 HVAC - Overall Basement Plan
1-0102-MGAD-S602		Secondary Clarifiers 4 and 5 HVAC - Basement Plan - Part A
1-0102-MGAD-S603		Secondary Clarifiers 4 and 5 HVAC - Basement Plan - Part B
1-0102-MGAD-S604		Secondary Clarifiers 4 and 5 HVAC - Basement Plan - Part C
1-0102-MGAD-S605		Secondary Clarifiers 4 and 5 HVAC - Overall Ground Floor Plan
1-0102-MGAD-S606		Secondary Clarifiers 4 and 5 HVAC - Ground Floor Plan - Part A
1-0102-MGAD-S607		Secondary Clarifiers 4 and 5 HVAC - Ground Floor Plan - Part B
1-0102-MGAD-S608		Secondary Clarifiers 4 and 5 HVAC - Ground Floor Plan - Part C
1-0102-MGAD-S609		Secondary Clarifiers 4 and 5 HVAC - Ground Floor Plan Part D and E
1-0102-MGAD-S610		Secondary Clarifiers 4 and 5 HVAC - Overall Roof Plan
1-0102-MGAD-S611		Secondary Clarifiers 4 and 5 HVAC - Section A
1-0102-MGAD-S612		Secondary Clarifiers 4 and 5 HVAC - Section B
1-0102-MGAD-S613		Secondary Clarifiers 4 and 5 HVAC - Section C
1-0102-MISO-S601		Secondary Clarifiers 4 and 5 HVAC - Isometric VIEW - Part 1
1-0102-MISO-S602		Secondary Clarifiers 4 and 5 HVAC - Isometric VIEW - Part 2
SEP-447		Secondary Clarifier No. 3 - Ventilation & Heat Recovery - Part Plan & Section
SEP-449		Secondary Clarifier Expansion - Ventilation Room S114 - Section, Heat Ventilation and Ductwork
SEP-450		Secondary Clarifier Expansion - Ventilation Room S114 - Floor Plans, Heat Ventilation and Ductwork
1-0102-MSLD-S601		Secondary Clarifiers - Air Flow Schematic
1-0102-MSLD-S602		Secondary Clarifiers - Glycol Heat Recovery System

Drawing No.	Sheet No.	Description
1-0102-MSLD-S603		Secondary Clarifiers - Natural Gas System Schematic
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-ECBD-S003		MCC/Cabinets Drawing, Secondary Clarifiers, MCC-S710 Schedule
1-0102-ECBD-S004		MCC/Cabinets Drawing, Secondary Clarifiers, MCC-S710 & MCC-S720 Layout and Schedule
1-0102-ECBD-S005		MCC/Cabinets Drawing, Secondary Clarifiers, MCC-S720 Schedule
1-0102-ECBD-S006		MCC/Cabinets Drawing, Secondary Clarifiers 4 and 5, MCC-S730 Layout and Schedule
1-0102-ECBD-S007		MCC/Cabinets Drawing, Secondary Clarifiers 4 and 5, MCC-S740 Layout and Schedule
1-0102-ECBD-S008		MCC/Cabinets Drawing, Secondary Clarifiers 4 and 5, MCC-S750 and MCC-S760 Layout and Schedule
1-0102-ECBD-S009		Cabinet Layout, Secondary Clarifiers 4 and 5, CP-S744
1-0102-ECBD-S010		Cabinet Layout, Secondary Clarifiers 4 and 5, LC-S745
1-0102-ECRT-S002		Cable Routing, Secondary Clarifiers 4 and 5, Cable Bus System Layout
1-0102-ECRT-S003		Cable Routing, Secondary Clarifiers 4 and 5, Cable Bus System Sections & Details
1-0102-ECTR-S002	001	Cable Tray Layout, Secondary Clarifiers 4 and 5, Basement Plan
1-0102-ECTR-S002	002	Cable Tray Layout, Secondary Clarifiers 4 and 5, Basement Plan
1-0102-ECTR-S003	001	Cable Tray Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-ECTR-S003	002	Cable Tray Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-ECTR-S004	001	Cable Tray, Secondary Clarifiers 4 and 5, Sections and Details
1-0102-ECTR-S004	002	Cable Tray, Secondary Clarifiers 4 and 5, Sections and Details
1-0102-EFAS-S001		Fire Alarm Layout, Secondary Clarifiers 4 and 5, Basement Plan
1-0102-EFAS-S002		Fire Alarm Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-EFAS-S003		Fire Alarm, Secondary Clarifiers 4 and 5, Riser Diagram Detection Circuits
1-0102-EFAS-S004		Fire Alarm, Secondary Clarifiers 4 and 5, Riser Diagram Notification Circuits
1-0102-EGAD-S001		Power Layout, Secondary Clarifiers, East Electrical Room Layout
1-0102-EGAD-S002		Power Layout, Secondary Clarifiers 4 and 5, West Electrical Room & Laboratory

Drawing No.	Sheet No.	Description
1-0102-EGAD-S003		Power Layout, Secondary Clarifiers 4 and 5, Basement Plan
1-0102-EGAD-S004		Power Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-EGAD-S005		Power Layout, Secondary Clarifiers 4 and 5, Grade Level Plan
1-0102-EGAD-SD01		Demolition Plan, Secondary Clarifiers, Basement & Ground Floor Plan
1-0102-EGAD-SD02		Demolition Plan, Secondary Clarifiers, Basement Plan
1-0102-EGRD-S001		Grounding, Secondary Clarifiers 4 and 5, Riser Diagram
1-0102-EGRD-S002	001	Grounding Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-EGRD-S002	002	Grounding Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-EGRD-S002	003	Grounding Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-EGRD-S003	001	Grounding Layout, Secondary Clarifiers, Ground Floor Plan
1-0102-EGRD-S003	002	Grounding Layout, Secondary Clarifiers, Ground Floor Plan
1-0102-EGRD-S003	003	Grounding Layout, Secondary Clarifiers, Ground Floor Plan
1-0102-EGRD-S004		Lightning Protection Layout, Secondary Clarifiers, Roof Plan
1-0102-EHLC-S001		Hazardous Location, Secondary Clarifiers 4 and 5, Basement Plan
1-0102-EHLC-S002		Hazardous Location, Secondary Clarifiers 4 and 5, Channel Level Plan
1-0102-EHLC-S003		Hazardous Location, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-ELTG-S001	001	Lighting Layout, Secondary Clarifiers 4 and 5, Basement Plan
1-0102-ELTG-S001	002	Lighting Layout, Secondary Clarifiers 4 and 5, Basement Plan
1-0102-ELTG-S001	003	Lighting Layout, Secondary Clarifiers 4 and 5, Basement Plan
Volume 5B Cover Page		Cover Page
1-0102-ELTG-S002	001	Lighting Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-ELTG-S002	002	Lighting Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-ELTG-S002	003	Lighting Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-ELTG-S002	004	Lighting Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-ELTG-S002	005	Lighting Layout, Secondary Clarifiers 4 and 5, Ground Floor Plan
1-0102-ELTG-S003		Lighting Layout, Secondary Clarifiers 4 and 5, Stairs S-141 and S-142
1-0102-ELTG-S004	001	Interior Lighting Control, Secondary Clarifiers 4 and 5, CP-S744 Schematic and Wiring Diagram
1-0102-ELTG-S004	002	Interior Lighting Control, Secondary Clarifiers 4 and 5, CP-S744 Schematic and Wiring Diagram
1-0102-ELTG-S005		Exterior Lighting Control, Secondary Clarifiers 4 and 5, LC-S745 Schematic and Wiring Diagram

Drawing No.	Sheet No.	Description
1-0102-EMCL-S110		Motor Starter Schematic, Secondary Clarifiers, CM-S110 Clarifier 1 Mechanism Power Control
1-0102-EMCL-S120		Motor Starter Schematic, Secondary Clarifiers, CM-S120 Clarifier 2 Mechanism Power Control
1-0102-EMCL-S130		Motor Starter Schematic, CM-S130 Clarifier Mechanism
1-0102-EMCL-S140		Motor Starter Schematic, Secondary Clarifiers 4 and 5, CM-S140 Clarifier 4 Mechanism Power Control
1-0102-EMCL-S141		Motor Starter Schematic, Secondary Clarifiers 4 and 5, HTR-S141-1 To HTR-S141-6 Clarifier 4 Heaters
1-0102-EMCL-S142		Motor Starter Schematic, Secondary Clarifiers 4 and 5, HTR-S141-7 To HTR-S141-9 Clarifier 4 Heaters
1-0102-EMCL-S150		Motor Starter Schematic, Secondary Clarifiers 4 and 5, CM-S150 Clarifier 5 Mechanism Power Control
1-0102-EMCL-S151		Motor Starter Schematic, Secondary Clarifiers 4 and 5, HTR-S151-1 To HTR-S151-6 Clarifier 5 Heaters
1-0102-EMCL-S152		Motor Starter Schematic, Secondary Clarifiers 4 and 5, HTR-S151-7 To HTR-S151-9 Clarifier 5 Heaters
1-0102-EMCL-S181		Motor Starter Schematic, P-S181 Sodium Bisulphite Dispersion Pump
1-0102-EMCL-S182		Motor Starter Schematic, P-S182 Sodium Bisulphite Dispersion Pump
1-0102-EMCL-S201		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S216 RAS Pump
1-0102-EMCL-S202		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S217 RAS Pump
1-0102-EMCL-S203		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S218 RAS Pump
1-0102-EMCL-S204	001	Motor Starter Schematic, P-S101, RAS Pump
1-0102-EMCL-S204	002	Motor Starter Schematic, P-S101 RAS, Pump
1-0102-EMCL-S205	001	Motor Starter Schematic, P-S102, RAS Pump
1-0102-EMCL-S205	002	Motor Starter Schematic, P-S102, RAS Pump
1-0102-EMCL-S206	001	Motor Starter Schematic, P-S103 RAS, Pump
1-0102-EMCL-S206	002	Motor Starter Schematic, P-S103 RAS, Pump
1-0102-EMCL-S207	001	Motor Starter Schematic, P-S108, RAS Pump
1-0102-EMCL-S207	002	Motor Starter Schematic, P-S108, RAS Pump
1-0102-EMCL-S208	001	Motor Starter Schematic, P-S109, RAS Pump
1-0102-EMCL-S208	002	Motor Starter Schematic, P-S109, RAS Pump
1-0102-EMCL-S209	001	Motor Starter Schematic, P-S202, WAS Pump
1-0102-EMCL-S209	002	Motor Starter Schematic, P-S202, WAS Pump
1-0102-EMCL-S210	001	Motor Starter Schematic, P-S203, WAS Pump
1-0102-EMCL-S210	002	Motor Starter Schematic, P-S203, WAS Pump
1-0102-EMCL-S301		Motor Starter Schematic, P-S307, Secondary Clarifiers 1 & 2 Scum Pump
1-0102-EMCL-S302		Motor Starter Schematic, P-S308, Secondary Clarifiers 1 & 2 Scum Pump
1-0102-EMCL-S303		Motor Starter Schematic, P-S309, Secondary Clarifiers 1 & 2 Scum Pump
1-0102-EMCL-S304		Motor Starter Schematic, P-S316, Secondary Clarifiers 4 and 5 Scum Pump
1-0102-EMCL-S305		Motor Starter Schematic, P-S317, Secondary Clarifiers 4 and 5 Scum Pump
1-0102-EMCL-S401		Motor Starter Schematic, P-S401, Sludge Transfer Pump
1-0102-EMCL-S402		Motor Starter Schematic, P-S402, Sludge Transfer Pump
1-0102-EMCL-S505		Motor Starter Schematic, F-S537, Air Compressor Supply Fan
1-0102-EMCL-S506		Motor Starter Schematic, P-S550, Flushing Water Pump

Drawing No.	Sheet No.	Description
1-0102-EMCL-S507		Motor Starter Schematic, P-S551, Flushing Water Pump
1-0102-EMCL-S508		Motor Starter Schematic, P-S552, Flushing Water Pump
1-0102-EMCL-S509		Motor Starter Schematic, P-S553, Flushing Water Pump
1-0102-EMCL-S510		Motor Starter Schematic, STR-S554, Automatic Strainer
1-0102-EMCL-S514		Motor Starter Schematic, P-S569, Sump Pump
1-0102-EMCL-S515		Motor Starter Schematic, P-S570, Sump Pump
1-0102-EMCL-S517		Motor Starter Schematic, P-S575, Room S118 Sump Pump
1-0102-EMCL-S518		Motor Starter Schematic, P-S576, Sump Pump
1-0102-EMCL-S519		Motor Starter Schematic, P-S577, Sump Pump
1-0102-EMCL-S520		Motor Starter Schematic, P-S578, Sump Pump
1-0102-EMCL-S521		Motor Starter Schematic, P-S579, Sump Pump
1-0102-EMCL-S522		Motor Starter Schematic, P-S580, Sump Pump
1-0102-EMCL-S523		Motor Starter Schematic, P-S581, Sump Pump
1-0102-EMCL-S524		Motor Starter Schematic, P-S582, Sump Pump
1-0102-EMCL-S525		Motor Starter Schematic, P-S583, Sump Pump
1-0102-EMCL-S526		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S584 Storage Room Sump Pump
1-0102-EMCL-S527		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S585 Storage Room Sump Pump
1-0102-EMCL-S528		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S586 Pump Room Sump Pump
1-0102-EMCL-S529		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S587 Pump Room Sump Pump
1-0102-EMCL-S530		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S588 Mechanical Room Sump Pump
1-0102-EMCL-S531		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S589 Mechanical Room Sump Pump
1-0102-EMCL-S532		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S595 Sump Pump Area Sump Pump
1-0102-EMCL-S541		Motor Starter Schematic, Secondary Clarifier 4 and 5, P-S593 Flood Control Pump
1-0102-EMCL-S542		Motor Starter Schematic, Secondary Clarifier 4 and 5, P-S594 Flood Control Pump
1-0102-EMCL-S601		Motor Starter Schematic, EF-S604, Gallery Exhaust Fan
1-0102-EMCL-S602		Motor Starter Schematic, EF-S605, Secondary Clarifiers 1 & 2 Exhaust Fan
1-0102-EMCL-S603		Motor Starter Schematic, EF-S606, Secondary Clarifiers 1 & 2 Exhaust Fan
1-0102-EMCL-S604		Motor Starter Schematic, EF-S607, Secondary Clarifiers 1 & 2 Exhaust Fan
1-0102-EMCL-S605		Motor Starter Schematic, EF-S608, Secondary Clarifiers 1 & 2 Exhaust Fan
1-0102-EMCL-S606		Motor Starter Schematic, P-S609, Secondary Clarifiers 1 & 2 Glycol Heat Recovery Pump
1-0102-EMCL-S610		Motor Starter Schematic, EF-S617, Gallery Exhaust Fan
1-0102-EMCL-S611		Motor Starter Schematic, EF-S618, Secondary Clarifiers 1 & 2 Exhaust Fan
1-0102-EMCL-S612		Motor Starter Schematic, EF-S619, Secondary Clarifiers 3 Exhaust Fan
1-0102-EMCL-S613		Motor Starter Schematic, EF-S620, Secondary Clarifiers 3 Exhaust Fan
1-0102-EMCL-S614		Motor Starter Schematic, EF-S621, Secondary Clarifiers 3 Exhaust Fan
1-0102-EMCL-S615		Motor Starter Schematic, P-S622, Secondary Clarifiers Glycol Heat Recovery Pump

Drawing No.	Sheet No.	Description
1-0102-EMCL-S620		Motor Starter Schematic, F-S649, Cooling Tower Fun
1-0102-EMCL-S622		Motor Starter Schematic, P-S662, Secondary Clarifiers Glycol Heat Recovery Pump
1-0102-EMCL-S623		Motor Starter Schematic, P-S667, Chilled Water Pump
1-0102-EMCL-S624		Motor Starter Schematic, P-S668, Chilled Water Pump
1-0102-EMCL-S626		Motor Starter Schematic, P-S671, Hot Water Circulating Pump
1-0102-EMCL-S627		Motor Starter Schematic, P-S672, Hot Water Circulating Pump
1-0102-EMCL-S629		Motor Starter Schematic, P-S679, Cooling Tower Pump
1-0102-EMCL-S630		Motor Starter Schematic, P-S680, Cooling Tower Pump
1-0102-EMCL-S632		Motor Starter Schematic, AHU-S683, Electrical Room Air Handling Unit
1-0102-EMCL-S633		Motor Starter Schematic, AHU-S684, Scrubber Room Air Handling Unit
1-0102-EMCL-S634		Motor Starter Schematic, AHU-S685, Secondary Pump Room Air Handling Unit
1-0102-EMCL-S635		Motor Starter Schematic, EF-S686, Secondary Pump Room Exhaust Fan
1-0102-EMCL-S636		Motor Starter Schematic, EF-S687, Truck Bay Exhaust Fan
1-0102-EMCL-S637		Motor Starter Schematic, AHU-S689, Secondary Clarifiers 1 &2 Galleries Air Handling Unit
1-0102-EMCL-S638		Motor Starter Schematic, AHU-S690, Control Room Air Handling Unit
1-0102-EMCL-S639		Motor Starter Schematic, EF-S691, Scrubber Room Exhaust Fan
1-0102-EMCL-S640		Motor Starter Schematic, EF-S692, Sludge Storage Tank Exhaust Fan
1-0102-EMCL-S641		Motor Starter Schematic, EF-S694, Truck Bay Exhaust Fan
1-0102-EMCL-S646		Motor Starter Schematic, Secondary Clarifiers 4 and 5, EF-S646 Laboratory Exhaust Fan
1-0102-EMCL-S647		Motor Starter Schematic, Secondary Clarifiers 4 and 5, EF-S631 Pump Room Exhaust Fan
1-0102-EMCL-S648		Motor Starter Schematic, Secondary Clarifiers 4 and 5, EF-S632 Pump Room Exhaust Fan
1-0102-EMCL-S649		Motor Starter Schematic, Secondary Clarifiers 4 and 5, EF-S651 Walkway A and Gallery 3A Exhaust Fan
1-0102-EMCL-S650		Motor Starter Schematic, Secondary Clarifiers 4 and 5, EF-S654 Storage Room Exhaust Fan
1-0102-EMCL-S651		Motor Starter Schematic, Secondary Clarifiers 4 and 5, P-S664, Glycol Pump
1-0102-EMCL-S901		Motor Starter Schematic, Secondary Clarifiers 4 and 5, XFMR-S731 Feeder
1-0102-EMCL-S902		Motor Starter Schematic, Secondary Clarifiers 4 and 5, XFMR-S741 Feeder
1-0102-ESCH-S001		Secondary Clarifiers 4 and 5, Panel Schedules & Details
1-0102-ESCH-S002		Secondary Clarifiers, Panel Schedules
1-0102-ESLD-S001		Single Line Diagram, Secondary Clarifiers, SGR-S701 and SGR-S702
1-0102-ESLD-S002		Single Line Diagram, Secondary Clarifiers, MCC-S710
1-0102-ESLD-S003		Single Line Diagram, Secondary Clarifiers, MCC-S720
1-0102-ESLD-S004		Single Line Diagram, Secondary Clarifiers, CDP-E2
1-0102-ESLD-S005		Single Line Diagram, Secondary Clarifiers 4 and 5, MCC-S730

Drawing No.	Sheet No.	Description
1-0102-ESLD-S006		Single Line Diagram, Secondary Clarifiers 4 and 5, MCC-S740
1-0102-ESLD-S007		Single Line Diagram, Secondary Clarifiers 4 and 5, MCC-S750 and MCC-S760
1-0102-EWDG-S001	001	Wiring Diagram, Secondary Clarifiers 4 and 5, Condensing and Air Conditioning Units
1-0102-EWDG-S001	002	Wiring Diagram, Secondary Clarifiers 4 and 5, Condensing and Air Conditioning Units
1-0102-EWDG-S002		Wiring Diagram, Secondary Clarifiers 4 and 5, Electric Convectors, Radiant, and Unit Heaters
1-0102-EWDG-S003		Wiring Diagram, Secondary Clarifier 4 and 5, Flushing Water Heat Trace, Temp. Controller TC-S7311/TC-S7312
SEP-454		Secondary Clarifier Expansion - Elect., Secondary Clarifier 1 & 2, Main Floor Layout, Lighting & Receptacles.
SEP-455		Secondary Clarifier Expansion - Elect., Secondary Clarifier 1 & 2, Lighting & Receptacles, Basement
SEP-458		Secondary Clarifier Expansion - Electrical, Secondary Clarifier No. 3, Lighting & Receptacles, Basement
SEP-459		Secondary Clarifier No. 3, Secondary Clarifier No. 3, Lighting & Receptacles, Main Floor Plan
SEP-461		Secondary Clarifier Expansion - Electrical., Reactor & Sludge Thickening, Lighting & Receptacles
SEP-463		Secondary Clarifier Expansion - Elec., Ventilation & Control Room, Lighting & Receptacles.
SEP-471		Secondary Clarifier Expansion - I & C, Scrubber Room, Truck Bay & Ventilation Room, Floor Plans
SEP-472		Secondary Clarifier Expansion - I & C, Secondary Pump Room, Sludge Recirculation Area, Floor Plan
SEP-473		Secondary Clarifier Expansion - I & C, Secondary Clarifier 3 Basement Floor Plan
SEP-474		Secondary Clarifier Expansion - I & C, Secondary Clarifier 1 & 2, Basement Floor Plan
SEP-475		Secondary Clarifier Expansion - I & C, Secondary Clarifier 3, Main Floor Plan
SEP-476		Secondary Clarifier Expansion - I & C, Secondary Clarifier 1 & 2 Main Floor Plan
1-0102S-E0018		Electrical Classification Plan, Secondary Clarifiers - Lower Level
1-0102S-E0019		Electrical Classification Plan, Secondary Clarifiers - Main Level
1-0102S-E0020		Electrical Classification Plan, Secondary Clarifier 2 Fan Room
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-S001		Control System Architecture, Secondary Clarifiers
1-0102-ACBD-S001		Cabinet Layout, Secondary Clarifiers, CP-S820-1 and CP-S820-2
1-0102-ACBD-S002	001	Power Distribution Schematic, Secondary Clarifiers, CP-S820-1 and CP-S820-2
1-0102-ACBD-S002	002	Power Distribution Schematic, Secondary Clarifiers, CP-S820-1 and CP-S820-2
1-0102-ACBD-S003	001	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Inputs
1-0102-ACBD-S003	002	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Inputs

Drawing No.	Sheet No.	Description
1-0102-ACBD-S003	003	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Inputs
1-0102-ACBD-S003	004	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Inputs
1-0102-ACBD-S003	005	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Inputs
1-0102-ACBD-S003	006	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Inputs
1-0102-ACBD-S003	007	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Inputs
1-0102-ACBD-S004	001	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Outputs
1-0102-ACBD-S004	002	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Outputs
1-0102-ACBD-S004	003	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-1 - Discrete Outputs
1-0102-ACBD-S005	001	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-2 - Analog Inputs
1-0102-ACBD-S005	002	Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-2 - Analog Inputs
1-0102-ACBD-S006		Wiring Diagram, Secondary Clarifiers, CP-S820-1 and CP-S820-2, RIO-S801-2 - Analog Outputs
1-0102-ACBD-S008		Cabinet Layout, Secondary Clarifiers, CP-S820-3 and CP-S820-4
1-0102-ACBD-S009	001	Power Distribution Schematic, Secondary Clarifiers, CP-S820-3 and CP-S820-4
1-0102-ACBD-S009	002	Power Distribution Schematic, Secondary Clarifiers, CP-S820-3 and CP-S820-4
1-0102-ACBD-S010	001	Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Discrete Inputs
1-0102-ACBD-S010	002	Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Discrete Inputs
1-0102-ACBD-S010	003	Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Discrete Inputs
1-0102-ACBD-S010	004	Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Discrete Inputs
1-0102-ACBD-S010	005	Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Discrete Inputs
1-0102-ACBD-S010	006	Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Discrete Inputs
1-0102-ACBD-S011	001	Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Discrete Outputs
1-0102-ACBD-S011	002	Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Discrete Outputs
1-0102-ACBD-S012		Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Analog Inputs
1-0102-ACBD-S013		Wiring Diagram, Secondary Clarifiers, CP-S820-3 and CP-S820-4, RIO-S801-3 - Analog Outputs
1-0102-ACBD-S015	001	Cabinet Layout, Secondary Clarifiers, CP-S821 Front View
1-0102-ACBD-S015	002	Cabinet Layout, Secondary Clarifiers, CP-S821 Front View
1-0102-ACBD-S016	001	Cabinet Layout, Secondary Clarifiers, CP-S821 Rear View
1-0102-ACBD-S016	002	Cabinet Layout, Secondary Clarifiers, CP-S821 Rear View

Drawing No.	Sheet No.	Description
1-0102-ACBD-S020		Cabinet Layout, Secondary Clarifiers, PSP-S822 Power Supply Cabinet
1-0102-ACBD-S021	001	Power Distribution Schematic, Secondary Clarifiers, PSP-S822 Power Supply Cabinet
1-0102-ACBD-S021	002	Power Distribution Schematic, Secondary Clarifiers, PSP-S822 Power Supply Cabinet
1-0102-ACBD-S021	003	Power Distribution Schematic, Secondary Clarifiers, PSP-S822 Power Supply Cabinet
1-0102-ACBD-S022		Cabinet Layout, Secondary Clarifiers, CP-S822 PLC and Device Network Equipment Cabinet
1-0102-ACBD-S023		Power Distribution Schematic, Secondary Clarifiers, CP-S822 PLC and Device Network Equipment Cabinet
1-0102-ACBD-S024		Wiring Diagram, Secondary Clarifiers, CP-S822 Miscellaneous Wiring
1-0102-ACBD-S025		Cabinet Layout, Secondary Clarifiers, CP-S823, RIO-S802-1 - Process RIO Cabinet
1-0102-ACBD-S026		Power Distribution Schematic, Secondary Clarifiers, CP-S823, RIO-S802-1 - Process RIO Cabinet
1-0102-ACBD-S027	001	Wiring Diagram, CP-S823, RIO-S802-1 - Discrete Inputs
1-0102-ACBD-S027	002	Wiring Diagram, CP-S823, RIO-S802-1 - Discrete Inputs
1-0102-ACBD-S028		Wiring Diagram, CP-S823, RIO-S802-1 - Discrete Outputs
1-0102-ACBD-S029		Wiring Diagram, CP-S823, RIO-S802-1 - Analog Inputs
1-0102-ACBD-S030		Wiring Diagram, Secondary Clarifiers, CP-S823, RIO-S802-1 - Miscellaneous Wring
1-0102-ACBD-S031	001	Cabinet Layout, Secondary Clarifiers, CP-S826 HVAC PLC Cabinet
1-0102-ACBD-S031	002	Cabinet Layout, Secondary Clarifiers, CP-S826 HVAC PLC Cabinet
1-0102-ACBD-S032		Power Distribution Schematic, Secondary Clarifiers, CP-S826 HVAC PLC Cabinet
1-0102-ACBD-S033	001	Wiring Diagram, CP-S826, PLC-S806 - Discrete Inputs
1-0102-ACBD-S033	002	Wiring Diagram, CP-S826, PLC-S806 - Discrete Inputs
1-0102-ACBD-S034		Wiring Diagram, CP-S826, PLC-S806 - Discrete Outputs
1-0102-ACBD-S035	001	Wiring Diagram, CP-S826, PLC-S806 - Analog Inputs
1-0102-ACBD-S035	002	Wiring Diagram, CP-S826, PLC-S806 - Analog Inputs
1-0102-ACBD-S035	003	Wiring Diagram, CP-S826, PLC-S806 - Analog Inputs
1-0102-ACBD-S036		Wiring Diagram, CP-S826, PLC-S806 - Analog Outputs
1-0102-ACBD-S054		Cabinet Layout, Secondary Clarifiers, CP-S830 Clarifiers 4 and 5 Heaters
1-0102-ACBD-S055		Wiring Diagram, Secondary Clarifiers, CP-S830 Clarifiers 4 and 5 Heaters
1-0102-ACBD-S056		Cabinet Layout, Secondary Clarifiers, SCP-6 Sludge Transfer Pumps P-S401 and P-S402 Control Panel
1-0102-ACBD-S057		Wiring Diagram, Secondary Clarifiers, XK-S3163, XK-S3172, XK-S3001, XK-S3002, Valves Remote Control Stations
1-0102-ACBD-S081	001	Cabinet Layout, Secondary Clarifiers 4 and 5, Junction Boxes
1-0102-ACBD-S081	002	Cabinet Layout, Secondary Clarifiers 4 and 5, Junction Boxes
1-0102-ACBD-S081	003	Cabinet Layout, Secondary Clarifiers 4 and 5, Junction Boxes
1-0102-ACBD-S082		Cabinet Layout, Secondary Clarifiers 4 and 5, LT-S5921 Level Transmitter Junction Box

Drawing No.	Sheet No.	Description
1-0102-ACBD-S083		Cabinet Layout, Secondary Clarifiers 4 and 5, ADP-S593 and ADP-S594 Junction Boxes
1-0102-ACBD-S085		Cabinet Layout, Secondary Clarifiers 4 and 5, Gas Unit Heater Junction Boxes
1-0102-ACBD-S086		Cabinet Layout, Secondary Clarifiers 4 and 5, Electric Unit Heater Junction Boxes
1-0102-ACBD-S087		Cabinet Layout, Secondary Clarifiers 4 and 5, JBA-G6634 Flushing Water Valve Junction Box
1-0102-ACBD-S901		Cabinet Layout, Secondary Clarifiers, NP-S900 Network Cabinet
1-0102-ACBD-S902		Power Distribution Schematic, Secondary Clarifiers, NP-S900 Network Cabinet
1-0102-ACBD-S903		Cabinet Layout, Secondary Clarifiers, NP-S901 Network Cabinet
1-0102-ACBD-S904		Power Distribution Schematic, Secondary Clarifiers, NP-S901 Network Cabinet
1-0102-ACBD-SD01		Cabinet Layout Demolition, Secondary Clarifiers, CP-S820-1 to CP-S820-8
1-0102-AGAD-S001		Equipment Layout, Secondary Clarifiers, Control Room and Corridor
1-0102-AGAD-S002		Equipment Layout, Secondary Clarifiers 4 and 5, Laboratory & Control Room
1-0102-AGAD-S010		Instrument Location Plan, Secondary Clarifiers 4 and 5, Mechanical Room, Service Tunnel and Sump Pump Area
1-0102-AGAD-S011		Instrument Location Plan, Secondary Clarifiers 4 and 5, Pump Room, Service Tunnel and Galley 3
1-0102-AGAD-S012		Instrument Location Plan, Secondary Clarifiers 4 and 5, Storage Room
1-0102-AGAD-S013		Instrument Location Plan, Secondary Clarifiers 4 and 5, Secondary Clarifier 4
1-0102-AGAD-S014		Instrument Location Plan, Secondary Clarifiers 4 and 5, Secondary Clarifier 5
1-0102-AGAD-S015		Instrument Location Plan, Secondary Clarifiers 4 and 5, Walkway, Pump Room and Storage Room Roof
1-0102-AGAD-S016		Instrument Location Plan, Secondary Clarifiers 4 and 5, Walkway A & Loading Area B
1-0102-AIFS-S001	001	Profibus Segment Diagram, Secondary Clairifer 4, Profibus DP Segments ND-S840
1-0102-AIFS-S001	002	Profibus Segment Diagram, Secondary Clairifer 4, Profibus DP Segments ND-S840
1-0102-AIFS-S002		Profibus Segment Diagram, Secondary Clairifer 5, Profibus DP Segments ND-S841
1-0102-AILD-S101		Loop Diagram, FIT-S1121, Mixed Liquor Flow to Secondary Clarifier 1
1-0102-AILD-S102		Loop Diagram, FV-S1121, Mixed Liquor Flow to Secondary Clarifier 1
1-0102-AILD-S103		Loop Diagram, FIT-S1015, RAS Flow
1-0102-AILD-S104		Loop Diagram, LSH-S1001, Secondary Influent Channel High Level Switch
1-0102-AILD-S106		Loop Diagram, FIT-S1221, Mixed Liquor Flow To Secondary Clarifier 2
1-0102-AILD-S107		Loop Diagram, FV-S1221, Mixed Liquor Flow To Secondary Clarifier 2
1-0102-AILD-S110	001	Loop Diagram, CM-S110, Secondary Clarifier 1 Mechanism

Drawing No.	Sheet No.	Description
1-0102-AILD-S110	002	Loop Diagram, CM-S110, Secondary Clarifier 1 Mechanism
1-0102-AILD-S112		Loop Diagram, LIT-S1101 & LE-S1101, Secondary Clarifier 1 Sludge Blanket Level
1-0102-AILD-S113		Loop Diagram, FIT-S1321, Mixed Liquor Flow To Secondary Clarifier 3
1-0102-AILD-S114		Loop Diagram, FV-S1321, Mixed Liquor Flow To Secondary Clarifier 3
1-0102-AILD-S115		Loop Diagram, FIT-S1025, RAS Flow Measurement
1-0102-AILD-S116		Loop Diagram, FIT-S1035, RAS Flow Measurement
1-0102-AILD-S117		Loop Diagram, FIT-S1085, RAS Flow Measurement
1-0102-AILD-S118		Loop Diagram, FIT-S1095, RAS Flow Measurement
1-0102-AILD-S120	001	Loop Diagram, CM-S120, Secondary Clarifier 2 Mechanism
1-0102-AILD-S120	002	Loop Diagram, CM-S120, Secondary Clarifier 2 Mechanism
1-0102-AILD-S122		Loop Diagram, LIT-S1201 & LE-S1201, Secondary Clarifier 2 Sludge Blanket Level
1-0102-AILD-S140	001	Loop Diagram, CM-S140, Secondary Clarifier 4 Mechanism
1-0102-AILD-S140	002	Loop Diagram, CM-S140, Secondary Clarifier 4 Mechanism
1-0102-AILD-S141		Loop Diagram, FIT-S1421, Secondary Clarifier 4 Influent Channel Flow Transmitter
1-0102-AILD-S142		Loop Diagram, LIT-S1401 & LE-S1401, Secondary Clarifier 4 Sludge Blanket Level
1-0102-AILD-S150	001	Loop Diagram, CM-S150, Secondary Clarifier 5 Mechanism
1-0102-AILD-S150	002	Loop Diagram, CM-S150, Secondary Clarifier 5 Mechanism
1-0102-AILD-S151		Loop Diagram, FIT-S1521, Secondary Clarifier 5 Influent Channel Flow Transmitter
1-0102-AILD-S152		Loop Diagram, LIT-S1501, Secondary Clarifier 5 Tank Level Transmitter
1-0102-AILD-S201		Loop Diagram, FIT-S2165, RAS Pump P-S216 Discharge Flow Transmitter
1-0102-AILD-S202		Loop Diagram, FIT-S2175, RAS Pump P-S217 Discharge Flow Transmitter
1-0102-AILD-S203		Loop Diagram, FIT-S2185, RAS Pump P-S218 Discharge Flow Transmitter
1-0102-AILD-S204		Loop Diagram, FIT-S2011, WAS Flow Measurement
1-0102-AILD-S301		Loop Diagram, XV-S3011, Secondary Clarifiers 1 & 2 Recirculation Valve Control
1-0102-AILD-S302		Loop Diagram, XV-S3021, Secondary Clarifiers 1 & 2 Scum System Valve
1-0102-AILD-S303		Loop Diagram, XV-S3061, Secondary Clarifiers 1 & 2 Scum System Flushing Water
1-0102-AILD-S304		Loop Diagram, LIT-S3051, Secondary Clarifiers 1 & 2 Scum Tank Level Indication
1-0102-AILD-S305		Loop Diagram, LIT-S3141, Secondary Clarifier 3 Scum Tank Level Indication
1-0102-AILD-S306		Loop Diagram, XV-S3101, Secondary Clarifier 3 Recirculation Valve
1-0102-AILD-S307		Loop Diagram, XV-S3021, Secondary Clarifier 3 Scum System Valve

Drawing No.	Sheet No.	Description
1-0102-AILD-S308		Loop Diagram, XV-S3131, Secondary Clarifier 3 Scum System Flushing Water
1-0102-AILD-S311		Loop Diagram, LIT-S3151 Scum Tank V-S315 Level Transmitter
1-0102-AILD-S312		Loop Diagram, XV-S3162, Scum Pump Flushing Water Valve
1-0102-AILD-S401		Loop Diagram, XV-S4031, Sludge Recirculation Valve
1-0102-AILD-S402		Loop Diagram, XV-S4041, Loadout Valve
1-0102-AILD-S403		Loop diagram, XV-S4051, Sludge Truck Loading Flushing Water
1-0102-AILD-S404		Loop Diagram, LSH-S4162, LSH-S4172, LSH-S4182, Sludge Holding Tanks High Level Switches
1-0102-AILD-S405		Loop diagram, LIT-S4161, Sludge Holding Tank 3 Level Indication
1-0102-AILD-S407		Loop Diagram, LIT-S4171, Sludge Holding Tank 2 Level Indication
1-0102-AILD-S408		Loop Diagram, LIT-S4181, Sludge Holding Tank 1 Level Indication
1-0102-AILD-S411		Loop Diagram, XV-S4191, Flushing Water Valve
1-0102-AILD-S412		Loop Diagram, FIT-S4201, Sludge Truck loading Flow Measurement
1-0102-AILD-S413		Loop Diagram, HS-S4211-1, HS-S4211-2, HS-S4211-3, YL-S4211-1, YL-S4211-2, Sludge Hauler Controls
1-0102-AILD-S414		Loop Diagram, EAL-S4151, LSHH-S4162, LSHH-S4172, LSHH-S4182, Sludge Holding Tanks High High Level Alarm Power Failure
1-0102-AILD-S501		Loop diagram, TSH-S5021 & TSH-S5141, High Temperature switches
1-0102-AILD-S506		Loop Diagram, SA-S530, Secondary Clarifier 2 Effluent Sampler
1-0102-AILD-S507		Loop Diagram, SA-S529, Secondary Clarifier 1 Effluent Sampler
1-0102-AILD-S509		Loop Diagram, SA-S532, Secondary Clarifier 1 Effluent Sampler
1-0102-AILD-S510		Loop Diagram, CMP-S535 & CMP-S538, Instrument Air Compressors
1-0102-AILD-S512		Loop Diagram, PIT-S5461 & PSL-S5462, Instrument Air Pressure Sensing Elements
1-0102-AILD-S514		Loop Diagram, PT-S5551, Flushing Water Header Pressure
1-0102-AILD-S515		Loop Diagram, PT-S5561, Seal Water Header Pressure
1-0102-AILD-S516		Loop Diagram, XV-S5571, Seal Water Emergency Flushing Water Supply
1-0102-AILD-S517		Loop Diagram, AAH-S5900-1, AAH-S5900-2, Scrubber Room Gas Alarm
1-0102-AILD-S518		Loop Diagram, AAH-S5910-1, AAH-S5910-2, Truck Bay Gas Alarm
1-0102-AILD-S519		Loop Diagram, GDC-S1, Common Fault Alarm
1-0102-AILD-S520		Loop Diagram, AIT-S5961 and AIT-S5962, Secondary Clarifiers 1 & 2 Exhaust Air Plenum Gas Detection
1-0102-AILD-S521		Loop Diagram, AA-S5960-1, AA-S5690-2 & AA-S5960-3, Horn and Strobes Fan Room Gas Detection
1-0102-AILD-S530		Loop Diagram, LSH-S5842 and LSH-S5862, Sump Level Switches
1-0102-AILD-S531		Loop Diagram, LSH-S5882 and LSH-S5952, Sump Level Switches

Drawing No.	Sheet No.	Description
1-0102-AILD-S532		Loop Diagram, LT-S5921, Flood Sump Level Transmitter
1-0102-AILD-S540		Loop Diagram, SA-S540, Secondary Clarifiers Effluent Channel Sampler
1-0102-AILD-S541		Loop Diagram, FSL-S5402, Secondary Clarifier Effluent Channel Sampler Flow Switch
1-0102-AILD-S601		Loop Diagram, AHU-S601, Secondary Clarifiers 1 & 2 Air Handling Unit
1-0102-AILD-S602		Loop Diagram, TT-S6021 & TT-S6101, Secondary Clarifiers 1 & 2 Building Temperature
1-0102-AILD-S603		Loop Diagram, XV-S6031, Secondary Clarifiers 1 & 2 Outdoor Air Supply Control
1-0102-AILD-S604		Loop Diagram, AHU-S614, Secondary Clarifier 3 Air Handling Unit
1-0102-AILD-S605		Loop Diagram, XV-S6161-1 & XV-S6161-2, Secondary Clarifier 3 Outdoor Air Supply Control
Volume 5C Cover Page		Cover Page
1-0102-AILD-S606		Loop Diagram, TT-S6231, Secondary Clarifier 3 Building Temperature
1-0102-AILD-S607		Loop Diagram, CMP-S647 & CMP-S648, Chiller CHLR-S648 Compressors
1-0102-AILD-S608		Loop Diagram, AHU-S688, Secondary Clarifiers Truck Bay Air Handling Unit
1-0102-AILD-S610		Loop Diagram, U-S693, Thermal Oxidizer
1-0102-AILD-S611		Loop Diagram, TT-S6931, Themal Oxidizer Ambient Air Temperature
1-0102-AILD-S630	001	Loop Diagram, AHU-S630, Pump Room and Mechanical Room Air Handling Unit
1-0102-AILD-S630	002	Loop Diagram, AHU-S630, Pump Room and Mechanical Room Air Handling Unit
1-0102-AILD-S630	003	Loop Diagram, AHU-S630, Pump Room and Mechanical Room Air Handling Unit
1-0102-AILD-S630	004	Loop Diagram, AHU-S630, Pump Room and Mechanical Room Air Handling Unit
1-0102-AILD-S631		Loop Diagram, FIT-S6312 and FIT-S6322, Pump Room Exhaust Fan Flow Transmitters
1-0102-AILD-S632		Loop Diagram, UH-S635-1, UH-S635-2 & TT-S6352, Mechanical Room Electric Unit Heater & Temperature Transmitter
1-0102-AILD-S633		Loop Diagram, TT-S6242 and TT-S6342, Gallery 3A and Pump Room Temperature Transmitters
1-0102-AILD-S640	001	Loop Diagram, AHU-S640, Laboratory and Electrical Room Air Handling Unit
1-0102-AILD-S640	002	Loop Diagram, AHU-S640, Laboratory and Electrical Room Air Handling Unit
1-0102-AILD-S641		Loop Diagram, ACU-S641, Electrical Room Air Conditioning Unit
1-0102-AILD-S642		Loop Diagram, ACU-S642, Electrical Room Air Conditioning Unit
1-0102-AILD-S643		Loop Diagram, ACU-S643, Electrical Room Air Conditioning Unit
1-0102-AILD-S644		Loop Diagram, ACU-S644, Electrical Room Air Conditioning Unit
1-0102-AILD-S645		Loop Diagram, TT-S6406 and TT-S6407, Room Temperature Transmitters
1-0102-AILD-S646		Loop Diagram, ACU-S646, Laboratory Air Conditioning Unit

Drawing No.	Sheet No.	Description
1-0102-AILD-S650	001	Loop Diagram, AHU-S650, Miscellaneous Rooms Air Handling Unit
1-0102-AILD-S650	002	Loop Diagram, AHU-S650, Miscellaneous Rooms Air Handling Unit
1-0102-AILD-S650	003	Loop Diagram, AHU-S650, Miscellaneous Rooms Air Handling Unit
1-0102-AILD-S650	004	Loop Diagram, AHU-S650, Miscellaneous Rooms Air Handling Unit
1-0102-AILD-S651		Loop Diagram, FV-S6508, Air Handling Unit AHU-S640 Intake Air Valve
1-0102-AILD-S652		Loop Diagram, FIT-S6508, Air Handling Unit AHU-S640 Intake Air Flow Transmitter
1-0102-AILD-S653		Loop Diagram, FIT-S6512, Walkway A and Gallery 3A Exhaust Fan Flow Transmitter
1-0102-AILD-S654		Loop Diagram, UH-S659 and TT-S6592, Loading Area Gas Unit Heater and Temperature Transmitter
1-0102-AILD-S655		Loop Diagram, UH-S655 and TT-S6552, Walkway A Gas Unit Heater and Temperature Transmitter
1-0102-AILD-S656		Loop Diagram, UH-S656 and TT-S6562, Walkway A Gas Unit Heater and Temperature Transmitter
1-0102-AILD-S657		Loop Diagram, UH-S657-1, UH-S657-2 & TT-S6572, Storage Room Electric Unit Heaters & Temperature Transmitter
1-0102-AILD-S658		Loop Diagram, TT-S6633 and TT-S6634, Heat Exchanger and Outdoor Temperature Transmitters
1-0102-AILD-S659		Loop Diagram, XV-S6634, Heat Exchanger HE-S663 Flushing Water Valve
1-0102-AILD-S660		Loop Diagram, LSL-S6651, FDR-S665 Glycol Feed Tank Low Level Switch
1-0102-AILD-S670		Loop Diagram, STR-S673, Automatic Strainer
1-0102-AILD-S671		Loop Diagram, STR-S674, Automatic Strainer
1-0102-AILD-S901		Loop Diagram ZSC-S9611, S9671, S9643, S9631, S9633, S9641, Door Switches
1-0102-AILD-S902		Loop Diagram ZSC-S9642, S9632, Door Switches
1-0102-AILD-S903		Loop Diagram XY-S9674, ZSC-S9674, ZSC-S9675, Truck Bay Door
1-0102-AILD-S904		Loop Diagram ZSC-S9672, ZSC-S9673, ZSC-S9681, ZSC-S9691, Door Switches
1-0102-AILD-S905		Loop Diagram XS-S9721, XS-S9722, XS-S9731, XS-S9732, Motion Detection
1-0102-AILD-S906		Loop Diagram XS-S9711, Motion Detection
1-0102-AILD-S907		Loop Diagram, UPS-S1, Alarms
1-0102-AILD-S908		Loop Diagram, ET-S7101 & ET-S7201, MCC-S710 & MCC-S720 Voltage Monitoring
1-0102-AILD-S910		Loop Diagram, TC-S7311, Flushing Water Heat Trace Temp. Controller Fault
1-0102-AILD-S911		Loop Diagram, TC-S7312, Flushing Water Heat Trace Temp. Controller Fault
1-0102-AILD-S912		Loop Diagram, CB-G730, SGR-S701 Feeder Breaker For MCC-G730
1-0102-AILD-S913		Loop Diagram ZSC-S9831, ZSC-S9832, ZSC-S9833 and ZSC-S9834, Door Switches
1-0102-AILD-S914		Loop Diagram ZSC-S9811 and ZSC-S9821, Door Switches
1-0102-AILD-S915		Loop Diagram XS-S9741, Motion Detector

Drawing No.	Sheet No.	Description
1-0102-ANET-S001		Network Diagram, Secondary Clarifiers, Supervisory Network
1-0102-ANET-S002	001	Network Diagram, Secondary Clarifiers, Control Network
1-0102-ANET-S002	002	Network Diagram, Secondary Clarifiers, Control Network
1-0102-ANET-S003	001	Network Diagram, Secondary Clarifiers, Device Network
1-0102-ANET-S003	002	Network Diagram, Secondary Clarifiers, Device Network
1-0102-ANET-S004		Network Diagram, Secondary Clarifiers, Administration and Security Network
1-0102-ANET-S011	001	Network Diagram, Secondary Clarifiers 4 and 5, Supervisory Network
1-0102-ANET-S011	002	Network Diagram, Secondary Clarifiers 4 and 5, Supervisory Network
1-0102-ANET-S012	001	Network Diagram, Secondary Clarifiers 4 and 5, Control Network
1-0102-ANET-S012	002	Network Diagram, Secondary Clarifiers 4 and 5, Control Network
1-0102-ANET-S012	003	Network Diagram, Secondary Clarifiers 4 and 5, Control Network
1-0102-ANET-S013	001	Network Diagram, Secondary Clarifiers 4 and 5, Device Network
1-0102-ANET-S013	002	Network Diagram, Secondary Clarifiers 4 and 5, Device Network
1-0102-ANET-S013	003	Network Diagram, Secondary Clarifiers 4 and 5, Device Network
1-0102-ANET-S013	004	Network Diagram, Secondary Clarifiers 4 and 5, Device Network
1-0102-ANET-S014	001	Network Diagram, Secondary Clarifiers 4 and 5, Administration and Security Network
1-0102-ANET-S014	002	Network Diagram, Secondary Clarifiers 4 and 5, Administration and Security Network
1-0102-ASCH-S001		Schedules Drawing, Secondary Clarifiers, Gas Detaction Schedule GDS-S1
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
U – UV DISINFECTION BUILDING		
General		
Volume 6 Cover Page	006	Cover Page
Volume 6 Index	001	Drawing Index (1)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SGAD-U001		UV Disinfection Building - Lower Level Plan
1-0102-SGAD-U002		UV Disinfection Building - Ground Floor Plan
1-0102-SGAD-U003		UV Disinfection Building - Roof Plan

Drawing No.	Sheet No.	Description
1-0102-SGAD-U004		UV Disinfection Building - Section A
1-0102-SGAD-U005		UV Disinfection Building - Section B
1-0102-SGAD-U006		UV Disinfection Building - Sections C and D
1-0102-SGAD-U007		UV Disinfection Building - Sections E and F
1-0102-SGAD-U008		UV Disinfection Building - Sections G, H, J and K
1-0102-SDTL-U001		UV Disinfection Building - Details and Beam Schedule
1-0102-SDTL-A002		Standard Details (1)
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BAAA-U001		UV Disinfection Building Building Code Matrix
1-0102-BAAA-U002		UV Disinfection Building Site Plan and Spatial Separation Calculation
1-0102-BGAD-U001		UV Disinfection Building Ground Floor Plan
1-0102-BGAD-U002		UV Disinfection Building Roof Plan
1-0102-BGAD-U003		UV Disinfection Building Section and Elevations - Part 1
1-0102-BGAD-U004		UV Disinfection Building Section and Elevations - Part 2
1-0102-BGAD-U005		UV Disinfection Building Section B
1-0102-BGAD-U006		UV Disinfection Building Section C and D
1-0102-BGAD-U007		UV Disinfection Building Vestibule Details
1-0102-BGAD-UD50		Exterior Cladding Removal
1-0102-BDTL-U003		UV Disinfection Building Plan Details
1-0102-BDTL-U004		UV Disinfection Building Section Details - Part 1
1-0102-BDTL-U005		UV Disinfection Building Section Details - Part 2
1-0102-BSCH-U001		UV Disinfection Building Room, Door and Hardware Schedules
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-U101		BYPASS and Channel FLOW UV Disinfection
1-0102-PPID-U201		UV Disinfection REACTOR UVR-U210
1-0102-PPID-U202		UV Disinfection REACTOR UVR-U220
1-0102-PPID-U601		UV Building Mechanical Room UV Air Handling Unit AHU-U640

Drawing No.	Sheet No.	Description
1-0102-PPID-U602		HVAC and Miscellaneous
1-0102-PGAD-U001		Lower Level Plan
1-0102-PGAD-U002		Ground Floor Plan
1-0102-PGAD-U003		Section A
1-0102-PGAD-U004		Section B
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MGAD-U501		Plumbing - Roof Plan
1-0102-MGAD-U601		HVAC - Ground Floor Plan
1-0102-MGAD-U602		HVAC - Roof Plan
1-0102-MGAD-UD50		Removals and Natural Gas Conversion For AHU and UH
SEP-2419		Concrete Sections and Details - Sheet 1 of 3
SEP-2432		Main Floor Plan and Section
1-0102-MSLD-U601		Air Flow Schematic
1-0102-MSLD-U602		Natural Gas System Schematic
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-ECBD-U001		MCC/Cabinets Drawing, UV Disinfection Building, MCC-U710 & MCC-U720 Layout and Schedule
1-0102-ECRT-U001		Cable Routing Layout, UV Disinfection Building, 600V Power Cable and Communication Conduit Routing
1-0102-ECTR-U001		Cable Tray Layout, UV Disinfection Building, Ground Floor Plan
1-0102-ECTR-U002		Cable Tray, UV Disinfection Building, Sections and Details
1-0102-EFAS-U001		Fire Alarm Layout, UV Disinfection Building, Ground Floor Plan
1-0102-EFAS-U002		Fire Alarm, UV Disinfection Building, Notification & Detection Riser Diagram
1-0102-EGAD-U002		Power Layout, UV Disinfection Building, Electrical Room
1-0102-EGAD-U003		Power Layout, UV Disinfection Building, Ground Floor Plan
1-0102-EGAD-UD01		Power Layout, UV Disinfection Building, Ground Floor Plan - Demolition
1-0102-EGRD-U001		Grounding Layout, UV Disinfection Building, Ground Floor Plan
1-0102-EGRD-U002		Grounding, UV Disinfection Building, Connection Diagram and Details
1-0102-EHLC-U001		Hazardous Location, UV Disinfection Building, Ground Floor Plan

Drawing No.	Sheet No.	Description
1-0102-ELTG-U001		Lighting Layout, UV Disinfection Building, Ground Floor Plan
1-0102-EMCL-U601	001	Motor Starter Schematic, SF-U660, Equipment Room Supply Fan
1-0102-EMCL-U601	002	Motor Starter Schematic, SF-U660, Equipment Room Supply Fan
1-0102-ESCH-U001		UV Disinfection Building, Panel Schedules
1-0102-ESLD-U001		Single Line Diagram, UV Disinfection Building, 600V Distribution
1-0102-ESLD-U002		Single Line Diagram, UV Disinfection Building, PNL-U712
1-0102-EWDG-U001		Wiring Diagram, UV Disinfection Building, Electric Convectors and Unit Heater
1-0102U-E0005		Electrical Classification Plan, Effluent and Disinfection Building
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-U001		Control System Architecture, UV Disinfection Building
1-0102-ACBD-U001		Cabinet Layout, UV Disinfection Building, CP-U821, RIO-S802-2 Cabinet
1-0102-ACBD-U002	001	Power Distribution Schematic, UV Disinfection Building, CP-U821, RIO Cabinet - RIO-S802-2
1-0102-ACBD-U002	002	Power Distribution Schematic, UV Disinfection Building, CP-U821, RIO Cabinet - RIO-S802-2
1-0102-ACBD-U003		Wiring Diagram, UV Disinfection Building, CP-U821, RIO-S802-2 - Miscellaneous Wring
1-0102-ACBD-U004	001	Wiring Diagram, UV Disinfection Building, CP-U821, RIO-S802-2 - Discrete Inputs
1-0102-ACBD-U004	002	Wiring Diagram, UV Disinfection Building, CP-U821, RIO-S802-2 - Discrete Inputs
1-0102-ACBD-U005		Wiring Diagram, UV Disinfection Building, CP-U821, RIO-S802-2 - Discrete Outputs
1-0102-ACBD-U006		Wiring Diagram, UV Disinfection Building, CP-U821, RIO-S802-2 - Analog Inputs
1-0102-ACBD-U051		Cabinet Layout, UV Disinfection Building, ADP-U1921 Network Protection Device Cabinet
1-0102-ACBD-U081		Cabinet Layout, UV Disinfection Building, JBA-U9661 Walkway B Door Switch Junction Box
1-0102-ACBD-U082		Cabinet Layout, UV Disinfection Building, JBA-U654 Gas Unit Heater Junction Box
1-0102-ACBD-U083		Cabinet Layout, UV Disinfection Building, JBA-U1201 Junction Box
1-0102-ACBD-U084		Cabinet Layout, UV Disinfection Building, Junction Boxes
1-0102-ACBD-U901		Cabinet Layout, UV Disinfection Building, NP-U900 Network Cabinet
1-0102-ACBD-U902		Power Distribution Schematic, UV Disinfection Building, NP-U900 Network Cabinet
1-0102-ADTL-U001		Installation Details, UV Disinfection Building, NH3 Analyzer
1-0102-AGAD-U001		Instrumentation Location Plan, UV Disinfection Building, Ground Floor Plan
1-0102-AILD-U101		Loop Diagram, XV-U1001, UV Influent Sluice Gate
1-0102-AILD-U102		Loop Diagram, XV-U1011, UV Influent Sluice Gate
1-0102-AILD-U103		Loop Diagram, XV-U1801, UV Effluent Sluice Gate
1-0102-AILD-U104		Loop Diagram, XV-U1811, UV Effluent Sluice Gate
1-0102-AILD-U105		Loop Diagram, LIT-U1911, Outfall Chamber Level Transmitter

Drawing No.	Sheet No.	Description
1-0102-AILD-U106		Loop Diagram, LIT-U1821, UVR-U210 and UVR-U220 Effluent Channel Level
1-0102-AILD-U107		Loop Diagram, AIT-U1201, AE-U1201, AX-U1201-1, AX-U1201-2, Final Effluent Channel Analyzer
1-0102-AILD-U201		Loop Diagram, UVR-U210, UV Disinfection System Channel 1
1-0102-AILD-U202		Loop Diagram, UVR-U220, UV Disinfection System Channel 2
1-0102-AILD-U601		Loop Diagram, AHU-U640, TSL-U6451, TSH-U6461, Air Handling Unit Alarms and Temperature Switches
1-0102-AILD-U602		Loop Diagram, TT-U6452 and PDIT-U6604, Temperature & Differential Pressure Transmitters
1-0102-AILD-U603		Loop Diagram, UH-U654 and TT-U6542, Walkway B Gas Unit Heater & Temperature Transmitter
1-0102-AILD-U604		Loop Diagram, MIT-U6453, Equipment Room Humidity Transmitter
1-0102-AILD-U901		Loop Diagram, XS-U9611 and XS-U9612, Equipment Room Motion Detectors
1-0102-AILD-U902		Loop Diagram, XS-U9621, Electrical Room Motion Detector
1-0102-AILD-U903		Loop Diagram, ZSC-U9631 and HS-U9631, Equipment Room Door Switch and Entry Station
1-0102-AILD-U904		Loop Diagram, ZSC-U9632, Electrical Room Door Switch
1-0102-AILD-U905		Loop Diagram, XS-U9651 and ZSC-U9661, Walkway B Motion Detector and Door Switch
1-0102-ANET-U001		Network Diagram, UV Disinfection Building, Supervisory Network
1-0102-ANET-U002	001	Network Diagram, UV Disinfection Building, Control Network
1-0102-ANET-U002	002	Network Diagram, UV Disinfection Building, Control Network
1-0102-ANET-U004		Network Diagram, UV Disinfection Building, Administration and Security Network
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
K – HRC (HIGH RATE CHLORINATION)		
General		
Volume 7A Cover Page	006	Cover Page
Volume 7 Index 1	001	Drawing Index (1)
Volume 7 Index 2	002	Drawing Index (2)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Civil		
1-0102-CGAD-K001		High Rate Clarification Building - Weeping Tile Plan

Drawing No.	Sheet No.	Description
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SFDW-K001		High Rate Clarification Building - Piling Plan
1-0102-SFDW-K002		High Rate Clarification Building Inlet Channel Piling Plan
1-0102-SGAD-K001		High Rate Clarification Building Basement Plan
1-0102-SGAD-K002		High Rate Clarification Building Channel Level Plan
1-0102-SGAD-K003		High Rate Clarification Building Ground Floor Plan
1-0102-SGAD-K004		High Rate Clarification Building Roof Plan
1-0102-SGAD-K005		High Rate Clarification Building Influent Channels Plans
1-0102-SGAD-K006		High Rate Clarification Building Section A - Part A
1-0102-SGAD-K007		High Rate Clarification Building Section A - Part B
1-0102-SGAD-K008		High Rate Clarification Building Section B
1-0102-SGAD-K009		High Rate Clarification Building Section C
1-0102-SGAD-K010		High Rate Clarification Building Section D
1-0102-SGAD-K011		High Rate Clarification Building Section E
1-0102-SGAD-K012		High Rate Clarification Building Section F and P
1-0102-SGAD-K013		High Rate Clarification Building Section G
1-0102-SGAD-K014		High Rate Clarification Building Section H and J
1-0102-SGAD-K015		High Rate Clarification Building Section K and L
1-0102-SGAD-K016		High Rate Clarification Building Section M
1-0102-SGAD-K017		High Rate Clarification Building Section N and Q
1-0102-SGAD-K018		High Rate Clarification Building Section R and S
1-0102-SGAD-K019		High Rate Clarification Building West Elevation
1-0102-SGAD-K020		High Rate Clarification Building North Elevation
1-0102-SDTL-K001		High Rate Clarification Building Precast Double Tee Roof Details
1-0102-SDTL-K002		High Rate Clarification Building Precast Hollow Core Roof Details
1-0102-SDTL-K003		High Rate Clarification Building Details
1-0102-SSCH-K001		High Rate Clarification Building Column and Beam Schedule
1-0102-SDTL-A002		Standard Details (1)
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
1-0102-SDTL-A025		Odour Control Details (1)
1-0102-SDTL-A026		Odour Control Details (2)
1-0102-SDTL-A027		Odour Control Details (3)
1-0102-SDTL-A028		Odour Control Details (4)

Drawing No.	Sheet No.	Description
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BAAA-K001		High Rate Clarification Building, Building Code Matrix and Wall Types Legend
1-0102-BAAA-K002		High Rate Clarification Building Site Plan and Spatial Separation Calculation
1-0102-BGAD-K001		High Rate Clarification Building Basement Plan
1-0102-BGAD-K002		High Rate Clarification Building Ground Floor Plan
1-0102-BGAD-K003		High Rate Clarification Building Roof Plan
1-0102-BGAD-K004		High Rate Clarification Building Elevations
1-0102-BGAD-K005		High Rate Clarification Building Section A - Part A
1-0102-BGAD-K006		High Rate Clarification Building Section A - Part B
1-0102-BGAD-K007		High Rate Clarification Building Section B
1-0102-BGAD-K008		High Rate Clarification Building Section C
1-0102-BGAD-K009		High Rate Clarification Building Section D
1-0102-BGAD-K010		High Rate Clarification Building Section E
1-0102-BGAD-K011		High Rate Clarification Building Section F
1-0102-BDTL-K003		High Rate Clarification Building Plan Details - Part 1
1-0102-BDTL-K004		High Rate Clarification Building Plan and Section Details - Part 2
1-0102-BDTL-K005		High Rate Clarification Building Section Details - Part 1
1-0102-BDTL-K006		High Rate Clarification Building Section Details - Part 2
1-0102-BDTL-K007		High Rate Clarification Building Section Details - Part 3
1-0102-BSCH-K001		High Rate Clarification Building Room Schedules
1-0102-BSCH-K002		High Rate Clarification Building Door, Hardware and Window Schedules
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-K101		High Rate Clarification Influent Channels
1-0102-PPID-K102		High Rate Clarification Train 1 (TK-K111 and TK-K112)
1-0102-PPID-K103		High Rate Clarification Train 1 (TK-K113 and TK-K114)
1-0102-PPID-K104		High Rate Clarification Train 2 (TK-K121 and TK-K122)
1-0102-PPID-K105		High Rate Clarification Train 2 (TK-K123 and TK-K124)
1-0102-PPID-K106		High Rate Clarification Effluent Channels
1-0102-PPID-K107		High Rate Clarification Polymer Distribution Panels
1-0102-PPID-K108		High Rate Clarification HRC Lamella Air Scour Blower
1-0102-PPID-K201		High Rate Clarification Recycle Pumps P-K211, P-K212 & P-K213
1-0102-PPID-K202		High Rate Clarification Recycle Pumps P-K221, P-K222 & P-K223
1-0102-PPID-K203		High Rate Clarification HRC Waste Sludge Pumps P-K251, P-K252 and P-K253
1-0102-PPID-K301		High Rate Clarification Ballast Addition
1-0102-PPID-K501		High Rate Clarification Sump Pumps
1-0102-PPID-K502		High Rate Clarification Domestic Water System
1-0102-PPID-K503		High Rate Clarification Non-Potable Water
1-0102-PPID-K504		High Rate Clarification Flushing Water Distribution
1-0102-PPID-K601		High Rate Clarification Air Handling Unit AHU-K610

Drawing No.	Sheet No.	Description
1-0102-PPID-K602		High Rate Clarification Air Handling Unit AHU-K620
1-0102-PPID-K603		High Rate Clarification Air Handling Unit AHU-K630
1-0102-PPID-K604		High Rate Clarification Air Handling Units AHU-K640, ACU-K641 & ACU-K642
1-0102-PPID-K605		High Rate Clarification Hot Water Pumps P-K660 & P-K661
1-0102-PPID-K606		High Rate Clarification Glycol Pumps P-K665 & P-K666
1-0102-PPID-K607		High Rate Clarification Clarifier Room Ventilation
1-0102-PPID-K608		High Rate Clarification Pump Room Ventilation
1-0102-PPID-K609		High Rate Clarification Hot Water Unit Heaters
1-0102-PPID-K901		High Rate Clarification Lighting, Security and Miscellaneous
1-0102-PGAD-K001		High Rate Clarification Building Basement Plan
1-0102-PGAD-K002		High Rate Clarification Building Ground Floor Plan
1-0102-PGAD-K003		High Rate Clarification Building Section A - Part A
1-0102-PGAD-K004		High Rate Clarification Building Section A - Part B
1-0102-PGAD-K005		High Rate Clarification Building Section B - Part A
1-0102-PGAD-K006		High Rate Clarification Building Section B - Part B
1-0102-PGAD-K007		High Rate Clarification Building Section C
1-0102-PGAD-K008		High Rate Clarification Building Section D
1-0102-PGAD-K009		High Rate Clarification Building Section E and Section K
1-0102-PGAD-K010		High Rate Clarification Building Section F
1-0102-PGAD-K011		High Rate Clarification Building Section G
1-0102-PGAD-K012		High Rate Clarification Building Section H
1-0102-PGAD-K013		High Rate Clarification Building Ground Floor Part Plan
1-0102-PISO-K001		High Rate Clarification Building Details - ISO
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MGAD-A003		FOA System - Overall Roof Plan
1-0102-MGAD-K501		High Rate Clarification Building Plumbing - Basement Plan
1-0102-MGAD-K502		High Rate Clarification Building Plumbing - Ground Floor Plan
1-0102-MGAD-K503		High Rate Clarification Building Plumbing - Roof Plan
1-0102-MGAD-K504		High Rate Clarification Building Plumbing - Sump Detailed Layout
1-0102-MGAD-K505		High Rate Clarification Building Plumbing - NPW Connection Plan
1-0102-MGAD-K506		High Rate Clarification Building Plumbing - PSW Connection Section
1-0102-MISO-K501		High Rate Clarification Building Plumbing - Drainage Isometric
1-0102-MISO-K502		High Rate Clarification Building Plumbing - Roof Drainage Isometric
1-0102-MISO-K503		High Rate Clarification Building Plumbing - Plant Service Water Isometric
1-0102-MISO-K504		High Rate Clarification Building Plumbing - Potable Water System Isometric

Drawing No.	Sheet No.	Description
1-0102-MGAD-K601		High Rate Clarification Building HVAC - Basement Plans and Photos
1-0102-MGAD-K602		High Rate Clarification Building HVAC - Ground Floor Plan
1-0102-MGAD-K603		High Rate Clarification Building HVAC - Roof Plan
1-0102-MGAD-K604		High Rate Clarification Building HVAC - Partial Plan, Section and FIRE DAMPER Schedule
1-0102-MGAD-K605		High Rate Clarification Building HVAC - Odorous Exhaust Air Duct Routing and Section
1-0102-MISO-K601		High Rate Clarification Building HVAC - Hydronic Isometric
1-0102-MSLD-K601		High Rate Clarification Building - Airflow Schematic
1-0102-MSLD-K602		High Rate Clarification Building - Secondary Hot Water Heating and Glycol Heating Loops
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-EBDG-K001		Electrical, High Rate Clarification Building, Sodium Hydroxide Piping Heat Trace Block Diagram
1-0102-ECBD-K001		MCC/Cabinets Drawing, High Rate Clarification Building, MCC-K710 Layout and Schedule
1-0102-ECBD-K002		MCC/Cabinets Drawing, High Rate Clarification Building, MCC-K720 Layout and Schedule
1-0102-ECBD-K003		MCC/Cabinet Drawing, High Rate Clarification Building, MCC-K730 and MCC-K740 Layout and Schedule
1-0102-ECBD-K004		Interior Lighting Control, High Rate Clarification Building, CP-K724 Cabinet Layout
1-0102-ECBD-K005		Exterior Lighting Control, High Rate Clarification Building, LC-K725 Cabinet Layout
1-0102-ECTR-K001		Cable Tray Plan Layout, High Rate Clarification Building, Basement Floor Plan
1-0102-ECTR-K002	001	Cable Tray Plan Layout, High Rate Clarification Building, Ground Floor Plan
1-0102-ECTR-K002	002	Cable Tray Plan Layout, High Rate Clarification Building, Ground Floor Plan
1-0102-ECTR-K003	001	High Rate Clarification Building, Cable Tray Details
1-0102-ECTR-K003	002	High Rate Clarification Building, Cable Tray Details
1-0102-ECTR-K003	003	High Rate Clarification Building, Cable Tray Details
1-0102-EFAS-K001		Fire Alarm Layout, High Rate Clarification Building, Basement Floor Plan
1-0102-EFAS-K002		Fire Alarm Layout, High Rate Clarification Building, Ground Floor Plan
1-0102-EFAS-K003		Fire Alarm, High Rate Clarification Building Building, Riser Diagram Detection Circuits
1-0102-EFAS-K004		Fire Alarm, High Rate Clarification Building, Riser Diagram Notification Circuits

Drawing No.	Sheet No.	Description
1-0102-EGAD-K001		Power Layout, High Rate Clarification Building, Electrical Room
1-0102-EGAD-K002		Power Layout, High Rate Clarification Building, Basement Floor Plan
1-0102-EGAD-K003	001	Power Layout, High Rate Clarification Building, Ground Floor Plan
1-0102-EGAD-K003	002	Power Layout, High Rate Clarification Building, Ground Floor Plan
1-0102-EGAD-K004		Power Layout, High Rate Clarification Building, Roof Plan
1-0102-EGAD-K005		Heat Tracing Layout, High Rate Clarification Building, Basement Floor Plan
1-0102-EGAD-K006		Heat Tracing Layout, High Rate Clarification Building, Ground Floor Plan
1-0102-EGRD-K001		Grounding, High Rate Clarification Building, Riser Diagram
1-0102-EGRD-K002		Grounding Layout, High Rate Clarification Building, Ground Floor Plan
1-0102-EGRD-K003		Grounding, High Rate Clarification Building, Details
1-0102-EGRD-K004		Lightning Protection Layout, High Rate Clarification Building, Roof Plan
1-0102-EHLC-K001		Hazardous Location, High Rate Clarification Building, Basement Floor Plan
1-0102-EHLC-K002		Hazardous Location, High Rate Clarification Building, Ground Floor Plan
1-0102-EHLC-K003		Hazardous Location, High Rate Clarification Building, Roof Plan
1-0102-ELTG-K001		Lighting Plan Layout, High Rate Clarification Building, Basement Floor Plan
1-0102-ELTG-K002	001	Lighting Plan Layout, High Rate Clarification Building, Ground Floor Plan
1-0102-ELTG-K002	002	Lighting Plan Layout, High Rate Clarification Building, Ground Floor Plan
1-0102-ELTG-K003		Lighting Plan Layout, High Rate Clarification Building, Roof Plan
1-0102-ELTG-K004	001	Interior Lighting Control, High Rate Clarification Building, CP-K724 Schematic and Wiring Diagram
1-0102-ELTG-K004	002	Interior Lighting Control, High Rate Clarification Building, CP-K724 Schematic and Wiring Diagram
1-0102-ELTG-K005		Exterior Lighting Control, High Rate Clarification Building, LC-K725 Schematic and Wiring Diagram
1-0102-EMCL-K101		Motor Starter Schematic, High Rate Clarification Building, MXR-K111 Coagulation Zone Mixer
1-0102-EMCL-K102		Motor Starter Schematic, High Rate Clarification Building, MXR-K112 Injection Zone Mixer
1-0102-EMCL-K103		Motor Starter Schematic, High Rate Clarification Building, MXR-K113 Maturation Zone Mixer
1-0102-EMCL-K104		Motor Starter Schematic, High Rate Clarification Building, CM-K114 Clarifier Scraper Drive
1-0102-EMCL-K105		Motor Starter Schematic, High Rate Clarification Building, MXR-K121 Coagulation Zone Mixer
1-0102-EMCL-K106		Motor Starter Schematic, High Rate Clarification Building, MXR-K122 Injection Zone Mixer
1-0102-EMCL-K107		Motor Starter Schematic, High Rate Clarification Building, MXR-K123 Maturation Zone Mixer
1-0102-EMCL-K108		Motor Starter Schematic, High Rate Clarification Building, CM-K124 Clarifier Scraper Drive

Drawing No.	Sheet No.	Description
1-0102-EMCL-K109		Motor Starter Schematic, High Rate Clarification Building, B-K160 & EF-K160 Air Scour Blower & Exhaust Fan
1-0102-EMCL-K201		Motor Starter Schematic, High Rate Clarification Building, P-K211 Sludge Recycle Pump
1-0102-EMCL-K202		Motor Starter Schematic, High Rate Clarification Building, P-K212 Sludge Recycle Pump
1-0102-EMCL-K203		Motor Starter Schematic, High Rate Clarification Building, P-K213 Sludge Recycle Pump
1-0102-EMCL-K204		Motor Starter Schematic, High Rate Clarification Building, P-K221 Sludge Recycle Pump
1-0102-EMCL-K205		Motor Starter Schematic, High Rate Clarification Building, P-K222 Sludge Recycle Pump
1-0102-EMCL-K206		Motor Starter Schematic, High Rate Clarification Building, P-K223 Sludge Recycle Pump
1-0102-EMCL-K210		Motor Starter Schematic, High Rate Clarification Building, P-K251 Sludge Pump
1-0102-EMCL-K211		Motor Starter Schematic, High Rate Clarification Building, P-K252 Sludge Pump
1-0102-EMCL-K212		Motor Starter Schematic, High Rate Clarification Building, P-K253 Drain Pump
1-0102-EMCL-K301		Motor Starter Schematic, High Rate Clarification Building, AG-K311 Ballast Additional System Agitator
1-0102-EMCL-K302		Motor Starter Schematic, High Rate Clarification Building, FDR-K312 Ballast Additional System Feeder
1-0102-EMCL-K501		Motor Starter Schematic, High Rate Clarification Building, P-K501 Sump Pump
1-0102-EMCL-K502		Motor Starter Schematic, High Rate Clarification Building, P-K502 Sump Pump
1-0102-EMCL-K601	001	Motor Starter Schematic, High Rate Clarification Building, EF-K611 Clarifier Room Exhaust Fan
1-0102-EMCL-K601	002	Motor Starter Schematic, High Rate Clarification Building, EF-K611 Clarifier Room Exhaust Fan
1-0102-EMCL-K602	001	Motor Starter Schematic, High Rate Clarification Building, EF-K612 Clarifier Room Exhaust Fan
1-0102-EMCL-K602	002	Motor Starter Schematic, High Rate Clarification Building, EF-K612 Clarifier Room Exhaust Fan
1-0102-EMCL-K603		Motor Starter Schematic, High Rate Clarification Building, EF-K621 Pump Room Exhaust Fan
1-0102-EMCL-K604		Motor Starter Schematic, High Rate Clarification Building, EF-K622 Pump Room Exhaust Fan
1-0102-EMCL-K605		Motor Starter Schematic, High Rate Clarification Building, EF-K631 Gallery Exhaust Fan
1-0102-EMCL-K610		Motor Starter Schematic, High Rate Clarification Building, P-K660 Hot Water Pump
1-0102-EMCL-K611		Motor Starter Schematic, High Rate Clarification Building, P-K661 Hot Water Pump
1-0102-EMCL-K612		Motor Starter Schematic, High Rate Clarification Building, P-K665 Glycol Pump
1-0102-EMCL-K613		Motor Starter Schematic, High Rate Clarification Building, P-K666 Glycol Pump
1-0102-EMCL-K614	001	Motor Starter Schematic, High Rate Clarification Building, Unit Heaters K613, K623, K633, K634, K635, K636, K637
1-0102-EMCL-K614	002	Motor Starter Schematic, High Rate Clarification Building, Unit Heaters K613, K623, K633, K634, K635, K636, K637
1-0102-EMCL-K901		Starter Schematic, High Rate Clarification Building, XFMR-K711 Feeder

Drawing No.	Sheet No.	Description
1-0102-EMCL-K902		Starter Schematic, High Rate Clarification Building, XFMR-K721 Feeder
1-0102-ESCH-K001		Electrical, High Clarification Building, Panel Schedules & Details
1-0102-ESLD-K001		Single Line Diagram, High Rate Clarification, MCC-K710
1-0102-ESLD-K002		Single Line Diagram, High Rate Clarification, MCC-K720
1-0102-ESLD-K003		Single Line Diagram, High Rate Clarification, MCC-K730 & MCC-K740
1-0102-EWDG-K001		Wiring Diagram, High Rate Clarification Building, CU-K641, ACU-K641, CU-K642 and ACU-K642
1-0102-EWDG-K002		Wiring Diagram, High Rate Clarification Building, Exhaust Fan Drain Heat Trace, Temp. Controller TC-K7211
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-K001		High Rate Clarification Building, Control System Architecture
1-0102-ACBD-K001		Cabinet Layout, High Rate Clarification Building, PSP-K820 Power Supply Cabinet
1-0102-ACBD-K002	001	Power Distribution Schematic, High Rate Clarification Building, PSP-K820 Power Supply Cabinet
1-0102-ACBD-K002	002	Power Distribution Schematic, High Rate Clarification Building, PSP-K820 Power Supply Cabinet
1-0102-ACBD-K002	003	Power Distribution Schematic, High Rate Clarification Building, PSP-K820 Power Supply Cabinet
1-0102-ACBD-K002	004	Power Distribution Schematic, High Rate Clarification Building, PSP-K820 Power Supply Cabinet
1-0102-ACBD-K002	005	Power Distribution Schematic, High Rate Clarification Building, PSP-K820 Power Supply Cabinet
1-0102-ACBD-K003		Cabinet Layout, High Rate Clarification Building, CP-K820 PLC and Device Network Equipment Cabinet
1-0102-ACBD-K004		Power Distribution Schematic, High Rate Clarification Building, CP-K820 PLC and Device Network Equipment Cabinet
1-0102-ACBD-K005		Wiring Diagram, High Rate Clarification Building, CP-K820 Miscellaneous Wiring
1-0102-ACBD-K010	001	Cabinet Layout, High Rate Clarification Building, CP-K821, Process RIO Cabinet - RIO-K800-1
1-0102-ACBD-K010	002	Cabinet Layout, High Rate Clarification Building, CP-K821, Process RIO Cabinet - RIO-K800-1
1-0102-ACBD-K011		Power Distribution Schematic, High Rate Clarification Building, CP-K821, Process RIO Cabinet - RIO-K800-1
1-0102-ACBD-K012	001	Wiring Diagram, High Rate Clarification Building, CP-K821, RIO-K800-1 - Discrete Inputs
1-0102-ACBD-K012	002	Wiring Diagram, High Rate Clarification Building, CP-K821, RIO-K800-1 - Discrete Inputs
1-0102-ACBD-K012	003	Wiring Diagram, High Rate Clarification Building, CP-K821, RIO-K800-1 - Discrete Inputs
1-0102-ACBD-K013	001	Wiring Diagram, High Rate Clarification Building, CP-K821, RIO-K800-1 - Discrete Outputs
1-0102-ACBD-K013	002	Wiring Diagram, High Rate Clarification Building, CP-K821, RIO-K800-1 - Discrete Outputs
1-0102-ACBD-K014		Wiring Diagram, High Rate Clarification Building, CP-K821, RIO-K800-1 - Analog Inputs
1-0102-ACBD-K016	001	Wiring Diagram, High Rate Clarification Building, CP-K821, RIO-K800-1 - Miscellaneous Wiring

Drawing No.	Sheet No.	Description
1-0102-ACBD-K016	002	Wiring Diagram, High Rate Clarification Building, CP-K821, RIO-K800-1 - Miscellaneous Wiring
1-0102-ACBD-K031	001	Cabinet Layout, High Rate Clarification Building, CP-K826, HVAC PLC Cabinet - PLC-K806
1-0102-ACBD-K031	002	Cabinet Layout, High Rate Clarification Building, CP-K826, HVAC PLC Cabinet - PLC-K806
1-0102-ACBD-K032		Power Distribution Schematic, High Rate Clarification Building, CP-K826, HVAC PLC Cabinet - PLC-K806
1-0102-ACBD-K033	001	Wiring Diagram, High Rate Clarification Building, CP-K826, PLC-K806 - Discrete Inputs
1-0102-ACBD-K033	002	Wiring Diagram, High Rate Clarification Building, CP-K826, PLC-K806 - Discrete Inputs
1-0102-ACBD-K034		Wiring Diagram, High Rate Clarification Building, CP-K826, PLC-K806 - Discrete Outputs
1-0102-ACBD-K035	001	Wiring Diagram, High Rate Clarification Building, CP-K826, PLC-K806 - Analog Inputs
1-0102-ACBD-K035	002	Wiring Diagram, High Rate Clarification Building, CP-K826, PLC-K806 - Analog Inputs
1-0102-ACBD-K035	003	Wiring Diagram, High Rate Clarification Building, CP-K826, PLC-K806 - Analog Inputs
1-0102-ACBD-K036		Wiring Diagram, High Rate Clarification Building, CP-K826, PLC-K806 - Analog Outputs
1-0102-ACBD-K037	001	Cabinet Layout, High Rate Clarification Building, CP-K827, HVAV RIO Cabinet - RIO-K806-1
1-0102-ACBD-K037	002	Cabinet Layout, High Rate Clarification Building, CP-K827, HVAC RIO Cabinet - RIO-K806-1
1-0102-ACBD-K038		Power Distribution Schematic, High Rate Clarification Building, CP-K827, HVAC RIO Cabinet - RIO-K806-1
1-0102-ACBD-K039	001	Wiring Diagram, High Rate Clarification Building, CP-K827, RIO-K806-1 - Discrete Inputs
1-0102-ACBD-K039	002	Wiring Diagram, High Rate Clarification Building, CP-K827, RIO-K806-1 - Discrete Inputs
1-0102-ACBD-K040		Wiring Diagram, High Rate Clarification Building, CP-K827, RIO-K806-1 - Discrete Outputs
1-0102-ACBD-K041	001	Wiring Diagram, High Rate Clarification Building, CP-K827, RIO-K806-1 - Analog Inputs
1-0102-ACBD-K041	002	Wiring Diagram, High Rate Clarification Building, CP-K827, RIO-K806-1 - Analog Inputs
1-0102-ACBD-K042		Wiring Diagram, High Rate Clarification Building, CP-K826, PLC-K806 - Analog Outputs
1-0102-ACBD-K051	001	Cabinet Layout, High Rate Clarification Building, Junction Boxes
1-0102-ACBD-K051	002	Cabinet Layout, High Rate Clarification Building, Junction Boxes
1-0102-ACBD-K051	003	Cabinet Layout, High Rate Clarification Building, Junction Boxes
1-0102-ACBD-K052		Cabinet Layout, High Rate Clarification Building, JBA-K690, Junction Box
1-0102-ACBD-K053		Cabinet Layout, High Rate Clarification Building, Junction Boxes - Entry Stations
1-0102-ACBD-K054		Cabinet Layout, High Rate Clarification Building, JBA-K614, Waste Sludge Sump Air Dampers Junction Box
1-0102-ACBD-K056		Wiring Diagram, High Rate Clarification Building, XK-K1145, XK-K1245 Drainage Valves Remote Control Stations

Drawing No.	Sheet No.	Description
1-0102-ACBD-K061		Cabinet Layout, High Rate Clarification Building, CP-K830, Unit Heaters Cabinet Layout
1-0102-ACBD-K901		Cabinet Layout, High Rate Clarification Building, NP-K900 Network Cabinet
1-0102-ACBD-K902		Power Distribution Schematic, High Rate Clarification Building, NP-K900 Network Cabinet
1-0102-ADTL-K001		Instrument Details, High Rate Clarification Building, Level Instruments
1-0102-ADTL-K002		Instrument Details, High Rate Clarification Building, Miscellaneous
1-0102-AGAD-K001		Instrument Location Plan, High Rate Clarification Building, Basement Floor Plan
1-0102-AGAD-K002		Instrument Location Plan, High Rate Clarification Building, Ground Floor West Plan
1-0102-AGAD-K003		Instrument Location Plan, High Rate Clarification Building, Ground Floor East Plan
1-0102-AGAD-K004		Instrument Location Plan, High Rate Clarification Building, Roof Plan
1-0102-AIFS-K001	001	Profibus Segment Diagram, Train 1 and Effluent, Profibus DP Segments ND-K840
1-0102-AIFS-K001	002	Profibus Segment Diagram, Train 1 and Effluent, Profibus DP Segments ND-K840
Volume 7B Cover Page		Cover Page
1-0102-AIFS-K002		Profibus Segment Diagram, Train 2 and Sludge Pumping, Profibus DP Segments ND-K841
1-0102-AILD-K101		Loop Diagram, LIT-K1102 and FIT-K1102, HRC Train 1 Influent Flow
1-0102-AILD-K102		Loop Diagram, OT-K1140 and LSH-K1144, CM-K114 Torque and TK-K114 Level High
1-0102-AILD-K103		Loop Diagram, LIT-K1202 and FIT-K1202, HRC Train 2 Influent Flow
1-0102-AILD-K104		Loop Diagram, OT-K1240 and LSH-K1244, CM-K124 Torque and TK-K124 Level High
1-0102-AILD-K105		Loop Diagram, XV-K1512, Effluent Spray Valve
1-0102-AILD-K106		Loop Diagram, XV-K1123, Polymer Valve for TK-K112
1-0102-AILD-K107		Loop Diagram, XV-K1124, Polymer Valve for TK-K211
1-0102-AILD-K108		Loop Diagram, XV-K1125, Polymer Valve for TK-K212
1-0102-AILD-K110		Loop Diagram, XV-K1223, Polymer Valve for TK-K122
1-0102-AILD-K111		Loop Diagram, XV-K1224, Polymer Valve for TK-K221
1-0102-AILD-K112		Loop Diagram, XV-K1225, Polymer Valve for TK-K222
1-0102-AILD-K114		Loop Diagram, XV-K1141, XV-K1142 and XV-K1143, Air Scour Solenoid Valves
1-0102-AILD-K115		Loop Diagram, XV-K1241, XV-K1242 and XV-K1243, Air Scour Solenoid Valves
1-0102-AILD-K116		Loop Diagram, LIT-K1511, Effluent Channel Level
1-0102-AILD-K117		Loop Diagram, PDSH-K1601, TT-K1603 and PT-K1604, Blower B-K160 Instruments
1-0102-AILD-K118		Loop Diagram, AIT-K1153 & FSL-K1154, Effluent Channel 1 pH & Turbidity and Sample Flow Switch
1-0102-AILD-K119		Loop Diagram, AIT-K1253 & FSL-K1254, Effluent Channel 2 pH & Turbidity and Sample Flow Switch
1-0102-AILD-K120		Loop Diagram, LIT-K1132 and LIT-K1232, Maturation Zone Tank TK-K113 & TK-K1123Level
1-0102-AILD-K121		Loop Diagram, HS-K1106-1, HS-K1106-2, HS-K1206-1 and HS-K1206-2, Process Stop Switches

Drawing No.	Sheet No.	Description
1-0102-AILD-K122		Loop Diagram, XV-K1103, Influent Channel 1 Sodium Hypochlorite Supply Valve
1-0102-AILD-K123		Loop Diagram, XV-K1134, Tank TK-K113 Sodium Hypochlorite Supply Valve
1-0102-AILD-K124		Loop Diagram, XV-K1203, Influent Channel 2 Sodium Hypochlorite Supply Valve
1-0102-AILD-K125		Loop Diagram, XV-K1234, Tank TK-K123 Sodium Hypochlorite Supply Valve
1-0102-AILD-K126		Loop Diagram, XV-K1155, Effluent Channel 1 Sample Line Valve
1-0102-AILD-K127		Loop Diagram, XV-K1255, Effluent Channel 2 Sample Line Valve
1-0102-AILD-K128		Loop Diagram, XV-K1156 and XV-K1256, Channel 1 & 2 Flushing Water Solenoid Valves
1-0102-AILD-K201		Loop Diagram, PT-K2112, PT-K2122 & PT-K2132 Sludge Recycle Pumps Pressure
1-0102-AILD-K202		Loop Diagram, PT-K2212, PT-K2222 & PT-K2232 Sludge Recycle Pumps Pressure
1-0102-AILD-K203		Loop Diagram, LIT-K2501& LI-K2501, Waste Sludge Sump Level Transmitter
1-0102-AILD-K204		Loop Diagram, LSLL-K2502 and LSLL-K2503, Waste Sludge Sump TK-K250 Low Level Switches
1-0102-AILD-K205		Loop Diagram, LSHH-K2504, Waste Sludge Sump High Level
1-0102-AILD-K206		Loop Diagram, FIT-K2541 & FIT-K2542 Sludge Pumps Flow
1-0102-AILD-K301		Loop Diagram, LSL-K3101, LSH-K3102 and PSL-K3103, Ballast Addition System Switches
1-0102-AILD-K302		Loop Diagram, XV-K3105 and XV-K3106, Ballast System Solenoid Valves
1-0102-AILD-K303		Loop Diagram, HS-K3108-1 and HS-K3108-2, Ballast Addition System Stop Switches
1-0102-AILD-K501		Loop Diagram, LSH-K5012, Sump Level
1-0102-AILD-K502		Loop Diagram, FSH-K5121, Emergency Eyewash/Shower Station Flow Switch
1-0102-AILD-K601	001	Loop Diagram, AHU-K610, Clarifier Room Air Handling Unit
1-0102-AILD-K601	002	Loop Diagram, AHU-K610, Clarifier Room Air Handling Unit
1-0102-AILD-K601	003	Loop Diagram, AHU-K610, Clarifier Room Air Handling Unit
1-0102-AILD-K602		Loop Diagram, FIT-K6112 & FIT-K6122, EF-K611 and EF-K612 Exhaust Fans Flow Transmitters
1-0102-AILD-K603		Loop Diagram, TV-K6104 and TT-K6132, AHU-K610 Temp Valve and Clarifier Room Temp Transmitter
1-0102-AILD-K604		Loop Diagram, XV-K6141, Waste Sludge Sump Supply Damper
1-0102-AILD-K605		Loop Diagram, XV-K6142, Waste Sludge Sump Exhaust Damper
1-0102-AILD-K606	001	Loop Diagram, AHU-K620, Clarifier Room Air Handling Unit
1-0102-AILD-K606	002	Loop Diagram, AHU-K620, Clarifier Room Air Handling Unit
1-0102-AILD-K606	003	Loop Diagram, AHU-K620, Clarifier Room Air Handling Unit

Drawing No.	Sheet No.	Description
1-0102-AILD-K607		Loop Diagram, FIT-K6209 & FIT-K6222, EF-K621 and EF-K622 Exhaust Fans Flow Transmitters
1-0102-AILD-K608		Loop Diagram, TV-K6204 and TT-K6232, Glycol Heating Valve and Pump Room Temperature
1-0102-AILD-K609	001	Loop Diagram, AHU-K630, General Area Air Handling Unit
1-0102-AILD-K609	002	Loop Diagram, AHU-K630, General Area Air Handling Unit
1-0102-AILD-K609	003	Loop Diagram, AHU-K630, General Area Air Handling Unit
1-0102-AILD-K610		Loop Diagram, FIT-K6312, EF-K631 Exhaust Fan Flow
1-0102-AILD-K611		Loop Diagram, TV-K6304 and TT-K6332, Glycol Heating Valve and Loading Area North Temperature
1-0102-AILD-K612		Loop Diagram, TT-K6342, TT-K6352, TT-K6362 and TT-K6372, Room Temperature
1-0102-AILD-K613	001	Loop Diagram, AHU-K640, Electrical Room Air Handling Unit
1-0102-AILD-K613	002	Loop Diagram, AHU-K640, Electrical Room Air Handling Unit
1-0102-AILD-K613	003	Loop Diagram, AHU-K640, Electrical Room Air Handling Unit
1-0102-AILD-K614		Loop Diagram, TV-K6404 and TT-K6407, Glycol Heating Valve and Electrical Room Temperature
1-0102-AILD-K615		Loop Diagram, FIT-K6621, TT-K6622 and TT-K6623, Hot Water Flow, Supply and Return Temperature
1-0102-AILD-K616		Loop Diagram, LSL-K6641, Glycol Feed Package FDR-K664 Tank Level Switch
1-0102-AILD-K617		Loop Diagram, TV-K6631, TT-6631 and TT-K6632, Hot Water Heating Valve, Glycol Supply & Return Temp.
1-0102-AILD-K618		Loop Diagram, TT-K6624, Outdoor Temperature
1-0102-AILD-K619		Loop Diagram, YL-K6108-1 and YL-K6108-2, Clarifier Room Entrance Indictors
1-0102-AILD-K620		Loop Diagram, CU-K641 & ACU-K641, Electrical Room Air Conditioning Unit
1-0102-AILD-K621		Loop Diagram, CU-K642 & ACU-K642, Electrical Room Air Conditioning Unit
1-0102-AILD-K630		Loop Diagram, AIT-K6911 & AIT-K6912, Clarifier Room Gas Detection
1-0102-AILD-K631		Loop Diagram, AIT-K6921, Pump Room Gas Detection
1-0102-AILD-K632		Loop Diagram, GDC-K690, Clarifier Room and Pump Room Gas Detection
1-0102-AILD-K633		Loop Diagram, AAH-K6901-1, 2, 3, 4 and AAH-K6920-1, 2, 3, Clarifier Room & & Pump Room Gas Detection
1-0102-AILD-K901		Loop Diagram, ZSC-K9601, ZSC-K9602, ZSC-K9603, ZSC-K6911 & ZSC-K9621, Door Switches
1-0102-AILD-K902		Loop Diagram, ZSC-K9621 & ZSC-K9631, Door Switches
1-0102-AILD-K903		Loop Diagram, CP-K726, Sodium Hydroxide Piping Heat Trace Panel Fault
1-0102-AILD-K904		Loop Diagram, TC-K7211, Exhaust Fan Drain Heat Trace Temp. Controller Fault
1-0102-AILD-K905		Loop Diagram, XS-K9641, Service Gallery Motion Detector
1-0102-AILD-K906		Loop Diagram, RIO-K800-1 & PLC-K806, Effluent Gate Status
1-0102-ANET-K001		Network Diagram, High Rate Clarification Building, Supervisory Network

Drawing No.	Sheet No.	Description
1-0102-ANET-K002	001	Network Diagram, High Rate Clarification Building, Control Network
1-0102-ANET-K002	002	Network Diagram, High Rate Clarification Building, Control Network
1-0102-ANET-K003	001	Network Diagram, High Rate Clarification Building, Device Network
1-0102-ANET-K003	002	Network Diagram, High Rate Clarification Building, Device Network
1-0102-ANET-K003	003	Network Diagram, High Rate Clarification Building, Device Network
1-0102-ANET-K003	004	Network Diagram, High Rate Clarification Building, Device Network
1-0102-ANET-K004		Network Diagram, High Rate Clarification Building, Administration and Security Network
1-0102-ASCH-K001		Schedules Drawing, High Rate Clarification Building, Gas Detection Schedule GDC-K690
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
D – FERMENTERS AND THICKENERS		
General		
Volume 8A Cover Page	006	Cover Page
Volume 8 Index 1	001	Drawing Index (1)
Volume 8 Index 2	002	Drawing Index (2)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SGAD-D001		Fermenters Lower Level Plan
1-0102-SGAD-D002		Fermenters Intermediate Level Plan
1-0102-SGAD-D003		Fermenters Roof Plan
1-0102-SGAD-D004		Fermenters Section A and B
1-0102-SGAD-D005		Fermenters Section C and D
1-0102-SGAD-D006		Fermenters Section E, F and G
1-0102-SGAD-D007		RDT Room Ground Floor and Mezzanine Plans
1-0102-SGAD-D008		RDT Room Roof Plan
1-0102-SGAD-DD50		Oxygen Reactors No. 1 and No. 2 - Plans
1-0102-SGAD-DD51		Oxygen Reactors No. 1 and No. 2 - Section
1-0102-SGAD-DD52		Oxygen Reactors No. 1 and No. 2 - Lower Plan
SEP-368		PSA Expansion - Floor Plan @ EL 233.477 - Section and Details
SEP-369		PSA Expansion - Roof Plan @ EL 240.792 - Details
SEP-370		PSA Expansion - Section and Details
1-0102-SDTL-D001		Fermenters Details

Drawing No.	Sheet No.	Description
1-0102-SDTL-D002		Fermenters Details
1-0102-SDTL-D003		Fermenters Details
1-0102-SDTL-A002		Standard Details (1)
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BAAA-D001		Thickeners Building Code Matrix and Wall Types Legend
1-0102-BGAD-D001		Fermenters/ Thickeners Lower Level Plan
1-0102-BGAD-D002		Thickeners Ground Floor and Upper Level - Part Plans
1-0102-BGAD-D003		Thickeners Roof - Part Plan
1-0102-BGAD-D004		Thickeners Section
1-0102-BGAD-D005		Biofilters Ground Floor Part Plan and Section
1-0102-BGAD-DD50		PSA Expansion - Floor Plan, Roof Plan Building Section & Details (Demolition)
1-0102-BGAD-DD51		PSA Expansion - Wall Section Elevations & Details (Demolition)
1-0102-BGAD-DD52		Oxygen Reactor Expansion Floor Plan, Section & Elevations (Demolition)
1-0102-BDTL-D002		Thickeners Details 1 OF 2
1-0102-BDTL-D003		Thickeners Details 2 OF 2
1-0102-BSCH-D001		Thickeners and Biofilters Room, Door and Hardware Schedules
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-D301		Fermenters Primary Sludge Fermenters Train 1
1-0102-PPID-D302		Fermenters Primary Sludge Fermenters Train 2
1-0102-PPID-D303		Fermenters Fermenter Recirculation Pumps
1-0102-PPID-D402		WAS RDT-D403 & RDT-D404
1-0102-PPID-D403		TWAS Pumps P-D405 & P-D406
1-0102-PPID-D404		FSL RDT Feed Pumps P-D411 & P-D412
1-0102-PPID-D405		FSL RDT Feed Pumps P-D413 & P-D414

Drawing No.	Sheet No.	Description
1-0102-PPID-D406		FSL RDT-D415 & RDT-D416
1-0102-PPID-D407		FSL RDT-D417
1-0102-PPID-D408		TFS Pumps P-D418 & P-D419
1-0102-PPID-D409		TFS Pump P-D420
1-0102-PPID-D410		Automatic Strainers STR-D441 and STR-D442 and RDT Wash Water Booster Pumps P-D431 & P-D432
1-0102-PPID-D411		WAS Filtrate Pumps P-D451 & P-D452
1-0102-PPID-D412		FSL Filtrate Pumps P-D461 & P-D462
1-0102-PPID-D413		FSL Filtrate Pumps P-D463 & P-D464
1-0102-PPID-D501		Potable and Non-Potable Water Piping
1-0102-PPID-D601		RDT Room Air Handling Unit AHU-D610
1-0102-PPID-D602		RDT Pump Room Air Handling Unit AHU-D620
1-0102-PPID-D603		Electrical Room A HVAC AHU-D640, CU-D641, CU-D642 and CU-D643
1-0102-PPID-D604		RDT Pump Room and Junction Chamber Exhaust Fans EF-D621 and EF-D614
1-0102-PPID-D605		RDT Room Exhaust Fans EF-D611 and EF-D612
1-0102-PPID-D606		Electrical Room B HVAC AHU-D650, CU-D651 and CU-D652
1-0102-PPID-D901		Lighting, Security and Miscellaneous
1-0102-PGAD-D001		Fermenters/Thickeners Lower Level Plan
1-0102-PGAD-D002		Fermenters/Thickeners MID Level Plan
1-0102-PGAD-D003		Fermenters/Thickeners Ground Level Plan
1-0102-PGAD-D004		Fermenters/Thickeners Lower Level - Part Plans
1-0102-PGAD-D005		Fermenters/Thickeners Ground Level - Part Plan C
1-0102-PGAD-D006		Fermenters/Thickeners Section A
1-0102-PGAD-D007		Fermenters/Thickeners Section B and C
1-0102-PGAD-D008		Fermenters/Thickeners Section D and E
1-0102-PGAD-D009		Fermenters/Thickeners Section F
1-0102-PGAD-D010		Fermenters/Thickeners Section G
1-0102-PGAD-D011		Fermenters/Thickeners Lower Level - Part Plan and Section
1-0102-PGAD-D012		Fermenters/Thickeners Section H
1-0102-PGAD-D013		Fermenters/Thickeners Section J
1-0102-PGAD-D014		Fermenters/Thickeners Section K
1-0102-PGAD-DD50		Unox & Sludge Thickening - Secondary Pump Gallery - Section
1-0102-PGAD-DD51		Sludge Holding Tank Pipe Modifications
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MGAD-A003		FOA System - Overall Roof Plan
1-0102-MGAD-D501		Fermenters/Thickeners - Plumbing - Ground Floor Plan
1-0102-MGAD-D601		Fermenters/Thickeners - HVAC -WAS Sump Roof and RDT Pump Room Plan and Section
1-0102-MGAD-D602		Fermenters/Thickeners - HVAC -Ground Floor Plan
1-0102-MGAD-D603		Fermenters/Thickeners - HVAC - Upper Plan
1-0102-MGAD-D604		Fermenters/Thickeners - HVAC - Roof Plan and Section

Drawing No.	Sheet No.	Description
1-0102-MISO-D601		Fermenters/Thickeners HVAC Isometric
1-0102-MGAD-DD50		Oxygen Reactor 1 & 2 - Plan (1of 4)
SEP-346		Oxygen Reactor Tanks - Reactor Deck Plan and Pipe Penetration Details
SEP-347		Oxygen Reactors - Junction Chamber Plan, Sections and Details
SEP-348		Oxygen Reactor 1, 2, 3 & 4 - Plan at EL 227.533
SEP-349		Oxygen Reactor 1, 2, 3 & 4 - Sections
SEP-373		Compressor and Unox Room - Roof Plans - Process Piping
SEP-374		Compressor and Unox Room - Process Piping Sections
SEP-376		Compressor and PSA Room - Floor and Partial Roof Plans
SEP-377		Compressor Room Sections Ventilation and Piping
1-0102-MSLD-D601		Fermenters/Thickeners - Air Flow Schematic
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-ECBD-D001		MCC/Cabinets Drawing, Fermenters/Thickeners, MCC-D710 Layout and Schedule
1-0102-ECBD-D002		MCC/Cabinets Drawing, Fermenters/Thickeners, MCC-D720 Layout and Schedule
1-0102-ECBD-D003		MCC/Cabinets Drawing, Fermenters/Thickeners, MCC-D730 & MCC-D740 Layout and Schedule
1-0102-ECBD-D004		Cabinet Layout, Fermenters / Thickeners, JBA-D711
1-0102-ECBD-DD01		MCC/Cabinets Drawing, Fermenters/Thickeners, MCC-1R Demolition
1-0102-ECBD-DD02		MCC/Cabinets Drawing, Fermenters/Thickeners, MCC-2R Demolition
1-0102-ECTR-D001	001	Cable Tray Layout, Fermenters/Thickeners, Ground Level Plan
1-0102-ECTR-D001	002	Cable Tray Layout, Fermenters/Thickeners, Ground Level Plan
1-0102-ECTR-D002	001	Cable Tray Layout, Fermenters/Thickeners, Roof Plan
1-0102-ECTR-D002	002	Cable Tray Layout, Fermenters/Thickeners, Roof Plan
1-0102-ECTR-D002	003	Cable Tray Layout, Fermenters/Thickeners, Roof Plan
1-0102-ECTR-D003		Cable Tray Layout, Fermenters/Thickeners, Lower Level Plan
1-0102-ECTR-D004	001	Cable Tray, Fermenters/Thickeners, Sections and Details
1-0102-ECTR-D004	002	Cable Tray, Fermenters/Thickeners, Sections and Details
1-0102-EFAS-D001		Fire Alarm Layout, Fermenters/Thickeners & Biofilter
1-0102-EFAS-D002		Fire Alarm, Fermenters/Thickeners & Biofilter, Riser Diagram Detection and Notification Circuits
1-0102-EGAD-D001		Power Layout, Fermenters/Thickeners, Electrical Room A and Mechanical Platform
1-0102-EGAD-D002		Power Layout, Fermenters/Thickeners, Electrical Room B, Mech. and Junction Chamber Room

Drawing No.	Sheet No.	Description
1-0102-EGAD-D003		Power Layout, Fermenters/Thickeners, Lower Level Plan
1-0102-EGAD-D004		Power Layout, Fermenters/Thickeners, Ground Level Plan
1-0102-EGAD-D005		Power Layout, Fermenters/Thickeners, Roof Plan
1-0102-EGAD-DD01	001	Demolition Plan, Fermenters/Thickeners
1-0102-EGAD-DD01	002	Demolition Plan, Fermenters/Thickeners
1-0102-EGRD-D001		Grounding, Fermenters/Thickeners, Riser Diagram
1-0102-EGRD-D002		Grounding Layout, Fermenters/Thickeners, Ground Level Plan
1-0102-EGRD-D003	001	Lightning Protection Layout, Fermenters/Thickeners, Roof Plan
1-0102-EGRD-D003	002	Lightning Protection Layout, Fermenters/Thickeners, Roof Plan
1-0102-EHLC-D001		Hazardous Location, Fermenters/Thickeners, Lower Level Plan
1-0102-EHLC-D002		Hazardous Location, Fermenters/Thickeners, Ground Level / Roof Plan
1-0102-EHLC-D003		Hazardous Location, Fermenters/Thickeners, Mid-Level Plan
1-0102-EHLC-D004		Hazardous Location, Fermenters/Thickeners, Roof Plan
1-0102-ELTG-D001		Lighting Layout, Fermenters/Thickeners, Electrical Room A and Mechanical Platform
1-0102-ELTG-D002		Lighting Layout, Fermenters/Thickeners, Electrical Room B
1-0102-ELTG-D003		Lighting Control, Fermenters/Thickeners, JBA-D711 Schematic and Wiring Diagram
1-0102-EMCL-D301		Motor Starter Schematic, Fermenters/Thickeners, MXR-D301 Primary Sludge Fermenters Train 1 Cell 1 Mixer
1-0102-EMCL-D302		Motor Starter Schematic, Fermenters/Thickeners, MXR-D302 Primary Sludge Fermenters Train 1 Cell 2 Mixer
1-0102-EMCL-D303		Motor Starter Schematic, Fermenters/Thickeners, MXR-D303 Primary Sludge Fermenters Train 1 Cell 3 Mixer
1-0102-EMCL-D304		Motor Starter Schematic, Fermenters/Thickeners, MXR-D304 Primary Sludge Fermenters Train 1 Cell 4 Mixer
1-0102-EMCL-D311		Motor Starter Schematic, Fermenters/Thickeners, MXR-D311 Primary Sludge Fermenters Train 2 Cell 1 Mixer
1-0102-EMCL-D312		Motor Starter Schematic, Fermenters/Thickeners, MXR-D312 Primary Sludge Fermenters Train 2 Cell 2 Mixer
1-0102-EMCL-D313		Motor Starter Schematic, Fermenters/Thickeners, MXR-D313 Primary Sludge Fermenters Train 2 Cell 3 Mixer
1-0102-EMCL-D314		Motor Starter Schematic, Fermenters/Thickeners, MXR-D314 Primary Sludge Fermenters Train 2 Cell 4 Mixer
1-0102-EMCL-D321		Motor Starter Schematic, Fermenters/Thickeners, P-D321 Fermenter Recirculation Pump
1-0102-EMCL-D322		Motor Starter Schematic, Fermenters/Thickeners, P-D322 Fermenter Recirculation Pump
1-0102-EMCL-D323		Motor Starter Schematic, Fermenters/Thickeners, P-D323 Fermenter Recirculation Pump
1-0102-EMCL-D405		Motor Starter Schematic, Fermenters/Thickeners, P-D405 TWAS Pump
1-0102-EMCL-D406		Motor Starter Schematic, Fermenters/Thickeners, P-D406 TWAS Pump
1-0102-EMCL-D411		Motor Starter Schematic, Fermenters/Thickeners, P-D411 FSL RDT Feed Pump
1-0102-EMCL-D412		Motor Starter Schematic, Fermenters/Thickeners, P-D412 FSL RDT Feed Pump

Drawing No.	Sheet No.	Description
1-0102-EMCL-D413		Motor Starter Schematic, Fermenters/Thickeners, P-D413 FSL RDT Feed Pump
1-0102-EMCL-D414		Motor Starter Schematic, Fermenters/Thickeners, P-D414 FSL RDT Feed Pump
1-0102-EMCL-D418		Motor Starter Schematic, Fermenters/Thickeners, P-D418 TFS Pump
1-0102-EMCL-D419		Motor Starter Schematic, Fermenters/Thickeners, P-D419 TFS Pump
1-0102-EMCL-D420		Motor Starter Schematic, Fermenters/Thickeners, P-D420 TFS Pump
1-0102-EMCL-D451		Motor Starter Schematic, Fermenters/Thickeners, P-D451 WAS Filtrate Pump
1-0102-EMCL-D452		Motor Starter Schematic, Fermenters/Thickeners, P-D452 WAS Filtrate Pump
1-0102-EMCL-D461		Motor Starter Schematic, Fermenters/Thickeners, P-D461 FSL Filtrate Pump
1-0102-EMCL-D462		Motor Starter Schematic, Fermenters/Thickeners, P-D462 FSL Filtrate Pump
1-0102-EMCL-D463		Motor Starter Schematic, Fermenters/Thickeners, P-D463 FSL Filtrate Pump
1-0102-EMCL-D464		Motor Starter Schematic, Fermenters/Thickeners, P-D464 FSL Filtrate Pump
1-0102-EMCL-D611	001	Motor Starter Schematic, Fermenters/Thickeners, EF-D611 WAS RDT Room Exhaust Fan
1-0102-EMCL-D611	002	Motor Starter Schematic, Fermenters/Thickeners, EF-D611 WAS RDT Room Exhaust Fan
1-0102-EMCL-D612	001	Motor Starter Schematic, Fermenters/Thickeners, EF-D612 WAS RDT Room Exhaust Fan
1-0102-EMCL-D612	002	Motor Starter Schematic, Fermenters/Thickeners, EF-D612 WAS RDT Room Exhaust Fan
1-0102-EMCL-D614		Motor Starter Schematic, Fermenters/Thickeners, EF-D614 Junction Chamber R103 Exhaust Fan
1-0102-EMCL-D621		Motor Starter Schematic, Fermenters/Thickeners, EF-D621 RDT Room Exhaust Fan
1-0102-ESCH-D001		Fermenters/Thickeners, Panel Schedules
1-0102-ESCH-DD01		Demolition - Fermenters/Thickeners, Panel Schedules & Details
1-0102-ESLD-D001	001	Single Line Diagram, Fermenters/Thickeners, Motor Control Centre MCC-D710
1-0102-ESLD-D001	002	Single Line Diagram, Fermenters/Thickeners, Motor Control Centre MCC-D710
1-0102-ESLD-D002	001	Single Line Diagram, Fermenters/Thickeners, Motor Control Centre MCC-D720
1-0102-ESLD-D002	002	Single Line Diagram, Fermenters/Thickeners, Motor Control Centre MCC-D720
1-0102-ESLD-D003		Single Line Diagram, Fermenters/Thickeners, Motor Control Centre MCC-D730
1-0102-ESLD-D004		Single Line Diagram, Fermenters/Thickeners, Motor Control Centre MCC-D740
1-0102-EWDG-D001		Wiring Diagram, Fermenters/Thickeners, CU-D641, CU-D642, CU-D643 & ACU-D641, ACU-D642, ACU-D643
1-0102-EWDG-D002		Wiring Diagram, Fermenters/Thickeners, CU-D651, CU-D652 & ACU-D651, ACU-D652
1-0102-EWDG-D003		Wiring Diagram, Fermenters/Thickeners, Unit Heaters

Drawing No.	Sheet No.	Description
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-D001		Fermenters/Thickeners/Biofilter, Control System Architecture
1-0102-ACBD-D001		Cabinet Layout, Fermenters/Thickeners/Biofilters, PSP-D820 Power Supply Cabinet
1-0102-ACBD-D002	001	Power Distribution Schematic, Fermenters/Thickeners/Biofilters, PSP-D820 Power Supply Cabinet
1-0102-ACBD-D002	002	Power Distribution Schematic, Fermenters/Thickeners/Biofilters, PSP-D820 Power Supply Cabinet
1-0102-ACBD-D002	003	Power Distribution Schematic, Fermenters/Thickeners/Biofilters, PSP-D820 Power Supply Cabinet
1-0102-ACBD-D002	004	Power Distribution Schematic, Fermenters/Thickeners/Biofilters, PSP-D820 Power Supply Cabinet
1-0102-ACBD-D002	005	Power Distribution Schematic, Fermenters/Thickeners/Biofilters, PSP-D820 Power Supply Cabinet
1-0102-ACBD-D003		Cabinet Layout, Fermenters/Thickeners/Biofilters, CP-D820 PLC and Device Network Equipment Cabinet
1-0102-ACBD-D004		Power Distribution Schematic, Fermenters/Thickeners/Biofilters, CP-D820 PLC and Device Network Equipment Cabinet
1-0102-ACBD-D005		Wiring Diagram, Bioreactors/Blower Building, CP-D820 Miscellaneous Wiring
1-0102-ACBD-D010	001	Cabinet Layout, Fermenters/Thickeners/Biofilters, CP-D821, Process RIO Cabinet - RIO-D800-1
1-0102-ACBD-D010	002	Cabinet Layout, Fermenters/Thickeners/Biofilters, CP-D821, Process RIO Cabinet - RIO-D800-1
1-0102-ACBD-D011		Power Distribution Schematic, Fermenters/Thickeners/Biofilters, CP-D821, Process RIO Cabinet - RIO-D800-1
1-0102-ACBD-D012	001	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D821, RIO-D800-1 - Discrete Inputs
1-0102-ACBD-D012	002	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D821, RIO-D800-1 - Discrete Inputs
1-0102-ACBD-D012	003	Fermenters/Thickeners/Biofilters, CP-D821, RIO-D800-1 - Discrete Inputs
1-0102-ACBD-D012	004	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D821, RIO-D800-1 - Discrete Inputs
1-0102-ACBD-D013	001	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D821, RIO-D800-1 - Discrete Outputs
1-0102-ACBD-D013	002	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D821, RIO-D800-1 - Discrete Outputs
1-0102-ACBD-D014		Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D821, RIO-D800-1 - Analog Inputs
1-0102-ACBD-D015		Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D821, RIO-D800-1 - Analog Outputs
1-0102-ACBD-D016		Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D821, RIO-D800-1 - Miscellaneous Wiring
1-0102-ACBD-D031	001	Cabinet Layout, Fermenters/Thickeners/Biofilters, CP-D826, HVAC PLC Cabinet - PLC-D806

Drawing No.	Sheet No.	Description
1-0102-ACBD-D031	002	Cabinet Layout, Fermenters/Thickeners/Biofilters, CP-D826, HVAC PLC Cabinet - PLC-D806
1-0102-ACBD-D032		Power Distribution Schematic, Fermenters/Thickeners/Biofilters, CP-D826, HVAC PLC Cabinet - PLC-D806
1-0102-ACBD-D033	001	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D826, PLC-D806 - Discrete Inputs
1-0102-ACBD-D033	002	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D826, PLC-D806 - Discrete Inputs
1-0102-ACBD-D034		Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D826, PLC-D806 - Discrete Outputs
1-0102-ACBD-D035	001	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D826, PLC-D806 - Analog Inputs
1-0102-ACBD-D035	002	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D826, PLC-D806 - Analog Inputs
1-0102-ACBD-D036		Wiring Diagram, Fermenters/Thickeners/ Biofilters, CP-D826, PLC-D806 - Analog Outputs
1-0102-ACBD-D037	001	Cabinet Layout, Fermenters/Thickeners/Biofilters, CP-D827, HVAC RIO Cabinet - RIO-D806-1
1-0102-ACBD-D037	002	Cabinet Layout, Fermenters/Thickeners/Biofilters, CP-D827, HVAC RIO Cabinet - RIO-D806-1
1-0102-ACBD-D038		Power Distribution Schematic, Fermenters/Thickeners/Biofilters, CP-D827, HVAC RIO Cabinet - RIO-D806-1
1-0102-ACBD-D039	001	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D827, RIO-D806-1 - Discrete Inputs
1-0102-ACBD-D039	002	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D827, RIO-D806-1 - Discrete Inputs
1-0102-ACBD-D040		Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D827, RIO-D806-1 - Discrete Outputs
1-0102-ACBD-D041	001	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D827, RIO-D806-1 - Analog Inputs
1-0102-ACBD-D041	002	Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D827, RIO-D806-1 - Analog Inputs
1-0102-ACBD-D042		Wiring Diagram, Fermenters/Thickeners/Biofilters, CP-D827, RIO-D806-1 - Analog Outputs
1-0102-ACBD-D055		Wiring Diagram, Fermenters/Thickeners/Biofilters, XK-D3011 & XK-D3111, Flow Valves Remote Control Stations
1-0102-ACBD-D061		Cabinet Layout, Fermenters/Thickeners/Biofilters, ADP-D831 Profibus Equipment Cabinet
1-0102-ACBD-D062		Power Distribution Schematic, Fermenters/Thickeners/Biofilters, ADP-D831 Profibus Equipment Cabinet
1-0102-ACBD-D063		Cabinet Layout, Fermenters/Thickeners/Biofilters, ADP-D832 Profibus Equipment Cabinet
1-0102-ACBD-D064		Power Distribution Schematic, Fermenters/Thickeners/Biofilters, ADP-D832 Profibus Equipment Cabinet
1-0102-ACBD-D065		Cabinet Layout, Fermenters/Thickeners/Biofilters, ADP-D833 Profibus Equipment Cabinet
1-0102-ACBD-D066		Power Distribution Schematic, Fermenters/Thickeners/Biofilters, ADP-D833 Profibus Equipment Cabinet
1-0102-ACBD-D067		Cabinet Layout, Fermenters/Thickeners/Biofilters, ADP-D840-1 & ADP-D841-1 Network Protection Panels

Drawing No.	Sheet No.	Description
1-0102-ACBD-D068		Cabinet Layout, Fermenters/Thickeners/Biofilters, Profibus PA Segment Protector Device Panel
1-0102-ACBD-D071		Cabinet Layout, Fermenters/Thickeners/Biofilters, ADP-D830 Sludge Holding Tank High Level Interlock
1-0102-ACBD-D081	001	Cabinet Layout, Fermenters/Thickeners, Junction Boxes
1-0102-ACBD-D081	002	Cabinet Layout, Fermenters/Thickeners, Junction Boxes
1-0102-ACBD-D081	003	Cabinet Layout, Fermenters/Thickeners, ACU Junction Boxes
1-0102-ACBD-D082		Cabinet Layout, Fermenters/Thickeners/ Biofilters, JBA-D690 Gas Detection Junction Box
1-0102-ACBD-D083		Cabinet Layout, Fermenters/Thickeners, JBA-D6207 and JBA-D6208 Junction Boxes
1-0102-ACBD-D901		Cabinet Layout, Fermenters/Thickeners/Biofilters, NP-D900 Network Cabinet
1-0102-ACBD-D902		Power Distribution Schematic, Fermenters/Thickeners/Biofilters, NP-D900 Network Cabinet
1-102-ADTL-D001		Installation Details, Fermenters/Thickeners/Biofilters, Level Instruments
1-0102-AGAD-D001		Instrument Location Plan, Fermenters/Thickeners, RDT Pump Room Layout
1-0102-AGAD-D002		Instrument Location Plan, Fermenters/Thickeners, Gallery 5 - North Layout
1-0102-AGAD-D003		Instrument Location Plan, Fermenters/Thickeners, RDT Room Layout
1-0102-AGAD-D004		Instrument Location Plan, Fermenters/Thickeners, Roof Plan
1-0102-AGAD-D005		Instrument Location Plan, Fermenters/Thickeners, Secondary Clarifier Basement
1-0102-AGAD-D006		Instrument Location Plan, Fermenters/Thickeners, Mechanical and Junction Chamber Room
1-0102-AGAD-D007		Instrument Location Plan, Fermenters/Thickeners, Primary Clarifier Service Area
1-0102-AIFS-D001		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 1, Profibus DP Segment ND-D840-1
1-0102-AIFS-D002		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 1, Profibus DP Segment ND-D840-2
1-0102-AIFS-D003	001	Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 1, Profibus DP Segment ND-D840-3
1-0102-AIFS-D003	002	Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 1, Profibus DP Segment ND-D840-3
1-0102-AIFS-D004		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 1, Profibus DP Segment ND-D840-4
1-0102-AIFS-D005		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 1, Profibus PA Segment Protectors NSP-D850-1 and D850-2
1-0102-AIFS-D006		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 1, Profibus PA Segment Protector NSP-D851-1 and NSP-D851-2

Drawing No.	Sheet No.	Description
1-0102-AIFS-D007		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 1, Profibus PA Segment Protector NSP-D852-1 and NSP-D852-2
1-0102-AIFS-D008		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 1, Profibus PA Segment Protector NSP-D853-1 and NSP-D853-2
1-0102-AIFS-D010		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 2, Profibus DP Segment ND-D841-1
1-0102-AIFS-D011		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 2, Profibus DP Segment ND-D841-2
1-0102-AIFS-D012	001	Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 2, Profibus DP Segment ND-D841-3
1-0102-AIFS-D012	002	Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 2, Profibus DP Segment ND-D841-3
1-0102-AIFS-D013		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 2, Profibus DP Segment ND-D841-4
1-0102-AIFS-D014		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 2, Profibus PA Segment Protector NSP-D860
1-0102-AIFS-D015		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 2, Profibus PA Segment Protectors NSP-D861-1 and NSP-D861-2
1-0102-AIFS-D016		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 2, Profibus PA Segment Protectors NSP-D862-1 and NSP-D862-2
1-0102-AIFS-D017		Profibus Segment Diagram, Fermenters/Thickeners/Biofilters - Branch 2, Profibus PA Segment Protector NSP-D863
1-0102-AILD-D301		Loop Diagram, FIT-D3013, Fermenter Train 1 Flushing Water Flow Transmitter
1-0102-AILD-D302		Loop Diagram, FIT-D3113, Fermenter Train 2 Flushing Water Flow Transmitter
1-0102-AILD-D303		Loop Diagram, FIT-D3051, Fermenter Train 1 Recirculation Flow Transmitter
Volume 8B Cover Page		Cover Page
1-0102-AILD-D304		Loop Diagram, FIT-D3151, Fermenter Train 2 Recirculation Flow Transmitter
1-0102-AILD-D400	001	Loop Diagram, CP-D400, WAS RDT System Control Panel
1-0102-AILD-D400	002	Loop Diagram, CP-D400, WAS RDT System Control Panel
1-0102-AILD-D400	003	Loop Diagram, CP-D400, WAS RDT System Control Panel
1-0102-AILD-D401		Loop Diagram, XV-D4032, Flushing Water Valve
1-0102-AILD-D402		Loop Diagram, XV-D4042, Flushing Water Valve
1-0102-AILD-D405		Loop Diagram, FIT-D4033, WAS To RDT-D403 Flow Transmitter
1-0102-AILD-D406		Loop Diagram, FIT-D4043, WAS To RDT-D404 Flow Transmitter
1-0102-AILD-D410	001	Loop Diagram, CP-D410, FSL RDT System Control Panel

Drawing No.	Sheet No.	Description
1-0102-AILD-D410	002	Loop Diagram, CP-D410, FSL RDT System Control Panel
1-0102-AILD-D410	003	Loop Diagram, CP-D410, FSL RDT System Control Panel
1-0102-AILD-D410	004	Loop Diagram, CP-D410, FSL RDT System Control Panel
1-0102-AILD-D410	005	Loop Diagram, CP-D410, FSL RDT System Control Panel
1-0102-AILD-D411		Loop Diagram, XV-D4152, Flushing Water Valve
1-0102-AILD-D412		Loop Diagram, XV-D4162, Flushing Water Valve
1-0102-AILD-D413		Loop Diagram, XV-D4172, Flushing Water Valve
1-0102-AILD-D415		Loop Diagram, FIT-D4153, FSL To RDT-D415 Flow Transmitter
1-0102-AILD-D416		Loop Diagram, FIT-D4163, FSL To RDT-D416 Flow Transmitter
1-0102-AILD-D417		Loop Diagram, FIT-D4173, FSL To RDT-D417 Flow Transmitter
1-0102-AILD-D430		Loop Diagram, S-D430, RDT Wash Water Booster Pumps Skid
1-0102-AILD-D431		Loop Diagram, STR-D433, Flushing Water Automatic Strainer
1-0102-AILD-D432		Loop Diagram, STR-D434, Flushing Water Automatic Strainer
1-0102-AILD-D433		Loop Diagram, LSH-D4502 and LSL-D4502 WAS Filtrate Tank TK-D450 Level Switches
1-0102-AILD-D434		Loop Diagram, LSH-D4602 and LSL-D4602, FSL Filtrate Tank TK-D460 Level Switches
1-0102-AILD-D435		Loop Diagram, FIT-D4305, RDT Wash Water Flow Transmitter
1-0102-AILD-D436		Loop Diagram, FIT-D4505, WAS Filtrate Flow Transmitter
1-0102-AILD-D437		Loop Diagram, FIT-D4605, FSL Filtrate Flow Transmitter
1-0102-AILD-D610	001	Loop Diagram, AHU-D610, RDT Room Air Handling Unit
1-0102-AILD-D610	002	Loop Diagram, AHU-D610, RDT Room Air Handling Unit
1-0102-AILD-D610	003	Loop Diagram, AHU-D610, RDT Room Air Handling Unit
1-0102-AILD-D610	004	Loop Diagram, AHU-D610, RDT Room Air Handling Unit
1-0102-AILD-D611		Loop Diagram, FIT-D6112, FIT-D6122, RDT Room Exhaust Fan Flow Transmitters
1-0102-AILD-D612		Loop Diagram, TT-D6132, RDT Room Temperature Transmitter
1-0102-AILD-D620	001	Loop Diagram, AHU-D620, RDT Pump Room Air Handling Unit
1-0102-AILD-D620	002	Loop Diagram, AHU-D620, RDT Pump Room Air Handling Unit
1-0102-AILD-D620	003	Loop Diagram, AHU-D620, RDT Pump Room Air Handling Unit
1-0102-AILD-D621		Loop Diagram, FIT-D6212, RDT Pump Room Exhaust Fan Flow Transmitter
1-0102-AILD-D622		Loop Diagram, TT-D6232, RDT Pump Room Temperature Transmitter
1-0102-AILD-D623		Loop Diagram, XV-D6207, Pressurization Unit AHU-D640 Intake Damper
1-0102-AILD-D624		Loop Diagram, XV-D6208, Pressurization Unit AHU-D650 Intake Damper
1-0102-AILD-D640	001	Loop Diagram, AHU-D640, Electrical Room A Air Handling Unit

Drawing No.	Sheet No.	Description
1-0102-AILD-D640	002	Loop Diagram, AHU-D640, Electrical Room A Air Handling Unit
1-0102-AILD-D641		Loop Diagram, ACU-D641, Electrical Room A Air Conditioning Unit
1-0102-AILD-D642		Loop Diagram, ACU-D642, Electrical Room A Air Conditioning Unit
1-0102-AILD-D643		Loop Diagram, ACU-D643, Electrical Room A Air Conditioning Unit
1-0102-AILD-D644		Loop Diagram, TT-D6406, Electrical Room A Temperature Transmitter
1-0102-AILD-D650	001	Loop Diagram, AHU-D650, Electrical Room B Air Handling Unit
1-0102-AILD-D650	002	Loop Diagram, AHU-D650, Electrical Room B Air Handling Unit
1-0102-AILD-D651		Loop Diagram, TT-D6506, Biofilter Electrical B Room Temperature Transmitter
1-0102-AILD-D652		Loop Diagram, ACU-D651, Electrical Room B Air Conditioning Unit
1-0102-AILD-D653		Loop Diagram, ACU-D652, Electrical Room B Air Conditioning Unit
1-0102-AILD-D671		Loop Diagram, TT-D6711, Outdoor Air Temperature Transmitter
1-0102-AILD-D690		Loop Diagram, AIT-D6911, RDT Room Gas Detection
1-0102-AILD-D691		Loop Diagram, AAH-D6910-1, D6910-2, D6910-3, D6910-4, RDT Room Gas Detection Horn and Strobes
1-0102-AILD-D901		Loop Diagram, ZSC-D9611, ZSC-D9612, ZSC-D9621, ZSC-D9631, ZSC-D9641, Door Switches
1-0102-AILD-D902		Loop Diagram, ZSC-D9613, Door Switch
1-0102-ANET-D001		Network Diagram, Fermenters/Thickeners/Biofilters, Supervisory Network
1-0102-ANET-D002	001	Network Diagram, Fermenters/Thickeners/Biofilters, Control Network
1-0102-ANET-D002	002	Network Diagram, Fermenters/Thickeners/Biofilters, Control Network
1-0102-ANET-D002	003	Network Diagram, Fermenters/Thickeners/Biofilters, Control Network
1-0102-ANET-D003	001	Network Diagram, Fermenters/Thickeners/Biofilters, Device Network
1-0102-ANET-D003	002	Network Diagram, Fermenters/Thickeners/Biofilters, Device Network
1-0102-ANET-D003	003	Network Diagram, Fermenters/Thickeners/Biofilters, Device Network
1-0102-ANET-D003	004	Network Diagram, Fermenters/Thickeners/Biofilters, Device Network
1-0102-ASCH-D001		Schedules Drawing, Fermenters/Thickeners/Biofilters, Gas Detection Schedule GDC-D690
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details

Drawing No.	Sheet No.	Description
T - BIOFILTERS		
General		
Volume 9 Cover Page	006	Cover Page
Volume 9 Index	001	Drawing Index (1)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SFDW-T001		Odour Stack Base Piling Plan
1-0102-SGAD-T001		Biofilters Basement Plan
1-0102-SGAD-T002		Biofilters Intermediate Level Plan
1-0102-SGAD-T003		Biofilters Roof Plan
1-0102-SGAD-T004		Biofilters Section A and B
1-0102-SGAD-T005		Biofilters Section C, D, E, F and G
1-0102-SGAD-T006		Odour Stack Base Plans
1-0102-SGAD-T007		Odour Stack Base Section A and B
1-0102-SDTL-T001		Biofilters Details
SEP-338		Oxygen Reactor Expansion - Floor Plan AT EL 228.130 & EL 231.038
SEP-339		Oxygen Reactor Expansion - Roof Plan AT EL 234.823
SEP-340		Oxygen Reactor Expansion - Traffic & Paving Slab Plan Above EL 234.823
SEP-342		Oxygen Reactor Expansion - Section and Details
1-0102-SDTL-A002		Standard Details (1)
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-T101		FOUL Air DUCT SCHEMATIC
1-0102-PPID-T102		Biofilters Feed Air WINTERIZATION System
1-0102-PPID-T103		Biofilters Feed Air Humidifier HUM-T110
1-0102-PPID-T104		Biofilters Feed Air Humidifier 1 Recycle Pumps
1-0102-PPID-T105		Biofilters Feed Air Humidifier HUM-T120
1-0102-PPID-T106		Biofilters Feed Air Humidifier 2 Recycle Pumps
1-0102-PPID-T107		Biofilter Irrigation Water

Drawing No.	Sheet No.	Description
1-0102-PPID-T201		Odour Control Biofilter Cell TK-T210
1-0102-PPID-T202		Odour Control Biofilter Cell TK-T220
1-0102-PPID-T203		Odour Control Biofilter Cell TK-T230
1-0102-PPID-T204		Odour Control Process Sump
1-0102-PPID-T301		Biofilter Treated Air Exhaust Fans
1-0102-PPID-T302		Odour Control
1-0102-PPID-T601		Biofilter Humidifier Room Air Handling Unit AHU-T610
1-0102-PPID-T602		Biofilter Humidifier Room Exhaust Fans EF-T611 and EF-T612
1-0102-PGAD-T002		Biofilters Basement Level Plan
1-0102-PGAD-T003		Biofilters Roof Plan
1-0102-PGAD-T004		Biofilters Section A and D
1-0102-PGAD-T005		Biofilters Section B and C
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MGAD-A003		FOA System - Overall Roof Plan
1-0102-MGAD-T601		Biofilter - Lower Level Plan, Roof Plan and Section
1-0102-MSLD-T601		Biofilters - Air Flow Schematic
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-ECTR-T001	001	Cable Tray Layout, Biofilters, Roof Plan
1-0102-ECTR-T001	002	Cable Tray Layout, Biofilters, Roof Plan
1-0102-ECTR-T002		Cable Tray, Biofilters, Sections and Details
1-0102-EGAD-T001		Power Layout, Biofilters, Lower Level Plan
1-0102-EGAD-T002		Power Layout, Biofilters, Roof Plan
1-0102-EGAD-TD01		Biofilters, Demolition Plan
1-0102-EGRD-T001		Lightning Protection Layout, Biofilters, Roof Plan
1-0102-EHLC-T001		Hazardous Location, Biofilters, Lower Level Plan
1-0102-EHLC-T002		Hazardous Location, Biofilters, Roof Plan
1-0102-ELTG-T001		Lighting Layout, Biofilters, Humidifier Room
1-0102-EMCL-T201		Motor Starter Schematic, P-T261 Process Sump Pump
1-0102-EMCL-T202		Motor Starter Schematic, P-T262 Process Sump Pump
1-0102-EMCL-T301	001	Motor Starter Schematic, Biofilters, EF-T301 Biofilter Exhaust Fan
1-0102-EMCL-T301	002	Motor Starter Schematic, Biofilters, EF-T301 Biofilter Exhaust Fan
1-0102-EMCL-T302	001	Motor Starter Schematic, Biofilters, EF-T302 Biofilter Exhaust Fan

Drawing No.	Sheet No.	Description
1-0102-EMCL-T302	002	Motor Starter Schematic, Biofilters, EF-T302 Biofilter Exhaust Fan
1-0102-EMCL-T611		Motor Starter Schematic, EF-T611 Biofilter Humidifier Room Exhaust Fan
1-0102-EMCL-T612		Motor Starter Schematic, EF-T612 Biofilter Humidifier Room Exhaust Fan
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ACBD-T071		Cabinet Layout, Biofilter, JBA-T830 Biofilter Signals Junction Box
1-0102-ACBD-T072		Cabinet Layout, Biofilter, JBA-T2601-1 Junction Box
1-0102-ACBD-T073		Cabinet Layout, Biofilter, ADP-T2601 IS Barrier Cabinet
1-0102-ACBD-T081		Cabinet Layout, Biofilters, Junction Boxes
1-0102-AGAD-T001		Instrument Location Plan, Biofilters, Humidifier Room and Gallery 5 - South Layout
1-0102-AGAD-T002		Instrument Location Plan, Biofilters, Biofilter Cells
1-0102-AGAD-T003		Instrument Location Plan, Biofilters, Roof Plan
1-0102-AILD-T101		Loop Diagram, CP-T100, Biofilter Winterization System
1-0102-AILD-T140		Loop Diagram, STR-T140, Biofilter Irrigation Water Microstrainer
1-0102-AILD-T141		Loop Diagram, PSL-T1403, Biofilter Microstrainer Pressure Switch
1-0102-AILD-T142		Loop Diagram, XV-T1406, Potable Water Valve
1-0102-AILD-T201		Loop Diagram, CP-T200, Biofilter Control Panel
1-0102-AILD-T202		Loop Diagram, FIT-T2107, Odour Control Biofilter Cell 1 Flow Transmitter
1-0102-AILD-T203		Loop Diagram, FIT-T2207, Odour Control Biofilter Cell 2 Flow Transmitter
1-0102-AILD-T204		Loop Diagram, FIT-T2307, Odour Control Biofilter Cell 3 Flow Transmitter
1-0102-AILD-T205	001	Loop Diagram, LSHH-T2601 and LSLL-T2601, Process Sump Level Switches
1-0102-AILD-T205	002	Loop Diagram, LSHH-T2601 and LSLL-T2601, Process Sump Level Switches
1-0102-AILD-T610	001	Loop Diagram, AHU-T610, Biofilter Room Air Handling Unit
1-0102-AILD-T610	002	Loop Diagram, AHU-T610, Biofilter Room Air Handling Unit
1-0102-AILD-T610	003	Loop Diagram, AHU-T610, Biofilter Room Air Handling Unit
1-0102-AILD-T611		Loop Diagram, FIT-T6112 & FIT-T6122, EF-T611 and EF-T612 Exhaust Fans Flow Transmitters
1-0102-AILD-T612		Loop Diagram, TT-T6132, Biofilter Humidifier Room Temperature Transmitter
1-0102-AILD-T690		Loop Diagram, AIT-T6911 and AIT-T6912, Humidifier Room Gas Detection
1-0102-AILD-T691		Loop Diagram, AAHH-T6910-1 and T6910-2, Humidifier Room Gas Detection Horn and Strobe
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous

Drawing No.	Sheet No.	Description
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
C – CHEMICAL/ELECTRICAL BUILDING		
General		
Volume 10A Cover Page	006	Cover Page
Volume 10 Index 1	001	Drawing Index (1)
Volume 10 Index 2	002	Drawing Index (2)
Volume 10 Index 3	003	Drawing Index (3)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Civil		
1-0102-CGAD-C001		Chemical/Electrical Building - Weeping Tile Plan
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SFDW-C001		Chemical/Electrical Building Piling Plan
1-0102-SFDW-C002		Chemical/Electrical Building Piling Plan (2)
1-0102-SFDW-C003		Chemical/Electrical Building Cable Trench/NGR Pad Piling Plan
1-0102-SFDW-C004		Chemical/Electrical Building Pile Details
1-0102-SGAD-C001		Chemical/Electrical Building Basement Plan
1-0102-SGAD-C002		Chemical/Electrical Building Ground Floor Plan
1-0102-SGAD-C003		Chemical/Electrical Building Roof Plan
1-0102-SGAD-C004		Chemical Building Section A
1-0102-SGAD-C005		Chemical Building Section B
1-0102-SGAD-C006		Chemical Building Section C
1-0102-SGAD-C007		Electrical Building Section D
1-0102-SGAD-C008		Electrical Building Section E
1-0102-SGAD-C009		Chemical Building Section F and J
1-0102-SGAD-C010		Chemical/Electrical Building Section G
1-0102-SGAD-C011		Chemical/Electrical Building Plans and Section
1-0102-SGAD-C012		Chemical/Electrical Building Section K
1-0102-SGAD-C013		Chemical/Electrical Building Section L
1-0102-SGAD-C015		Chemical/Electrical Building Cable Trench Plan and Section
1-0102-SDTL-C001		Chemical/Electrical Building Details
1-0102-SSCH-C001		Chemical/Electrical Building Beam Schedule
1-0102-SSCH-C002		Chemical/Electrical Building Column Schedule
1-0102-SSST-C001		Chemical/Electrical Building Steel Supports
1-0102-SDTL-A002		Standard Details (1)
1-0102-SDTL-A003		Standard Details (2)
1-0102-SDTL-A004		Standard Details (3)
1-0102-SDTL-A005		Standard Details (4)
1-0102-SDTL-A006		Standard Details (5)
1-0102-SDTL-A007		Standard Details (6)
1-0102-SDTL-A008		Standard Details (7)
1-0102-SDTL-A009		Standard Details (8)
1-0102-SDTL-A010		Standard Details (9)
1-0102-SDTL-A011		Standard Details (10)
1-0102-SDTL-A012		Standard Details (11)
1-0102-SDTL-A013		Standard Details (12)
1-0102-SDTL-A014		Standard Details (13)

Drawing No.	Sheet No.	Description
1-0102-SDTL-A015		Standard Details (14)
1-0102-SDTL-A016		Standard Details (15)
1-0102-SDTL-A017		Standard Details (16)
1-0102-SDTL-A018		Standard Details (17)
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BAAA-C001		Chemical/Electrical Building Building Code Matrixes and Wall Type Legend
1-0102-BAAA-C002		Chemical/Electrical Building Site Plan and Spatial Separation Calculation
1-0102-BGAD-C001		Chemical/Electrical Building Basement Plan
1-0102-BGAD-C002		Chemical/Electrical Building Ground Floor Plan
1-0102-BGAD-C003		Chemical/Electrical Building Roof Plan
1-0102-BGAD-C004		Chemical/Electrical Building Part Plans and Reflected Ceiling Plans
1-0102-BGAD-C005		Chemical/Electrical Building South and East Elevations
1-0102-BGAD-C006		Chemical/Electrical Building North and West Elevations
1-0102-BGAD-C007		Chemical/Electrical Building Section A and B
1-0102-BGAD-C008		Chemical/Electrical Building Section C and D
1-0102-BGAD-C009		Chemical/Electrical Building Section E and F
1-0102-BGAD-C010		Chemical/Electrical Building Section G and H
1-0102-BDTL-C003		Chemical/Electrical Building Wall Section (1)
1-0102-BDTL-C004		Chemical/Electrical Building Wall Section (2)
1-0102-BDTL-C005		Chemical/Electrical Building Wall Section (3)
1-0102-BDTL-C006		Chemical/Electrical Building Plan and Section Details
1-0102-BDTL-C007		Chemical/Electrical Building Plan and Section Details
1-0102-BSCH-C001		Chemical/Electrical Building Room Finish Schedule
1-0102-BSCH-C002		Chemical/Electrical Building Door and Hardware Schedule
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PAAA-A001		Legend and General Notes
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-C001		Chemical Delivery Area
1-0102-PPID-C101		Ferric Chloride Bulk Storage Tanks
1-0102-PPID-C102		Bioreactor Ferric Chloride Pump Skid S-C110-1
1-0102-PPID-C103		Bioreactor Ferric Chloride Pump Skid S-C110-2
1-0102-PPID-C104		HRC Ferric Chloride Pump Skid S-C120
1-0102-PPID-C105		HRC Ferric Chloride Pump Skid S-C130
1-0102-PPID-C201		Sodium Hydroxide and Sodium Hypochlorite Bulk Storage Tanks
1-0102-PPID-C202		Sodium Hydroxide Pump Skid S-C230
1-0102-PPID-C203		Sodium Hypochlorite Pump Skid S-C240
1-0102-PPID-C204		Sodium Hypochlorite Pump Skid S-C210
1-0102-PPID-C205		Sodium Hypochlorite Pump Skid S-C220
1-0102-PPID-C301		Sodium Bisulphite Bulk Storage Tank and Pump Skid S-C310
1-0102-PPID-C401		FSL RDT Dry Polymer Mixing
1-0102-PPID-C402		FSL RDT Polymer Post Dilution Pumps P-C411 and P-C412

Drawing No.	Sheet No.	Description
1-0102-PPID-C403		FSL RDT Polymer Post Dilution Pumps P-C413 and P-C414
1-0102-PPID-C404		FSL RDT Polymer Post Dilution Pump P-C415
1-0102-PPID-C405		WAS RDT DRY Polymer MIXING
1-0102-PPID-C406		WAS RDT Polymer Post Dilution Pumps P-C431 and P-C432
1-0102-PPID-C407		WAS RDT Polymer Post Dilution Pump P-C433
1-0102-PPID-C408		HRC Dry Polymer Mixing
1-0102-PPID-C409		HRC Polymer Post Dilution Pumps P-C451 and P-C452
1-0102-PPID-C410		HRC Polymer Post Dilution Pump HRC Polymer Post Dilution Pump 3
1-0102-PPID-C411		Secondary Clarifier Dry Polymer Mixing
1-0102-PPID-C412		Secondary Clarifier Polymer Post Dilution Pumps P-C471 and P-C472
1-0102-PPID-C501		Flushing Water System
1-0102-PPID-C502		Sump Pumps P-C501 and P-C502
1-0102-PPID-C503		Chemical Building Potable Water and Tempered Domestic Water Systems
1-0102-PPID-C504		Chemical Building Non-Potable Water System
1-0102-PPID-C505		Chemical Building Natural Gas System
1-0102-PPID-C510		Diesel Generator Fuel Storage Tank TK-C560
1-0102-PPID-C511		Diesel Generator Fuel Storage Tank TK-C570
1-0102-PPID-C512		Diesel Generator Fuel Storage Tank TK-C580
1-0102-PPID-C601		Chemical Building Air Handling Unit AHU-C611
1-0102-PPID-C602		Chemical Building Air Handling Unit AHU-C612
1-0102-PPID-C603		Chemical Building Air Handling Unit AHU-C620
1-0102-PPID-C604		Chemical Building Electrical Room Air Handling Unit AHU-C640
1-0102-PPID-C605		Chemical Building Exhaust Units EF-C612 TO EF-C615
1-0102-PPID-C606		Chemical Building - Gallery 6, 7 and Cable Service RM Ventilation Exhaust Fan EF-C621
1-0102-PPID-C607		Chemical Building - Mechanical Rooms / Ancillary Spaces Heating and Ventilation, EF-C651, EF-C652 and EF-C653
1-0102-PPID-C608		Chemical Building Generator Room and Janitor Room Heating and Ventilation
1-0102-PPID-C901		Chemical Building Lighting, Security and Miscellaneous
1-0102-PGAD-C001		Chemical/Electrical Building Overall Ground Floor Plan
1-0102-PGAD-C002		Chemical/Electrical Building Chemical Containment Room Part Plan
1-0102-PGAD-C003		Chemical/Electrical Building Chemical Loading Platform Part Plan
1-0102-PGAD-C004		Chemical/Electrical Building Generator Room Part Plans
1-0102-PGAD-C005		Chemical/Electrical Building Gallery 6 Part Plan
1-0102-PGAD-C006		Chemical/Electrical Building Section A
1-0102-PGAD-C007		Chemical/Electrical Building Section B
1-0102-PGAD-C008		Chemical/Electrical Building Section C
1-0102-PGAD-C009		Chemical/Electrical Building Section D
1-0102-PGAD-C010		Chemical/Electrical Building Section E
1-0102-PGAD-C011		Chemical/Electrical Building Section F
1-0102-PGAD-C012		Chemical/Electrical Building Section G & H
1-0102-PGAD-C013		Chemical/Electrical Building Section J
1-0102-PGAD-C014		Chemical/Electrical Building Section K & L
1-0102-PGAD-C015		Chemical/Electrical Building Chemical Lines Ductbank Part Plan & Section

Drawing No.	Sheet No.	Description
1-0102-PISO-C101		Chemical/Electrical Building Ferric Chloride Isometric
1-0102-PISO-C201		Chemical/Electrical Building Sodium Hypochlorite and Sodium Hydroxide Isometrics
1-0102-PISO-C301		Chemical/Electrical Building Sodium Bisulphite Isometric
1-0102-PISO-C401		Chemical/Electrical Building Mixed Polymer Isometric No.1
1-0102-PISO-C402		Chemical/Electrical Building Mixed Polymer Isometric No.2
1-0102-PDTL-C001		Chemical/Electrical Building Details
1-0102-PDTL-A002		Standard Details (1)
1-0102-PDTL-A003		Standard Details (2)
1-0102-PDTL-A004		Standard Details (3)
1-0102-PDTL-A005		Standard Details (4)
1-0102-PDTL-A006		Standard Details (5)
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MAAA-A001	003	Legend and General Notes (3)
1-0102-MGAD-C501		Chemical/Electrical Building Plumbing - Basement Plan
1-0102-MGAD-C502		Chemical/Electrical Building Plumbing - Ground Floor Plan
1-0102-MGAD-C503		Chemical/Electrical Building Plumbing - Roof Plan
1-0102-MGAD-C504		Chemical/Electrical Building Plumbing - Part Plan
1-0102-MGAD-C505		Chemical/Electrical Building Plumbing - Part Plans
1-0102-MGAD-C506		Chemical/Electrical Building Plumbing - Part Plan
1-0102-MGAD-C507		Chemical/Electrical Building Plumbing - Part Plans
1-0102-MGAD-C508		Chemical/Electrical Building Plumbing - Section A
1-0102-MGAD-C509		Chemical/Electrical Building Plumbing - Sump Pump Part Plan and Details
1-0102-MGAD-C510		Chemical/Electrical Building Plumbing - Gas Water Heater Part Plan and Section
1-0102-MGAD-C511		Chemical/Electrical Building Plumbing - Natural Gas Supply System
1-0102-MGAD-C525		Chemical/Electrical Building Fire Protection - Basement Plan
1-0102-MGAD-C526		Chemical/Electrical Building Fire Protection - Ground Floor Plan
1-0102-MGAD-C527		Chemical/Electrical Building Fire Protection - Roof Plan
1-0102-MISO-C501		Chemical/Electrical Building Plumbing - Water System Isometric
1-0102-MISO-C502		Chemical/Electrical Building Plumbing - Drainage System Isometric
1-0102-MISO-C503		Chemical/Electrical Building Plumbing - Roof Drainage System Isometric
1-0102-MGAD-C601		Chemical/Electrical Building HVAC - Basement Plan
1-0102-MGAD-C602		Chemical/Electrical Building HVAC - Ground Floor Plan
1-0102-MGAD-C603		Chemical/Electrical Building HVAC - Roof Plan
1-0102-MGAD-C604		Chemical/Electrical Building HVAC - Part Plans
1-0102-MGAD-C605		Chemical/Electrical Building HVAC - Section A and B
1-0102-MGAD-C606		Chemical/Electrical Building HVAC - Section C, D, E and F
1-0102-MISO-C601		Chemical/Electrical Building HVAC System Isometrics
1-0102-MISO-C602		Chemical/Electrical Building HVAC System Isometric
1-0102-MISO-C603		Chemical/Electrical Building HVAC System Isometrics
1-0102-MSLD-C601		Chemical/Electrical Building - Air Flow Schematic

Drawing No.	Sheet No.	Description
1-0102-MSLD-C602		Chemical/Electrical Building - Generator Room Air Flow Schematic
1-0102-MSLD-C603		Chemical/Electrical Building - Natural Gas System Schematic
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
1-0102-MDTL-A011		Fire Protection Standard Details (1)
1-0102-MDTL-A012		Fire Protection Standard Details (2)
1-0102-MDTL-A013		Fire Protection Standard Details (3)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-EBDG-C001		Electrical, Chemical Building, Sodium Hydroxide Piping Heat Trace Block Diagram
1-0102-EBDG-C002		Electrical, Electrical Building, Generator Controls Interconnections
1-0102-ECBD-C001	001	MCC/Cabinets Drawing, Chemical Building, MCC-C710 Layout & Schedule
1-0102-ECBD-C001	002	MCC/Cabinets Drawing, Chemical Building, MCC-C710 Layout & Schedule
1-0102-ECBD-C002	001	MCC/Cabinets Drawing, Chemical Building, MCC-C720 Layout & Schedule
1-0102-ECBD-C002	002	MCC/Cabinets Drawing, Chemical Building, MCC-C720 Layout & Schedule
1-0102-ECBD-C003		MCC/Cabinets Drawing, Electrical Building, MCC-C730, MCC-C740 Layout & Schedule
1-0102-ECBD-C004		MCC/Cabinets Drawing, Electrical Building, SGR-C703 and SGR-C704
1-0102-ECBD-C005		MCC/Cabinets Drawing, Electrical Building, SGR-C701, SGR-C702 & SGR-C790
1-0102-ECBD-C006		Cabinet Layout, Chemical/Electrical Building, CP-C725
1-0102-ECBD-C007		Cabinet Layout, Chemical/Electrical Building, LC-C726
1-0102-ECBD-C008		Cabinet Layout, Chemical/Electrical Building, CP-C794
1-0102-ECRT-C001		Cable Routing, Electrical Building, Cable Bus System Layout
1-0102-ECRT-C002		Cable Routing, Electrical Building, Cable Bus System Section & Detail
1-0102-ECTR-C001		Cable Tray Layout, Electrical Building, Basement Plan
1-0102-ECTR-C002	001	Cable Tray Layout, Electrical Building, Ground Floor Plan
1-0102-ECTR-C002	002	Cable Tray Layout, Electrical Building, Ground Floor Plan
1-0102-ECTR-C003	001	Cable Tray Layout, Chemical Building, Basement Plan
1-0102-ECTR-C003	002	Cable Tray Layout, Chemical Building, Basement Plan
1-0102-ECTR-C004	001	Cabe Tray Layout, Chemical Building, Ground Floor Plan
1-0102-ECTR-C004	002	Cable Tray Layout, Chemical Building, Ground Floor Plan
1-0102-ECTR-C005		Cable Tray Layout, Chemical Building, Upper Level Plan
1-0102-ECTR-C006	001	Cable Tray, Chemical/Electrical Building, Sections and Details
1-0102-ECTR-C006	002	Cable Tray, Chemical/Electrical Building, Sections and Details

Drawing No.	Sheet No.	Description
1-0102-ECTR-C006	003	Cable Tray, Chemical/Electrical Building, Sections and Details
1-0102-ECTR-C006	004	Cable Tray, Chemical/Electrical Building, Sections and Details
1-0102-EDTL-C001	001	Electrical Building, Cable Seal Details
1-0102-EDTL-C001	002	Electrical Building, Cable Seal Details
1-0102-EDTL-C001	003	Electrical Building, Cable Seal Details
1-0102-EDTL-C001	004	Electrical Building, Cable Seal Details
1-0102-EDTL-C002		Electrical Building, GPS Antenna Installation Details
1-0102-EFAS-C001		Fire Alarm Layout, Electrical Building, Basement Plan
1-0102-EFAS-C002		Fire Alarm Layout, Electrical Building, Ground Floor Plan
1-0102-EFAS-C003		Fire Alarm, Electrical Buidling, Riser Diagram Detection Circuits
1-0102-EFAS-C004		Fire Alarm, Electrical Building, Riser Diagram Notification Circuits
1-0102-EFAS-C005		Fire Alarm Layout, Chemical Building, Basement Plan
1-0102-EFAS-C006		Fire Alarm Layout, Chemical Building, Ground Floor Plan
1-0102-EFAS-C007		Fire Alarm Layout, Chemical Building, Upper Level Plan
1-0102-EFAS-C008		Fire Alarm, Chemical Building, Riser Diagram Detection Circuits
1-0102-EFAS-C009		Fire Alarm, Chemical Building, Riser Diagram Notification Circuits
1-0102-EGAD-C001	001	Power Layout, Electrical Building, Electrical Room Layout
1-0102-EGAD-C001	002	Power Layout, Electrical Building, Electrical Room Layout
1-0102-EGAD-C002		Power Layout, Electrical Building, Basement Plan
1-0102-EGAD-C003		Power Layout, Electrical Building, Ground Floor Plan
1-0102-EGAD-C004		Power Layout, Electrical Building, Roof Plan
1-0102-EGAD-C005		Power Layout, Chemical Building, Basement Plan
1-0102-EGAD-C006		Power Layout, Chemical Building, Ground Floor Plan
1-0102-EGAD-C007		Power Layout, Chemical Building, Roof Plan & Mechanical Room 2
1-0102-EGAD-C008	001	Heat Tracing Layout, Chemical Building, Basement Plan
1-0102-EGAD-C008	002	Heat Tracing Layout, Chemical Building, Basement Plan
1-0102-EGRD-C001		Grounding, Chemical/Electrical Building, Riser Diagram
1-0102-EGRD-C002		Grounding Layout, Electrical Building, Ground Floor Plan
1-0102-EGRD-C003		Grounding Layout, Chemical Building, Ground Floor Plan
1-0102-EGRD-C004		Grounding Layout, Electrical Building, Basement Plan
1-0102-EGRD-C005		Lightning Protection Layout, Electrical Building, Roof Plan
1-0102-EGRD-C006		Lightning Protection Layout, Chemical Building, Roof Plan
1-0102-EHLC-C001		Hazardous Location, Electrical Building, Basement Plan
1-0102-EHLC-C002		Hazardous Location, Electrical Building, Ground Floor Plan
1-0102-EHLC-C003		Hazardous Location, Chemical Building, Basement Plan
1-0102-EHLC-C004		Hazardous Location, Chemical Building, Ground Floor Plan
1-0102-EHLC-C005		Hazardous Location, Chemical Building, Upper Level Plan
1-0102-ELTG-C001		Lighting Layout, Electrical Building, Basement Plan
1-0102-ELTG-C002	001	Lighting Layout, Electrical Building, Ground Floor Plan
1-0102-ELTG-C002	002	Lighting Layout, Electrical Building, Ground Floor Plan
1-0102-ELTG-C003	001	Lighting Layout, Chemical Building, Basement Plan
1-0102-ELTG-C003	002	Lighting Layout, Chemical Building, Basement Plan
1-0102-ELTG-C004	001	Lighting Layout, Chemical Building, Ground Floor Plan
1-0102-ELTG-C004	002	Lighting Layout, Chemical Building, Ground Floor Plan

Drawing No.	Sheet No.	Description
1-0102-ELTG-C005		Lighting Layout, Chemical Building, Upper Level Plan
1-0102-ELTG-C006	001	Interior Lighting Control, Chemical/Electrical Building, CP-C725 Schematic and Wiring Diagram
1-0102-ELTG-C006	002	Interior Lighting Control, Chemical/Electrical Building, CP-C725 Schematic and Wiring Diagram
1-0102-ELTG-C006	003	Interior Lighting Control, Chemical/Electrical Building, CP-C725 Schematic and Wiring Diagram
1-0102-ELTG-C007		Exterior Lighting Control, Chemical/Electrical Building, LC-C726 Schematic and Wiring Diagram
1-0102-ELTG-C008		Lighting Layout, Chemical Building, Stair C-101
1-0102-EMCL-C101		Motor Starter Schematic, Chemical Building, P-C111 Bioreactor Ferric Chloride Pump
1-0102-EMCL-C102		Motor Starter Schematic, Chemical Building, P-C112 Bioreactor Ferric Chloride Pump
1-0102-EMCL-C103		Motor Starter Schematic, Chemical Building, P-C113 Bioreactor Ferric Chloride Pump
1-0102-EMCL-C104		Motor Starter Schematic, Chemical Building, P-C114 Bioreactor Ferric Chloride Pump
1-0102-EMCL-C105		Motor Starter Schematic, Chemical Building, P-C115 Bioreactor Ferric Chloride Pump
1-0102-EMCL-C106		Motor Starter Schematic, Chemical Building, P-C116 Bioreactor Ferric Chloride Pump
1-0102-EMCL-C107		Motor Starter Schematic, Chemical Building, P-C121 HRC Ferric Chloride Pump
1-0102-EMCL-C108		Motor Starter Schematic, Chemical Building, P-C122 HRC Ferric Chloride Pump
1-0102-EMCL-C109		Motor Starter Schematic, Chemical Building, P-C123 HRC Ferric Chloride Pump
1-0102-EMCL-C110		Motor Starter Schematic, Chemical Building, P-C131 HRC Ferric Chloride Pump
1-0102-EMCL-C111		Motor Starter Schematic, Chemical Building, P-C132 HRC Ferric Chloride Pump
1-0102-EMCL-C112		Motor Starter Schematic, Chemical Building, P-C133 HRC Ferric Chloride Pump
1-0102-EMCL-C201		Motor Starter Schematic, Chemical Building, P-C211 Sodium Hypochlorite Pump
1-0102-EMCL-C202		Motor Starter Schematic, Chemical Building, P-C212 Sodium Hypochlorite Pump
1-0102-EMCL-C203		Motor Starter Schematic, Chemical Building, P-C221 Sodium Hypochlorite Pump
1-0102-EMCL-C204		Motor Starter Schematic, Chemical Building, P-C222 Sodium Hypochlorite Pump
1-0102-EMCL-C205		Motor Starter Schematic, Chemical Building, P-C223 Sodium Hypochlorite Pump
1-0102-EMCL-C206		Motor Starter Schematic, Chemical Building, P-C231 Sodium Hydroxide Pump
1-0102-EMCL-C207		Motor Starter Schematic, Chemical Building, P-C232 Sodium Hydroxide Pump
1-0102-EMCL-C208		Motor Starter Schematic, Chemical Building, P-C241 Sodium Hypochlorite Pump
1-0102-EMCL-C209		Motor Starter Schematic, Chemical Building, P-C242 Sodium Hypochlorite Pump
1-0102-EMCL-C301		Motor Starter Schematic, Chemical Building, P-C311 Sodium Bisulphite Pump
1-0102-EMCL-C302		Motor Starter Schematic, Chemical Building, P-C312 Sodium Bisulphite Pump

Drawing No.	Sheet No.	Description
1-0102-EMCL-C401		Motor Starter Schematic, Chemical Building, P-C411 FPS/HRC RDT Post Dilution Polymer Pump
1-0102-EMCL-C402		Motor Starter Schematic, Chemical Building, P-C412 FPS/HRC RDT Post Dilution Polymer Pump
1-0102-EMCL-C403		Motor Starter Schematic, Chemical Building, P-C413 FPS/HRC RDT Post Dilution Polymer Pump
1-0102-EMCL-C404		Motor Starter Schematic, Chemical Building, P-C414 FPS/HRC RDT Post Dilution Polymer Pump
1-0102-EMCL-C405		Motor Starter Schematic, Chemical Building, P-C415 FPS/HRC RDT Post Dilution Polymer Pump
1-0102-EMCL-C406		Motor Starter Schematic, Chemical Building, P-C431 WAS RDT Post Dilution Polymer Pump
1-0102-EMCL-C407		Motor Starter Schematic, Chemical Building, P-C432 WAS RDT Post Dilution Polymer Pump
1-0102-EMCL-C408		Motor Starter Schematic, P-C433 WAS RDT Post Dilution Polymer Pump
1-0102-EMCL-C409		Motor Starter Schematic, P-C451 HRC Post Dilution Polymer Pump
1-0102-EMCL-C410		Motor Starter Schematic, P-C452 HRC Post Dilution Polymer Pump
1-0102-EMCL-C411		Motor Starter Schematic, P-C453 HRC Post Dilution Polymer Pump
1-0102-EMCL-C412		Motor Starter Schematic, P-C471 Secondary Clarifier Post Dilution Polymer Pump
1-0102-EMCL-C413		Motor Starter Schematic, P-C472 Secondary Clarifier Post Dilution Polymer Pump
1-0102-EMCL-C501		Motor Starter Schematic, Chemical Building, P-C501 Sump Pump
Volume 10B Cover Page		Cover Page
1-0102-EMCL-C502		Motor Starter Schematic, Chemical Building, P-C502 Sump Pump
1-0102-EMCL-C611		Motor Starter Schematic, EF-C613, Chemical Loading Platform Exhaust Fan 1
1-0102-EMCL-C612		Motor Starter Schematic, EF-C614, Chemical Loading Platform Exhaust Fan 2
1-0102-EMCL-C613		Motor Starter Schematic, EF-C615, Chemical Containment Room Exhaust Fan 1
1-0102-EMCL-C614		Motor Starter Schematic, EF-C616, Chemical Containment Room Exhaust Fan 2
1-0102-EMCL-C621		Motor Starter Schematic, EF-C621, Gallery 6, 7 & Cable Service Room 1 Exhaust Fan
1-0102-EMCL-C651	001	Motor Starter Schematic, Chemical Building, EF-C651 Mechanical Room 1 Exhaust Fan
1-0102-EMCL-C651	002	Motor Starter Schematic, Chemical Building, EF-C651 Mechanical Room 1 Exhaust Fan
1-0102-EMCL-C652	001	Motor Starter Schematic, Chemical Building, EF-C652 Mechanical Room 2 Exhaust Fan
1-0102-EMCL-C652	002	Motor Starter Schematic, Chemical Building, EF-C652 Mechanical Room 2 Exhaust Fan
1-0102-EMCL-C661	001	Motor Starter Schematic, Chemical Building, EF-C661 Generator Room Exhaust Fan
1-0102-EMCL-C661	002	Motor Starter Schematic, Chemical Building, EF-C661 Generator Room Exhaust Fan
1-0102-EMCL-C901		Starter Schematic, Chemical/Electrical Building, XFMR-C721 Feeder

Drawing No.	Sheet No.	Description
1-0102-ENET-C001		Network Diagram, Electrical Building, SGR-C701, SGR-C702 & SGR-C790 Relay Communication
1-0102-ESCH-C001	001	Chemical/Electrical Building, Panel Schedules & Details
1-0102-ESCH-C001	002	Chemical/Electrical Building, Panel Schedules & Details
1-0102-ESLD-C001		Single Line Diagram, Electrical Building, 12.47kV Main Distribution SGR-C701
1-0102-ESLD-C002		Single Line Diagram, Electrical Building, 12.47kV Main Distribution SGR-C702
1-0102-ESLD-C003		Single Line Diagram, Electrical Building 12.47kV Standby Distribution SGR-C790
1-0102-ESLD-C004		Single Line Diagram, Chemical/Electrical Building, 600V Distribution SGR-C703 and SGR-C704
1-0102-ESLD-C005		Single Line Diagram, Chemical Building, Motor Control Centre MCC-C710
1-0102-ESLD-C006		Single Line Diagram, Chemical Building, Motor Control Centre MCC-C720
1-0102-ESLD-C007		Single Line Diagram, Electrical Building, Motor Control Centre MCC-C730 & MCC-C740
1-0102-ESLD-C010		Single Line Diagram, Chemical Building, DC Service & Panel Schedule
1-0102-ETLD-C001		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker SGR-C701.MCB
1-0102-ETLD-C002		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Tie Breaker CB-C701-T
1-0102-ETLD-C003		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker CB-C790-3
1-0102-ETLD-C004		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker CB-R701 & CB-S701
1-0102-ETLD-C005		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker CB-S730 & CB-G750
1-0102-ETLD-C006		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker CB-C703 & SPARE CB
1-0102-ETLD-C007		Three Line Diagram, Electrical Building, 12.47kV Standby Distribution - Breaker CB-C790-1
1-0102-ETLD-C008		Three Line Diagram, Electrical Building, 12.47kV Standby Distribution - Breaker CB-C790-2
1-0102-ETLD-C009	001	Three Line Diagram, Electrical Building, 12.47kV Standby Distribution - Breaker CB-C572
1-0102-ETLD-C009	002	Three Line Diagram, Electrical Building, 12.47kV Standby Distribution - Breaker CB-C572
1-0102-ETLD-C010	001	Three Line Diagram, Electrical Building, 12.47kV Standby Distribution - Breaker CB-C582
1-0102-ETLD-C010	002	Three Line Diagram, Electrical Building, 12.47kV Standby Distribution - Breaker CB-C582
1-0102-ETLD-C011		Three Line Diagram, Electrical Building, 12.47kV Standby Distribution - Breaker CB-C793
1-0102-ETLD-C012		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker SGR-C702.MCB
1-0102-ETLD-C013		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker CB-C790-4
1-0102-ETLD-C014		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker CB-R702 & CB-S702
1-0102-ETLD-C015		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker CB-S740 & CB-G760
1-0102-ETLD-C016		Three Line Diagram, Electrical Building, 12.47kV Main Distribution - Breaker CB-C704 & SPARE

Drawing No.	Sheet No.	Description
1-0102-EWDG-C001		Wiring Diagram, Chemical/Electrical Building, CU-C641, C642, C643 & ACU-C641, C642, C643
1-0102-EWDG-C002		Wiring Diagram, Chemical/Electrical Building, CU-C644, C645 & ACU-C644, C645
1-0102-EWDG-C003		Wiring Diagram, Chemical/Electrical Building, CU-C646 & ACU-C646
1-0102-EWDG-C004		Wiring Diagram, Chemical/Electrical Building, Electric Conventors, Radiant and Unit Heaters
1-0102-EWDG-C005		Wiring Diagram, Chemical/Electrical Building, Exhaust Fan Drain Heat Trace, Temp. Controller TC-C7111
1-0102-EWDG-C006		Wiring Diagram, Chemical/Electrical Building, Air Plenum Roof Drain Heat Trace, Temp. Controller TC-C7112
1-0102-EWDG-C007		Wiring Diagram, Chemical/Electrical Building, Diesel Fuel Piping Heat Trace, Temp. Controller TC-C7241
1-0102-EWDG-C008	001	DC Schematic, Electrical Building, SGR-C701 Main Switchgear Protection
1-0102-EWDG-C008	002	DC Schematic, Electrical Building, SGR-C701 Main Switchgear Protection
1-0102-EWDG-C009	001	DC Schematic, Electrical Building, SGR-C701 Bus Differential Protection
1-0102-EWDG-C009	002	DC Schematic, Electrical Building, SGR-C701 Bus Differential Protection
1-0102-EWDG-C010	001	DC Schematic, Electrical Building, SGR-C701 CB-C703 Feeder Protection
1-0102-EWDG-C010	002	DC Schematic, Electrical Building, SGR-C701 CB-C703 Feeder Protection
1-0102-EWDG-C011		DC Schematic, Electrical Building, CB-C701-T Switchgear Protection
1-0102-EWDG-C012	001	DC Schematic, Electrical Building, CB-C790-3 Generator Incoming Protection
1-0102-EWDG-C012	002	DC Schematic, Electrical Building, CB-C790-3 Generator Incoming Protection
1-0102-EWDG-C013	001	DC Schematic, Electrical Building, SGR-C790 CB-C572 Protection
1-0102-EWDG-C013	002	DC Schematic, Electrical Building, SGR-C790 CB-C572 Protection
1-0102-EWDG-C013	003	DC Schematic, Electrical Building, SGR-C790 CB-C572 Protection
1-0102-EWDG-C014		DC Schematic, Electrical Building, Breaker SGR-C701.MCB Schematic
1-0102-EWDG-C015		DC Schematic, Electrical Building, Breaker CB-C790-3 Schematic
1-0102-EWDG-C016		DC Schematic, Electrical Building, Breaker CB-C701-T Schematic
1-0102-EWDG-C017		DC Schematic, Electrical Building, Breaker CB-C703 Schematic
1-0102-EWDG-C018	001	DC Schematic, Electrical Building, SGR-C790 CB-C790-1 Protection
1-0102-EWDG-C018	002	DC Schematic, Electrical Building, SGR-C790 CB-C790-1 Protection
1-0102-EWDG-C018	003	DC Schematic, Electrical Building, SGR-C790 CB-C790-1 Protection
1-0102-EWDG-C019		DC Schematic, Electrical Building, Breaker CB-C790-1 Schematic
1-0102-EWDG-C020	001	DC Schematic, Electrical Building, SGR-C790 CB-Y793 Load Bank Protection

Drawing No.	Sheet No.	Description
1-0102-EWDG-C020	002	DC Schematic, Electrical Building, SGR-C790 CB-Y793 Load Bank Protection
1-0102-EWDG-C021		DC Schematic, Electrical Building, Breaker CB-Y793 Schematic
1-0102-EWDG-C022		DC Schematic, Electrical Building, Breaker CB-C572 Schematic
1-0102-EWDG-C023	001	DC Schematic, Electrical Building, Panel CP-C794
1-0102-EWDG-C023	002	DC Schematic, Electrical Building, Panel CP-C794
1-0102-EWDG-C024		DC Schematic, Electrical Building, 15 kV Switchgears 125V DC Distribution
1-0102-EWDG-C025		Cable Connection Diagram, Electrical Building, SGR-C701.MCB Switchgear Cell
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-C001		Control System Architecture, Chemical/Electrical Building
1-0102-ACBD-C001		Cabinet Layout, Chemical/Electrical Building, PSP-C820, Power Supply Cabinet
1-0102-ACBD-C002	001	Power Distribution Schematic, Chemical/Electrical Building, PSP-C820, Power Supply Cabinet
1-0102-ACBD-C002	002	Power Distribution Schematic, Chemical/Electrical Building, PSP-C820, Power Supply Cabinet
1-0102-ACBD-C002	003	Power Distribution Schematic, Chemical/Electrical Building, PSP-C820, Power Supply Cabinet
1-0102-ACBD-C002	004	Power Distribution Schematic, Chemical/Electrical Building, PSP-C820, Power Supply Cabinet
1-0102-ACBD-C002	005	Power Distribution Schematic, Chemical/Electrical Building, PSP-C820, Power Supply Cabinet
1-0102-ACBD-C003	001	Cabinet Layout, Chemical/Electrical Building, CP-C820, PLC Cabinet
1-0102-ACBD-C003	002	Cabinet Layout, Chemical/Electrical Building, CP-C820, PLC Cabinet
1-0102-ACBD-C004	001	Power Distribution Schematic, Chemical/Electrical Building, CP-C820, PLC Cabinet
1-0102-ACBD-C004	002	Power Distribution Schematic, Chemical/Electrical Building, CP-C820, PLC Cabinet
1-0102-ACBD-C005		Wiring Diagram, Chemical/Electrical Building, CP-C820, Miscellaneous Wiring
1-0102-ACBD-C006		Cabinet Layout, Chemical/Electrical Building, PSP-C821, Power Supply Cabinet
1-0102-ACBD-C007	001	Power Distribution Schematic, Chemical/Electrical Building, PSP-C821, Power Supply Cabinet
1-0102-ACBD-C007	002	Power Distribution Schematic, Chemical/Electrical Building, PSP-C821, Power Supply Cabinet
1-0102-ACBD-C007	003	Power Distribution Schematic, Chemical/Electrical Building, PSP-C821, Power Supply Cabinet
1-0102-ACBD-C007	004	Power Distribution Schematic, Chemical/Electrical Building, PSP-C821, Power Supply Cabinet
1-0102-ACBD-C010	001	Cabinet Layout, Chemical/Electrical Building, CP-C821, Process RIO Cabinet - RIO-C800-1
1-0102-ACBD-C010	002	Cabinet Layout, Chemical/Electrical Building, CP-C821, Process RIO Cabinet - RIO-C800-1
1-0102-ACBD-C011		Power Distribution Schematic, Chemical/Electrical Building, CP-C821, Process RIO Cabinet - RIO-C800-1
1-0102-ACBD-C012	001	Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Discrete Inputs

Drawing No.	Sheet No.	Description
1-0102-ACBD-C012	002	Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Discrete Inputs
1-0102-ACBD-C012	003	Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Discrete Inputs
1-0102-ACBD-C012	004	Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Discrete Inputs
1-0102-ACBD-C012	005	Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Discrete Inputs
1-0102-ACBD-C013	001	Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Discrete Output
1-0102-ACBD-C013	002	Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Discrete Output
1-0102-ACBD-C014		Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Analog Input
1-0102-ACBD-C015	001	Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Analog Output
1-0102-ACBD-C015	002	Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Analog Output
1-0102-ACBD-C016		Wiring Diagram, Chemical/Electrical Building, CP-C821, RIO-C800-1 - Miscellaneous Wring
1-0102-ACBD-C017	001	Cabinet Layout, Chemical/Electrical Building, CP-C822, Process RIO Cabinet - RIO-C800-2
1-0102-ACBD-C017	002	Cabinet Layout, Chemical/Electrical Building, CP-C822, Process RIO Cabinet - RIO-C800-2
1-0102-ACBD-C018		Power Distribution Schematic, Chemical/Electrical Building, CP-C822, Process RIO Cabinet - RIO-C800-2
1-0102-ACBD-C019	001	Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Discrete Inputs
1-0102-ACBD-C019	002	Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Discrete Inputs
1-0102-ACBD-C019	003	Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Discrete Inputs
1-0102-ACBD-C019	004	Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Discrete Inputs
1-0102-ACBD-C019	005	Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Discrete Inputs
1-0102-ACBD-C020	001	Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Discrete Output
1-0102-ACBD-C020	002	Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Discrete Output
1-0102-ACBD-C021		Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Analog Inputs
1-0102-ACBD-C022	001	Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Analog Output
1-0102-ACBD-C022	002	Wiring Diagram, Chemical/Electrical Building, CP-C822, RIO-C800-2 - Analog Output
1-0102-ACBD-C024	001	Cabinet Layout, Electrical Building, CP-C823, Process RIO Cabinet - RIO-C800-3
1-0102-ACBD-C024	002	Cabinet Layout, Electrical Building, CP-C823, Process RIO Cabinet - RIO-C800-3
1-0102-ACBD-C025	001	Power Distribution Schematic, Electrical Building, CP-C823, Process RIO Cabinet - RIO-C800-3
1-0102-ACBD-C025	002	Power Distribution Schematic, Electrical Building, CP-C823, Process RIO Cabinet - RIO-C800-3
1-0102-ACBD-C025	003	Power Distribution Schematic, Electrical Building, CP-C823, Process RIO Cabinet - RIO-C800-3

Drawing No.	Sheet No.	Description
1-0102-ACBD-C026	001	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Discrete Inputs
1-0102-ACBD-C026	002	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Discrete Inputs
1-0102-ACBD-C026	003	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Discrete Inputs
1-0102-ACBD-C026	004	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Discrete Inputs
1-0102-ACBD-C027		Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Discrete Output
1-0102-ACBD-C028	001	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Analog Inputs
1-0102-ACBD-C028	002	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Analog Inputs
1-0102-ACBD-C029	001	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Analog Outputs
1-0102-ACBD-C029	002	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Analog Outputs
1-0102-ACBD-C030	001	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Miscellaneous Wring
1-0102-ACBD-C030	002	Wiring Diagram, Electrical Building, CP-C823, RIO-C800-3 - Miscellaneous Wiring
1-0102-ACBD-C041	001	Cabinet Layout, Chemical/Electrical Building, CP-C826, HVAC PLC Cabinet - PLC-C806
1-0102-ACBD-C041	002	Cabinet Layout, Chemical/Electrical Building, CP-C826, HVAC PLC Cabinet - PLC-C806
1-0102-ACBD-C042		Power Distribution Schematic, Chemical/Electrical Building, CP-C826, HVAC PLC Cabinet - PLC-C806
1-0102-ACBD-C043	001	Wiring Diagram, Chemical/Electrical Building, CP-C826, PLC-C806 - Discrete Inputs
1-0102-ACBD-C043	002	Wiring Diagram, Chemical/Electrical Building, CP-C826, PLC-C806 - Discrete Inputs
1-0102-ACBD-C044		Wiring Diagram, Chemical/Electrical Building, CP-C826, PLC-C806- Discrete Outputs
1-0102-ACBD-C045	001	Wiring Diagram, Chemical/Electrical Buliding, CP-C826, PLC-C806 - Analog Inputs
1-0102-ACBD-C045	002	Wiring Diagram, Chemical/Electrical Building, CP-C826, PLC-C806 - Analog Inputs
1-0102-ACBD-C046		Wiring Diagram, Chemical/Electrical Building, CP-C826, PLC-C806 - Analog Outputs
1-0102-ACBD-C048	001	Cabinet Layout, Chemical/Electrical Building, CP-C827, HVAC RIO Cabinet - RIO-C806-1
1-0102-ACBD-C048	002	Cabinet Layout, Chemical/Electrical Building, CP-C827, HVAC RIO Cabinet - RIO-C806-1
1-0102-ACBD-C049		Power Distribution Schematic, Chemical/Electrical Building, CP-C827, HVAC RIO Cabinet - RIO-C806-1
1-0102-ACBD-C050	001	Wiring Diagram, Chemical/Electrical Building, CP-C827, RIO-C806-1 - Discrete Inputs
1-0102-ACBD-C050	002	Wiring Diagram, Chemical/Electrical Building, CP-C827, RIO-C806-1 - Discrete Inputs
1-0102-ACBD-C051		Wiring Diagram, Chemical/Electrical Building, CP-C827, RIO-C806-1 - Discrete Outputs
1-0102-ACBD-C052	001	Wiring Diagram, Chemical/Electrical Building, CP-C827, RIO-C806-1 - Analog Inputs
1-0102-ACBD-C052	002	Wiring Diagram, Chemical/Electrical Building, CP-C827, RIO-C806-1 - Analog Inputs

Drawing No.	Sheet No.	Description
1-0102-ACBD-C053		Wiring Diagram, Chemical/Electrical Building, CP-C827, RIO-C806-1 - Analog Outputs
1-0102-ACBD-C061		Cabinet Layout, Chemical Building, LCP-C0201 Chemical Fill Panel No.1
1-0102-ACBD-C062		Wiring Diagram, Chemical Building, LCP-C0201 Chemical Fill Panel No.1
1-0102-ACBD-C063		Cabinet Layout, Chemical Building, LCP-C0202 Chemical Fill Panel No.2
1-0102-ACBD-C064		Wiring Diagram, Chemical Building, LCP-C0202 Chemical Fill Panel No.2
1-0102-ACBD-C071		Cabinet Layout, Chemical/Electrical Building, JBA-C831-1, JBA-C831-2 Polymer System Junction Boxes
1-0102-ACBD-C072	001	Wiring Diagram, Chemical/Electrical Building, JBA-C831-1, JBA-C831-2 Polymer System Junction Boxes
1-0102-ACBD-C072	002	Wiring Diagram, Chemical/Electrical Building, JBA-C831-1, JBA-C831-2 Polymer System Junction Boxes
1-0102-ACBD-C073		Cabinet Layout, Chemical/Electrical Building, 24VDC Power Supply Junction Boxes
1-0102-ACBD-C074		Wiring Diagram, Chemical/Electrical Building, 24VDC Power Supply Junction Boxes
1-0102-ACBD-C075		Cabinet Layout, Chemical/Electrical Building, JBA-C832, JBA-C833 Chemical Containment Room Junction Boxes
1-0102-ACBD-C076		Wiring Diagram, Chemical/Electrical Building, JBA-C832, JBA-C833 Chemical Containment Room Junction Boxes
1-0102-ACBD-C079		Cabinet Layout, Chemical Building, Profibus PA Segment Protector Device Panels
1-0102-ACBD-C081	001	Cabinet Layout, Chemical/Electrical Building, Junction Boxes
1-0102-ACBD-C081	002	Cabinet Layout, Chemical/Electrical Building, Junction Boxes
1-0102-ACBD-C081	003	Cabinet Layout, Chemical/Electrical Building, Junction Boxes
1-0102-ACBD-C082		Cabinet Layout, Chemical Building, Gas Unit Heater Junction Boxes
1-0102-ACBD-C083		Cabinet Layout, Chemical Building, Electric Unit Heater Junction Boxes
1-0102-ACBD-C084		Cabinet Layout, Chemical Building, JBA-C0101 Level Transmitter Junction Box
1-0102-ACBD-C901		Cabinet Layout, Chemical/Electrical Building, Network Cabinet NP-C900
1-0102-ACBD-C902		Power Distribution Schematic, Chemical/Electrical Building, Network Cabinet NP-C900
1-0102-AGAD-C001		Equipment Layout, Chemical/Electrical Building, Automation Room Layout
1-0102-AGAD-C002		Instrument Location Plan, Chemical/Electrical Building, Mechanical Room 1 Layout
1-0102-AGAD-C003		Instrument Location Plan, Chemical/Electrical Building, Mechanical Room 2 Layout
1-0102-AGAD-C010		Instrument Location Plan, Chemical/Electrical Building, Chemical Containment Room - Northwest
1-0102-AGAD-C011		Instrument Location Plan, Chemical/Electrical Building, Chemical Containment Room - Southwest
1-0102-AGAD-C012		Instrument Location Plan, Chemical/Electrical Building, Chemical Containment Room - East
1-0102-AGAD-C013		Instrument Location Plan, Chemical/Electrical Building, Partial Basement Plan

Drawing No.	Sheet No.	Description
1-0102-AGAD-C014		Instrument Location Plan, Chemical/Electrical Building, Generator Room
1-0102-AGAD-C015		Instrument Location Plan, Chemical/Electrical Building, Chemical Loading Platform & Vestibule 2
1-0102-AGAD-C016		Instrument Location Plan, Chemical/Electrical Building, Chemical Fill Stations & Holding Tank
1-0102-AGAD-C017		Instrument Location Plan, Chemical/Electrical Building, Roof Plan
1-0102-AIFS-C001	001	Profibus Segment Diagram, Chemical Building - Branch 1, Profibus Segments ND-C840-1
1-0102-AIFS-C001	002	Profibus Segment Diagram, Chemical Building - Branch 1, Profibus Segments ND-C840-1
1-0102-AIFS-C002	001	Profibus Segment Diagram, Chemical Loading Platform - Branch 1, Segment Protector NSP-C850
1-0102-AIFS-C002	002	Profibus Segment Diagram, Chemical Loading Platform - Branch 1, Segment Protector NSP-C850
1-0102-AIFS-C003		Profibus Segment Diagram, Chemical Containment Room - Branch 1, Segment Protector NSP-C851
1-0102-AIFS-C004		Profibus Segment Diagram, Chemical Containment Room - Branch 1, Segment Protector NSP-C852
1-0102-AIFS-C005		Profibus Segment Diagram, Chemical Containment Room - Branch 1, Segment Protector NSP-C853
1-0102-AIFS-C010		Profibus Segment Diagram, Chemical Building - Branch 2, Profibus Segments ND-C841
1-0102-AIFS-C011		Profibus Segment Diagram, Chemical Loading Platform - Branch 2, Segment Protector NSP-C860
1-0102-AIFS-C012		Profibus Segment Diagram, Chemical Containment Room - Branch 2, Segment Protector NSP-C861
1-0102-AIFS-C013		Profibus Segment Diagram, Chemical Containment Room - Branch 2, Segment Protector NSP-C862
1-0102-AILD-C001		Loop Diagram, LT-C0101, LSH-C0102 and XS-C0103, Chemical Containment Holding Tank TK-C010 Instruments
1-0102-AILD-C002	001	Loop Diagram, LCP-C0201, Chemical Fill Panel No.1
1-0102-AILD-C002	002	Loop Diagram, LCP-C0201, Chemical Fill Panel No.1
1-0102-AILD-C002	003	Loop Diagram, LCP-C0201, Chemical Fill Panel No.1
1-0102-AILD-C003	001	Loop Diagram, LCP-C0202, Chemical Fill Panel No.2
1-0102-AILD-C003	002	Loop Diagram, LCP-C0202, Chemical Fill Panel No.2
1-0102-AILD-C003	003	Loop Diagram, LCP-C0202, Chemical Fill Panel No.2
1-0102-AILD-C004		Loop Diagram, LSH-C0111 & LSHH-C0111, Chemical Ductbank Sump Level
1-0102-AILD-C005		Loop Diagram, HS-C0121, Chemical Hauler Push Button
1-0102-AILD-C101		Loop Diagram, XV-C1012 Ferric Chloride Tank TK-C101 Supply Valve
1-0102-AILD-C102		Loop Diagram, XV-C1013 Ferric Chloride Tank TK-C101 Discharge Valve
1-0102-AILD-C103		Loop Diagram, XV-C1022 Ferric Chloride Tank TK-C102 Supply Valve
1-0102-AILD-C104		Loop Diagram, XV-C1023 Ferric Chloride Tank TK-C102 Discharge Valve
1-0102-AILD-C105		Loop Diagram, XV-C1032 Ferric Chloride Tank TK-C103 Supply Valve
1-0102-AILD-C106		Loop Diagram, XV-C1033 Ferric Chloride Tank TK-C103 Discharge Valve
1-0102-AILD-C107		Loop Diagram, LSH-C1811 & LSHH-C1811, Ferric Chloride Spill Sump Level

Drawing No.	Sheet No.	Description
1-0102-AILD-C108		Loop Diagram, PSH-C1111, PSH-C1121 and PSH-C1131, Ferric Chloride Pump Skid No.1 Pressure Switches
1-0102-AILD-C109		Loop Diagram, PSH-C1141, PSH-C1151 and PSH-C1161, Ferric Chloride Pump Skid No.2 Pressure Switches
1-0102-AILD-C110		Loop Diagram, PSH-C1211, PSH-C1221 and PSH-C1231, Ferric Chloride Pump Skid No.3 Pressure Switches
1-0102-AILD-C111		Loop Diagram, PSH-C1311, PSH-C1321 and PSH-C1331, Ferric Chloride Pump Skid No.4 Pressure Switches
1-0102-AILD-C112		Loop Diagram, FIT-C1171, FIT-C1172 and FIT-C1173, Ferric Chloride Flow Transmitters
1-0102-AILD-C113		Loop Diagram, FIT-C1241 and FIT-C1341, Ferric Chloride Flow Transmitters
1-0102-AILD-C201		Loop Diagram, XV-C2012 Sodium Hypochlorite Tank TK-C201 Supply Valve
1-0102-AILD-C202		Loop Diagram, XV-C2013 Sodium Hypochlorite Tank TK-C201 Discharge Valve
1-0102-AILD-C203		Loop Diagram, XV-C2022 Sodium Hypochlorite Tank TK-C202 Supply Valve
1-0102-AILD-C204		Loop Diagram, XV-C2023 Sodium Hypochlorite Tank TK-C202 Discharge Valve
1-0102-AILD-C205		Loop Diagram, XV-C2052 Sodium Hydroxide Tank TK-C205 Supply Valve
1-0102-AILD-C206		Loop Diagram, XV-C2053 Sodium Hydroxide Tank TK-C205 Discharge Valve
1-0102-AILD-C207		Loop Diagram, LSH-C2811 & LSHH-C2811, Sodium Hypochlorite Spill Sump Level
1-0102-AILD-C208		Loop Diagram, PSH-C2311 & PSH-C2321, Sodium Hypochlorite Pump Skid Pressure Switches
1-0102-AILD-C209		Loop Diagram, PSH-C2411 & PSH-C2421, Sodium Hypochlorite Pump Skid No.1 Pressure Switches
1-0102-AILD-C210		Loop Diagram, PSH-C2111 & PSH-C2121, Sodium Hypochlorite Pump Skid No.2 Pressure Switches
1-0102-AILD-C211		Loop Diagram, PSH-C2211, PSH-C2221 & PSH-C2231, Sodium Hypochlorite Pump Skid No.3 Pressure Switches
1-0102-AILD-C212		Loop Diagram, XV-C2223 Sodium Hypochlorite Standby Pump P-C222 Valve
1-0102-AILD-C213		Loop Diagram, XV-C2224 Sodium Hypochlorite Standby Pump P-C222 Valve
1-0102-AILD-C214		Loop Diagram, TSH-C2054 Sodium Hydroxide Bulk Storage Tank TK-C205 Temperature Switch
1-0102-AILD-C215		Loop Diagram, FIT-C2131, FIT-C2241 and FIT-C2242, Sodium Hypochlorite Flow Transmitters
1-0102-AILD-C216		Loop Diagram, FIT-C2312, FIT-C2322 and FIT-C2431, Sodium Hypochlorite Flow Transmitters
1-0102-AILD-C301		Loop Diagram, XV-C3012, Sodium Bisulphite Tank TK-C301 Supply Valve
1-0102-AILD-C302		Loop Diagram, XV-C3013, Sodium Bisulphite Tank TK-C301 Discharge Valve
1-0102-AILD-C303		Loop Diagram, LSH-C3811 & LSHH-C3811, Sodium Bisulphite Spill Sump Level
1-0102-AILD-C304		Loop Diagram, PSH-C3111 & PSH-C3121, Sodium Bisulphite Pump Skid Pressure Switches

Drawing No.	Sheet No.	Description
1-0102-AILD-C305		Loop Diagram, FV-C3104, Sodium Bisulphite Flushing Water Valve
1-0102-AILD-C306		Loop Diagram, TSH-C3014, Sodium Bisulphite Tank TK-C301 Temperature Switch
1-0102-AILD-C307		Loop Diagram, FIT-C3104, FIT-C3112 & FIT-C3122, Flushing Water & Sodium Bisulphite Flow Transmitters
1-0102-AILD-C401		Loop Diagram, LCP-C400, FSL RDT Dry Polymer Mixing Control Panel
1-0102-AILD-C402		Loop Diagram, LSH-C4811 & LSHH-C4811, South Upper Level FPS/HRC Polymer Spill Sump Level
1-0102-AILD-C403		Loop Diagram, LSH-C4821 & LSHH-C4821, South Lower Level FPS/HRC Polymer Spill Sump Level
1-0102-AILD-C404		Loop Diagram, PSH-C4113 & PSH-C4123, FPS/HRC Polymer Pump Skid No.1 Pressure Switches
1-0102-AILD-C405		Loop Diagram, FV-C4162, FPS/HRC Polymer Skid No.1 Flushing Water Valve
1-0102-AILD-C406		Loop Diagram, PSH-C4133, PSH-C4143 and PSH-C4153, FPS/HRC Polymer Pump Skid No.2 Pressure Switches
1-0102-AILD-C407		Loop Diagram, FV-C4172, FPS/HRC Polymer Pump P-C413 Flushing Water Valve
1-0102-AILD-C408		Loop Diagram, FV-C4182, FPS/HRC Polymer Pump P-C415 Flushing Water Valve
1-0102-AILD-C409		Loop Diagram, XV-C4145, FPS/HRC Polymer Standby Pump P-C414 Valve
1-0102-AILD-C410		Loop Diagram, XV-C4146, FPS/HRC Polymer Standby Pump P-C414 Valve
1-0102-AILD-C411		Loop Diagram, FIT-C4161, FIT-C4171 & FIT-C4181, FPS/HRC Polymer Flow Transmitters
1-0102-AILD-C412		Loop Diagram, FIT-C4162, FIT-C4172 & FIT-C4182, FPS/HRC Polymer Flow Transmitters
1-0102-AILD-C413		Loop Diagram, FIT-C4051 & FIT-C4251, Polymer Make Down Flow Transmitters
1-0102-AILD-C414		Loop Diagram, FIT-C4451 & FIT-C4651, Polymer Make Down Flow Transmitters
1-0102-AILD-C421		Loop Diagram, LCP-C420, WAS Polymer Make Down Control Panel
1-0102-AILD-C422		Loop Diagram, PSH-C4313, PSH-C4323 & PSH-C4333, WAS RDT Post Dilution Polymer Pump Skid No.2 Pressure Switches
1-0102-AILD-C423		Loop Diagram, FV-C4362, WAS RDT Post Dilution Polymer Pump P-C431 Flushing Water Valve
1-0102-AILD-C424		Loop Diagram, FV-C4372, WAS RDT Post Dilution Polymer Pump P-C433 Flushing Water Valve
1-0102-AILD-C425		Loop Diagram, XV-C4325 WAS RDT Post Dilution Polymer Standby Pump P-C432 Valve
1-0102-AILD-C426		Loop Diagram, XV-C4326 WAS RDT Post Dilution Polymer Standby Pump P-C432 Valve
1-0102-AILD-C427		Loop Diagram, FIT-C4361 & FIT-C4371, WAS RDT Polymer Flow Transmitters
1-0102-AILD-C428		Loop Diagram, FIT-C4362 & FIT-C4372, WAS RDT Polymer Flow Transmitters
1-0102-AILD-C441		Loop Diagram, LCP-C440, HRC Dry Polymer Mixing Control Panel
1-0102-AILD-C442		Loop Diagram, LSH-C4851 & LSHH-C4851, North Upper Level HRC Polymer Spill Sump Level

Drawing No.	Sheet No.	Description
1-0102-AILD-C443		Loop Diagram, LSH-C4861 & LSHH-C4861, North Lower Level HRC Polymer Spill Sump Level
1-0102-AILD-C444		Loop Diagram, PSH-C4513, PSH-C4523 & PSH-C4533, HRC Polymer Pump Skid No.2 Pressure Switches
1-0102-AILD-C445		Loop Diagram, FV-C4562, HRC Polymer Pump P-C451 Flushing Water Valve
1-0102-AILD-C446		Loop Diagram, FV-C4572, HRC Polymer Pump P-C453 Flushing Water Valve
1-0102-AILD-C447		Loop Diagram, XV-C4525, HRC Post Dilution Polymer Standby Pump P-C452 Valve
1-0102-AILD-C448		Loop Diagram, XV-C4526, HRC Post Dilution Polymer Standby Pump P-C452 Valve
1-0102-AILD-C449		Loop Diagram, XV-C4563, HRC Post Dilution Polymer Pump P-C451/452 Valve
1-0102-AILD-C450		Loop Diagram, XV-C4564, HRC Post Dilution Polymer Pump P-C451 Valve
1-0102-AILD-C451		Loop Diagram, XV-C4573, HRC Post Dilution Polymer Pump P-C453 Valve
1-0102-AILD-C452		Loop Diagram, XV-C4574, HRC Post Dilution Polymer Pump P-C453 Valve
1-0102-AILD-C453		Loop Diagram, FIT-C4561 & FIT-C4571, HRC Polymer Flow Transmitters
1-0102-AILD-C454		Loop Diagram, FIT-C4562 & FIT-C4572, HRC Polymer Flow Transmitters
1-0102-AILD-C461		Loop Diagram, LCP-C460, Secondary Clarifier Polymer Make Down Control Panel
1-0102-AILD-C462		Loop Diagram, PSH-C4713 & PSH-C4723, Secondary Clarifier Polymer Pump Skid Pressure Switches
1-0102-AILD-C463		Loop Diagram, FV-C4762, Secondary Clarifier Polymer Pump P-C471 Flushing Water Valve
1-0102-AILD-C464		Loop Diagram, FIT-C4761 & FIT-C4762, Secondary Clarifier Polymer Flow Transmitters
1-0102-AILD-C501		Loop Diagram, LSH-C5012, Sump Level Switch
1-0102-AILD-C502		Loop Diagram, FS-C5341, FS-C5351, FS-C5361 & FS-C5371, Emergency Eyewash/Shower Stations Flow Switches
1-0102-AILD-C560	001	Loop Diagram, LCP-C563, Fuel Diesel Tanks TK-C560, C570 & C580 Control Panel
1-0102-AILD-C560	002	Loop Diagram, LCP-C563, Fuel Diesel Tanks TK-C560, C570 & C580 Control Panel
1-0102-AILD-C561		Loop Diagram, LSH-C5631, Duplex Pump Enclosure Level Switch
1-0102-AILD-C562		Loop Diagram, LT-C5602 & XS-C5603, Diesel Tank TK-C560 Level Transmitter & Leak Switches
1-0102-AILD-C563		Loop Diagram, LCP-C565, Fuel Filtration System Control Panel
1-0102-AILD-C570		Loop Diagram, LT-C5702 & XS-C5703, Diesel Tank TK-C570 Level Transmitter & Leak Switches
1-0102-AILD-C571		Loop Diagram, LCP-C572, Generator GEN-C572 Control Panel
1-0102-AILD-C580		Loop Diagram, LT-C5802 & XS-C5803, Diesel Tank TK-C580 Level Transmitter & Leak Switches
1-0102-AILD-C581		Loop Diagram, LCP-C582, Generator GEN-C582 Control Panel
1-0102-AILD-C611	001	Loop Diagram, AHU-C611, Chemical Building Air Handling Unit

Drawing No.	Sheet No.	Description
1-0102-AILD-C611	002	Loop Diagram, AHU-C611, Chemical Building Air Handling Unit
1-0102-AILD-C611	003	Loop Diagram, AHU-C611, Chemical Building Air Handling Unit
1-0102-AILD-C611	004	Loop Diagram, AHU-C611, Chemical Building Air Handling Unit
1-0102-AILD-C612	001	Loop Diagram, AHU-C612, Chemical Building Air Handling Unit
1-0102-AILD-C612	002	Loop Diagram, AHU-C612, Chemical Building Air Handling Unit
Volume 10C Cover Page		Cover Page
1-0102-AILD-C612	003	Loop Diagram, AHU-C612, Chemical Building Air Handling Unit
1-0102-AILD-C612	004	Loop Diagram, AHU-C612, Chemical Building Air Handling Unit
1-0102-AILD-C613		Loop Diagram, FIT-C6132, Chemical Loading Platform Exhaust Fan EF-C613 Flow Transmitter
1-0102-AILD-C614		Loop Diagram, FIT-C6142, Chemical Loading Platform Exhaust Fan EF-C614 Flow Transmitter
1-0102-AILD-C615		Loop Diagram, FIT-C6152, Chemical Containment Room Exhaust Fan EF-C615 Flow Transmitter
1-0102-AILD-C616		Loop Diagram, FIT-C6162, Chemical Containment Room Exhaust Fan EF-C616 Flow Transmitter
1-0102-AILD-C617		Loop Diagram, TT-C6171, TT-C6172, Room Temperature Transmitters
1-0102-AILD-C618		Loop Diagram, HS-C6101-1, HS-C6101-2, HS-C6101-3, HS-C6101-4, Activate High Ventilation Switches
1-0102-AILD-C620	001	Loop Diagram, AHU-C620, Chemical Building Air Handling Unit
1-0102-AILD-C620	002	Loop Diagram, AHU-C620, Chemical Building Air Handling Unit
1-0102-AILD-C620	003	Loop Diagram, AHU-C620, Chemical Building Air Handling Unit
1-0102-AILD-C621		Loop Diagram, FIT-C6208, AHU-C640 Intake Air Flow Meter
1-0102-AILD-C622		Loop Diagram, FV-C6208, AHU-C640 Intake Damper
1-0102-AILD-C623		Loop Diagram, FIT-C6212, Gallery 6, 7 and Cable Service Room Exhaust Fan
1-0102-AILD-C624		Loop Diagram, TT-C6231 & TT-C6241, Room Temperature Transmitters
1-0102-AILD-C625		Loop Diagram, UH-C625-1, UH-C625-2 & TT-C6352, Cable Service Room Electric Unit Heater & Temperature Transmitter
1-0102-AILD-C640	001	Loop Diagram, AHU-C640, Chemical Building Air Handling Unit
1-0102-AILD-C640	002	Loop Diagram, AHU-C640, Chemical Building Air Handling Unit
1-0102-AILD-C641		Loop Diagram, ACU-C641, Electrical Room Air Conditioning Unit
1-0102-AILD-C642		Loop Diagram, ACU-C642, Electrical Room Air Conditioning Unit
1-0102-AILD-C643		Loop Diagram, ACU-C643, Electrical Room Air Conditioning Unit
1-0102-AILD-C644		Loop Diagram, ACU-C644, Electrical Room Air Conditioning Unit

Drawing No.	Sheet No.	Description
1-0102-AILD-C645		Loop Diagram, ACU-C645, Electrical Room Air Conditioning Unit
1-0102-AILD-C646		Loop Diagram, ACU-C646, Automation Room Air Conditioning Unit
1-0102-AILD-C647		Loop Diagram, TT-C6407, TT-C6408, TT-C6711, Room & Outdoor Temperature Transmitters
1-0102-AILD-C650		Loop Diagram, UH-C654 & TT-C6542, Mechanical Room 1 Electric Unit Heater & Temperature Transmitter
1-0102-AILD-C651		Loop Diagram, UH-C655 & TT-C6552, Mechanical Room 2 Gas Unit Heater & Temperature Transmitter
1-0102-AILD-C660		Loop Diagram, UH-C663-1, UH-C663-2 & TT-C6671, Generator Room Gas Unit Heater & Temperature Transmitter
1-0102-AILD-C661	001	Loop Diagram, XV-C6651, Generator GEN-C572 Combustion Air Damper
1-0102-AILD-C661	002	Loop Diagram, XV-C6651, Generator GEN-G572 Combustion Air Damper
1-0102-AILD-C662	001	Loop Diagram, XV-C6652, Generator GEN-C572 Heat Relief Damper
1-0102-AILD-C662	002	Loop Diagram, XV-C6652, Generator GEN-C572 Heat Relief Damper
1-0102-AILD-C662	003	Loop Diagram, XV-C6652, Generator GEN-C572 Heat Relief Damper
1-0102-AILD-C662	004	Loop Diagram, XV-C6652, Generator GEN-C572 Heat Relief Damper
1-0102-AILD-C663	001	Loop Diagram, XV-C6661, Generator GEN-C582 Combustion Air Damper
1-0102-AILD-C663	002	Loop Diagram, XV-C6661, Generator GEN-G582 Combustion Air Damper
1-0102-AILD-C664	001	Loop Diagram, XV-C6662, Generator GEN-C582 Heat Relief Damper
1-0102-AILD-C664	002	Loop Diagram, XV-C6662, Generator GEN-C582 Heat Relief Damper
1-0102-AILD-C664	003	Loop Diagram, XV-C6662, Generator GEN-C582 Heat Relief Damper
1-0102-AILD-C664	004	Loop Diagram, XV-C6662, Generator GEN-C582 Heat Relief Damper
1-0102-AILD-C665	001	Loop Diagram, TV-C6653, Generator GEN-C572 Exhaust Air Damper
1-0102-AILD-C665	002	Loop Diagram, TV-C6653, Generator GEN-C572 Exhaust Air Damper
1-0102-AILD-C666		Loop Diagram, TV-C6654, Generator GEN-C572 Recirculation Air Damper
1-0102-AILD-C667		Loop Diagram, TV-C6655, Generator GEN-C572 Recirculation Air Damper
1-0102-AILD-C668	001	Loop Diagram, TV-C6656, Generator GEN-C572 Recirculation Air Damper
1-0102-AILD-C668	002	Loop Diagram, TV-C6656, Generator GEN-C572 Recirculation Air Damper
1-0102-AILD-C669	001	Loop Diagram, TV-C6657, Generator GEN-C572 Recirculation Air Damper
1-0102-AILD-C669	002	Loop Diagram, TV-C6657, Generator GEN-C572 Recirculation Air Damper
1-0102-AILD-C670	001	Loop Diagram, TV-C6663, Generator GEN-C582 Exhaust Air Damper

Drawing No.	Sheet No.	Description
1-0102-AILD-C670	002	Loop Diagram, TV-C6663, Generator GEN-C582 Exhaust Air Damper
1-0102-AILD-C671		Loop Diagram, TV-C6664, Generator GEN-C582 Recirculation Air Damper
1-0102-AILD-C672		Loop Diagram, TV-C6665, Generator GEN-C582 Recirculation Air Damper
1-0102-AILD-C673	001	Loop Diagram, TV-C6666, Generator GEN-C582 Recirculation Air Damper
1-0102-AILD-C673	002	Loop Diagram, TV-C6666, Generator GEN-C582 Recirculation Air Damper
1-0102-AILD-C674	001	Loop Diagram, TV-C6667, Generator GEN-C582 Recirculation Air Damper
1-0102-AILD-C674	002	Loop Diagram, TV-C6667, Generator GEN-C582 Recirculation Air Damper
1-0102-AILD-C901		Loop Diagram, CP-C727, Sodium Hydroxide Piping Heat Trace Panel
1-0102-AILD-C902		Loop Diagram, TC-C7111, Exhaust Fan Drain Heat Trace Temp. Controller
1-0102-AILD-C903		Loop Diagram, TC-C7112, Roof Drain Piping Heat Trace Temp. Controller
1-0102-AILD-C904		Loop Diagram, TC-C7241, Diesel Fuel Piping Heat Trace Temp. Controller
1-0102-AILD-C905		Loop Diagram, ZSC-C9611, ZSC-C9621, ZSC-C9622, ZSC-C9623, Door Switches
1-0102-AILD-C906		Loop Diagram, ZSC-C9631, ZSC-C9632, ZSC-C9633, ZSC-C9671, Door Switches
1-0102-AILD-C907		Loop Diagram, ZSC-C9641, ZSC-C9642, ZSC-C9651, ZSC-C9652, Door Switches
1-0102-AILD-C908		Loop Diagram, XS-C9711 & XS-C9721, Motion Detectors
1-0102-AILD-C909		Loop Diagram, RIO-C800-1 & PLC-C806, High Ventilation Request
1-0102-ANET-C001		Network Diagram, Chemical/Electrical Building, Supervisory Network
1-0102-ANET-C002	001	Network Diagram, Chemical/Electrical Building, Control Network
1-0102-ANET-C002	002	Network Diagram, Chemical/Electrical Building, Control Network
1-0102-ANET-C002	003	Network Diagram, Chemical/Electrical Building, Control Network
1-0102-ANET-C002	004	Network Diagram, Chemical/Electrical Building, Control Network
1-0102-ANET-C003	001	Network Diagram, Chemical/Electrical Building, Device Network
1-0102-ANET-C003	002	Network Diagram, Chemical/Electrical Building, Device Network
1-0102-ANET-C003	003	Network Diagram, Chemical/Electrical Building, Device Network
1-0102-ANET-C003	004	Network Diagram, Chemical/Electrical Building, Device Network
1-0102-ANET-C004		Network Diagram, Chemical/Electrical Building, Administration and Security Network
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection

Drawing No.	Sheet No.	Description
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
Y – YARD + SUBSTATION		
General		
Volume 11 Cover Page	006	Cover Page
Volume 11 Index	001	Drawing Index (1)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Civil		
1-0102-CUTY-Y001	004	Water Service Connection - Chemical/Electrical Building
1-0102-CUTY-Y004	001	Sewer By-Pass Pipe Chamber #7
1-0102-CUTY-Y004	002	Chamber #7 - Reinforcing Details
Structural		
1-0102-SAAA-A001		Legend and General Notes
1-0102-SFDW-Y001		Structural, 66kV Substation A-Frame and Transformer and Duct Vault, Foundation Plans and Pile P1 and P2 Detail
1-0102-SFDW-Y002		Structural, 66kV Substation A-Frame and Transformer, Foundation Sections
1-0102-SFDW-Y003		Structural, 66kV Substation Duct Bank, Foundation Plan and Sections
1-0102-SFNC-Y001		Structural, 66kV Substation, Fence Details
1-0102-SGAD-Y001	001	Structural, 66kV Substation, General Notes, Sheet 1 of 3
1-0102-SGAD-Y001	002	Structural, 66kV Substation, General Notes, Sheet 2 of 3
1-0102-SGAD-Y001	003	Structural, 66kV Substation, General Notes, Sheet 3 of 3
1-0102-SGAD-Y002		Structural, 66kV Substation, Site Plan
1-0102-SGAD-Y003		Structural, 66kV Substation, Site Sections
1-0102-SGAD-Y004		Structural, 66kV Substation, Sections and Details
1-0102-SGAD-Y005		Structural, 66kV Substation, Site Section and Details
1-0102-SGAD-Y006		Structural, 66kV Substation, Elevations at Substation Pad
1-0102-SGAD-Y025		Loading Bank LB-Y793 Pad - Plan and Section
1-0102-SSST-Y001		Structural, 66kV Substation, Dead End Structure A-Frame Plan
1-0102-SSST-Y002		Structural, 66kV Substation, Dead End Structure A-Frame Sections
Process		
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-Y001		Plant Effluent Sewers and Sampling Facility
1-0102-PPID-Y002		HRC Effluent Sewers
1-0102-PDTL-Y001		Effluent Sampling Building - Piping Modifications
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-EDTL-Y001		Duct Vault, 66kV Substation, Details
1-0102-EDTL-Y002		Electrical, Parking Lot, PNL-Y711 Support Detail
1-0102-EGAD-Y001		66kV Substation, General Arrangement
1-0102-EGAD-Y002		66kV Substation, Cable Duct Bank Plan Details and Sections

Drawing No.	Sheet No.	Description
1-0102-EGAD-Y003		66kV Substation, Cable Routing Plan
1-0102-EGAD-Y004		66kV Substation, Section A
1-0102-EGAD-Y005		66kV Substation, Section B
1-0102-EGAD-Y006		66kV Substation, A-Frame Mounted Equipment Details
1-0102-EGAD-Y007		Layout and Details, Power & Communication Site Plan
1-0102-EGAD-Y008		Layout and Details, Power & Communications Plan
1-0102-EGRD-Y001		Grounding Layout, 66kV Substation, General Arrangement
1-0102-EGRD-Y002	001	Grounding Layout, 66kV Substation, Details
1-0102-EGRD-Y002	002	Grounding Layout, 66 kV Substation, Details
1-0102-EGRD-Y003		Grounding Layout, 66 kV Substation, Fence Grounding
1-0102-EGRD-Y004		Grounding Layout, 66kV Substation Circuit Switch and A-Frame Details
1-0102-ELTG-Y001		Lighting Layout, 66kV Substation
1-0102-ELTG-Y002	001	Layout and Details, Roadway Lighting Plan
1-0102-ELTG-Y002	002	Layout and Details, Roadway Lighting Plan
1-0102-ELTG-YD01		Layout and Details, Roadway Lighting Demolition
1-0102-EMCL-Y901		Starter Schematic, Yard, XFMR-Y711 Feeder
1-0102-ESCH-Y001		Outfall Building, Panel Schedules
1-0102-ESCH-Y002		Parking Lot, Panel Schedule
1-0102-ESLD-Y001		Single Line Diagram, 66kV Substation, Transformer XFMR-Y701 and XFMR-Y702
1-0102-ETLD-Y001	001	Three Line diagram, 66kV Substation, Transformer XFMR-Y701
1-0102-ETLD-Y001	002	Three Line diagram, 66kV Substation, Transformer XFMR-Y702
1-0102-EWDG-Y001	001	DC Schematic, 66kV Substation, Transformer XFMR-Y701 Protection
1-0102-EWDG-Y001	002	DC Schematic, 66kV Substation, Transformer XFMR-Y701 Protection
1-0102-EWDG-Y001	003	DC Schematic, 66kV Substation, Transformer XFMR-Y701 Protection
1-0102-EWDG-Y002	001	DC Schematic, 66kV Substation, Transformer XFMR-Y702 Protection
1-0102-EWDG-Y002	002	DC Schematic, 66kV Substation, Transformer XFMR-Y702 Protection
1-0102-EWDG-Y002	003	DC Schematic, 66kV Substation, Transformer XFMR-Y702 Protection
1-0102-EWDG-Y003	001	Cable Connection Diagram, 66kV Substation, Transformer XFMR-Y701
1-0102-EWDG-Y003	002	Cable Connection Diagram, 66kV Substation, Transformer XFMR-Y701
1-0102-EWDG-Y004	001	Cable Connection Diagram, 66kV Substation, Transformer XFMR-Y702
1-0102-EWDG-Y004	002	Cable Connection Diagram, 66kV Substation, Transformer XFMR-Y702
1-0102-EDTL-A002	001	Sections and Details, Duct Bank and PullBoxes
1-0102-EDTL-A002	002	Sections and Details, Duct Bank and PullBoxes
1-0102-EDTL-A002	003	Sections and Details, Duct Bank and PullBoxes
1-0102-EDTL-A003		Electrical, Direct Buried Cables and Conduit, Details
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ACBD-Y001		Cabinet Layout, Effluent Sampling Facility, ADP-Y830 Network and Profibus Device Cabinet

Drawing No.	Sheet No.	Description
1-0102-ACBD-Y002		Power Distribution Schematic, Effluent Sampling Facility, ADP-Y830 Network and Profibus Device Cabinet
1-0102-AGAD-Y001		Instrument Location Plan, Yard, Effluent Sampling Facility
1-0102-AIFS-Y001		Profibus Segment Diagram, Effluent Sampling Facility, Profibus DP Segments ND-C840-2
1-0102-AILD-Y001		Loop Diagram, AIT-Y0013 and AE-Y0013, Effluent Channel ORP Analyzer
1-0102-ANET-Y002		Network Diagram, Effluent Sampling Facility, Control Network
1-0102-ANET-Y003		Network Diagram, Effluent Sampling Facility, Device Network
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
B – SERVICE BUILDING + EXISTING FACILITIES		
General		
Volume 12 Cover Page	006	Cover Page
Volume 12 Index	001	Drawing Index (1)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BGAD-BD50		Service Building - Demolition Drawing (1)
1-0102-BGAD-BD51		Service Building - Demolition Drawing (2)
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-B501		Potable and Non-Potable Water Piping
1-0102-PPID-B502		Natural Gas Piping
1-0102-PPID-B503		Natural Gas Piping
1-0102-PPID-B504		Instrument Air Header
1-0102-PPID-B601		Hot Water Return Piping
1-0102-PPID-B602		Boiler BLR-B651
1-0102-PPID-B603		Boiler BLR-B652
1-0102-PPID-B604		Hot Water Pumps P-B671, P-B672, P-B673, & P-B674
1-0102-PPID-B605		Hot Water Pumps P-B675 & P-B676
1-0102-PPID-B606		Chilled Water Cooling System
1-0102-PPID-B607		Chilled Water Header
1-0102-PPID-B608		Mechanical Room & Office HVAC AHU-B641

Drawing No.	Sheet No.	Description
1-0102-PPID-B609		Instrumentation & Electrical Offices Air Purification AHU-B642 & AHU-B643
1-0102-PPID-B610		Gallery Ventilation AHU-B681 & EF-B689
1-0102-PPID-B611		HVAC Miscellaneous Heating Units
1-0102-PPID-B612		Workshop HVAC AHU-B683
1-0102-PPID-B613		Boiler Room HVAC AHU-B684
1-0102-PPID-B614		Storage Building HVAC
1-0102-PPID-B901		Miscellaneous
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
SEP-897		Building Legend and General Notes
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-ECBD-B001		MCC/Cabinets Drawing, Service Building, MCC-B720 Layout & Schedule
1-0102-EFAS-B001		Fire Alarm, Service Building, Mezzanine & Lower Level
1-0102-EFAS-B002		Fire Alarm, Service Building, Riser Diagram, Detection Circuits
1-0102-EGAD-B001		Power Layout, Service Building, Electrical Room
1-0102-EGAD-B002		Power Layout, Service Building, Roof Plan
1-0102-EGAD-BD01		Power Layout, Service Building, Demolitions
1-0102-EGRD-B001		Grounding Layout, Service Building, Ground Floor Plan
1-0102-EGRD-B002		Lightning Protection Layout, Service Building, Roof Plan
1-0102-EMCL-B520		Motor Starter Schematic, P-B579, Sump Pump
1-0102-EMCL-B521		Motor Starter Schematic, P-B580, Sump Pump
1-0102-EMCL-B621		Motor Starter Schematic, AHU-B641, Mechanical Room and Office AHU
1-0102-EMCL-B622		Motor Starter Schematic, AHU-B642, Instrumentation Offices Pressurization Unit
1-0102-EMCL-B623		Motor Starter Schematic, AHU-B643, Instrument Room Recirculation Unit
1-0102-EMCL-B630		Motor Starter Schematic, P-B662, Chilled Water Pump
1-0102-EMCL-B631		Motor Starter Schematic, P-B663, Chilled Water Pump
1-0102-EMCL-B638		Motor Starter Schematic, P-B671, Hot Water Pump
1-0102-EMCL-B639		Motor Starter Schematic, P-B672, Hot Water Pump
1-0102-EMCL-B640		Motor Starter Schematic, P-B673, Hot Water Pump
1-0102-EMCL-B641		Motor Starter Schematic, P-B674, Hot Water Pump
1-0102-EMCL-B642		Motor Starter Schematic, P-B675, Hot Water Pump
1-0102-EMCL-B643		Motor Starter Schematic, P-B676, Hot Water Pump
1-0102-EMCL-B646		Motor Starter Schematic, F-B680, Cooling Tower Fan
1-0102-EMCL-B647		Motor Starter Schematic, AHU-B681, Gallery Air Handling Unit
1-0102-EMCL-B649		Motor Starter Schematic, AHU-B683, Workshop Air Handling Unit

Drawing No.	Sheet No.	Description
1-0102-EMCL-B650		Motor Starter Schematic, AHU-B684, Boiler Room Air Handling Unit
1-0102-EMCL-B651	001	Motor Starter Schematic, EF-B685, Screen Room Exhaust Fan
1-0102-EMCL-B651	002	Motor Starter Schematic, EF-B685, Screen Room Exhaust Fan
1-0102-EMCL-B652	001	Motor Starter Schematic, EF-B686, Screen Room Exhaust Fan
1-0102-EMCL-B652	002	Motor Starter Schematic, EF-B686, Screen Room Exhaust Fan
1-0102-EMCL-B653	001	Motor Starter Schematic, EF-B687, Grit Tank Room Exhaust Fan
1-0102-EMCL-B653	002	Motor Starter Schematic, EF-B687, Grit Tank Room Exhaust Fan
1-0102-EMCL-B654	001	Motor Starter Schematic, EF-B688, Grit Tank Room Exhaust Fan
1-0102-EMCL-B654	002	Motor Starter Schematic, EF-B688, Grit Tank Room Exhaust Fan
1-0102-EMCL-B655		Motor Starter Schematic, EF-B689, Gallery Exhaust Fan
1-0102-EMCL-B656		Motor Starter Schematic, P-B690, Cooling Water Pump
1-0102-EMCL-B657		Motor Starter Schematic, P-B691, Cooling Water Pump
1-0102-ESLD-B001		Single Line Diagram, Service Building, MCC-B720
1-0102-ESLD-B002		Single Line Diagram, Service Building
SEP-905		Service Building Expansion - Electrical, Lighting & Building Services, Floor Plan
SEP-906		Service Building Expansion - Electrical, Lighting & Building Services, Floor Plan
SEP-909		Service Building Expansion - I & C, Main Floor and Mezzanine Levels Equipment & Controls Floor Plans
SEP-910		Service building Expansion - I & C, Basement Level, Equipment & Controls, Floor Plan
SEP-931		Chemical Storage Building - Electrical and Control, Floor Plans and Details
1-0102B-E0009		Electrical Classification Plan, Service Building, Main & Lower Levels
1-0102B-E0010		Electrical Classification Plan, Service Building, Upper Level
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ACBD-B001		Cabinet Layout, Service Building, CP-B820-1 and CP-B820-2 Cabinet
1-0102-ACBD-B002	001	Power Distribution Schematic, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 Cabinet
1-0102-ACBD-B002	002	Power Distribution Schematic, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 Cabinet
1-0102-ACBD-B003	001	Wiring Diagram, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 - Discrete Inputs
1-0102-ACBD-B003	002	Wiring Diagram, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 - Discrete Inputs
1-0102-ACBD-B003	003	Wiring Diagram, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 - Discrete Inputs
1-0102-ACBD-B003	004	Wiring Diagram, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 - Discrete Inputs
1-0102-ACBD-B003	005	Wiring Diagram, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 - Discrete Inputs

Drawing No.	Sheet No.	Description
1-0102-ACBD-B003	006	Wiring Diagram, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 - Discrete Inputs
1-0102-ACBD-B004		Wiring Diagram, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 - Discrete Outputs
1-0102-ACBD-B005		Wiring Diagram, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 - Analog Inputs
1-0102-ACBD-B006		Wiring Diagram, Service Building, CP-B820-1 and CP-B820-2, RIO-P800-4 - Analog Outputs
1-0102-ACBD-B010		Cabinet Layout, Service Building, CP-B821 Front View
1-0102-ACBD-B011		Cabinet Layout, Service Building, CP-B821 Rear View
1-0102-ACBD-B081		Cabinet Layout, Service Building, Junction Boxes
1-0102-ACBD-BD01		Cabinet Layout Demolition, Service Building, CP-B820-1 and CP-B820-2
1-0102-AGAD-B001		Equipment Layout, Service Building, Control Room and Instrumentation Office
1-0102-AILD-B501		Loop Diagram, AE-B5211, Storage Building Heat Detector
1-0102-AILD-B502		Loop Diagram, TSH-B5301, TSH-B5311, TSH-B5321, TSH-B5411, Temperature Indicator
1-0102-AILD-B503		Loop Diagram, AAH-B550-1 & AAH-B550-2, Boiler Room Gas Alarm
1-0102-AILD-B504		Loop Diagram, LT-B5801, Boiler Room Flood Level Transmitter
1-0102-AILD-B601		Loop Diagram, AHU-B601, Chemical Storage Building Air Handling Unit
1-0102-AILD-B610	001	Loop Diagram, AHU-B610, Storage Room Air Handling Unit
1-0102-AILD-B610	002	Loop Diagram, AHU-B610, Storage Room Air Handling Unit
1-0102-AILD-B610	003	Loop Diagram, AHU-B610, Storage Room Air Handling Unit
1-0102-AILD-B611		Loop Diagram, TT-B6832, Temperature Transmitter
1-0102-AILD-B612		Loop Diagram, PSL-B5451, City Water Supply Low Pressure Switch
1-0102-AILD-B613		Loop Diagram, TIT-B6471, Hot Water Temperature Transmitter
1-0102-AILD-B614		Loop Diagram, PIT-B6491, Pressure Indicator Transmitter
1-0102-AILD-B615		Loop Diagram, BLR-B651, Boiler Control Panel
1-0102-AILD-B616		Loop Diagram, BLR-B652, Boiler Control Panel
1-0102-AILD-B617		Loop Diagram, CHLR-B679, Packaged Chiller Unit
1-0102-AILD-B618		Loop Diagram, FIT-B6852 & FIT-B6862, Exhaust Fan EF-B685 & EF-B686 Flow Transmitter
1-0102-AILD-B619		Loop Diagram, FIT-B6872 & FIT-B6882, Exhaust Fan EF-B687 & EF-B688 Flow Transmitter
1-0102-AILD-B620		Loop Diagram, TV-B6106, AHU-B610 Hot Water Temperature Valve
1-0102-AILD-B901		Loop Diagram, TSH-B5211, ZSC-B9671, CSC-B9672, ZSC-B9673, XS-B9681, Storage Bld. Heat Monitoring, Door Switches & shop security
1-0102-AILD-B902		Loop Diagram, ZSC-B9611, B9621, B9631, B9641, Door Switches
1-0102-AILD-B903		Loop Diagram, XS-B9651, B9661, Motion Detectors
1-0102-AILD-B904		Loop Diagram, ET-B7201, MCC-B720 Voltage Monitoring
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments

Drawing No.	Sheet No.	Description
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details
M – ADMINISTRATION BUILDING		
General		
Volume 13 Cover Page	006	Cover Page
Volume 13 Index	001	Drawing Index (1)
1-0102-DAAA-A007	001	General Abbreviations (1)
1-0102-DAAA-A007	002	General Abbreviations (2) and Symbols
1-0102-DAAA-A007	004	Area Code Identification
1-0102-DAAA-AD01		Demolition Legend and General Notes
Building		
1-0102-BAAA-A001		Building Legend and General Notes
1-0102-BAAA-M001		Administration Building Wall Types Legend
1-0102-BGAD-M001		Administration Building Overall Basement and Ground Floor Plans
1-0102-BGAD-M002		Administration Building Detail Plan - Locker Rooms
1-0102-BGAD-M003		Administration Building Detail Plan - Control Room and Janitor's Room
1-0102-BGAD-M004		Administration Building Locker Room Reflected Ceiling Plan
1-0102-BGAD-M005		Administration Building Control Room Reflected Ceiling Plan
1-0102-BGAD-M006		Administration Building Section & Details
1-0102-BGAD-MD50		Administration Building Control Room Demolition
SEP-524		Administration Building Control Room - Floor Plans - Demolition
1-0102-BSCH-M001		Administration Building Room Finish, Door and Hardware Schedules
1-0102-BDTL-A003		Standard Details (1)
1-0102-BDTL-A004		Standard Details (2)
1-0102-BDTL-A005		Standard Details (3)
1-0102-BDTL-A006		Standard Details (4)
Process		
1-0102-PPID-A001	001	PID'S Legend (1)
1-0102-PPID-A001	002	PID'S Legend (2)
1-0102-PPID-A001	003	PID'S Legend (3)
1-0102-PPID-M601		Glycol Preheat Pumps P-M653 & P-M654
1-0102-PPID-M602		Glycol Preheat Hot Water Pumps P-M671 & P-M672
1-0102-PPID-M603		Building Ventilation and Radiant Heaters
1-0102-PPID-M604		Building Ventilation and Radiant Heaters
1-0102-PPID-M605		Radiant Heaters
1-0102-PPID-M606		Automation Room/Control System Office Air Purification System AHU-M651
1-0102-PPID-M607		Miscellaneous Room Ventilation AHU-M652
1-0102-PPID-M608		Control Room, Automation Room and Janitor Room ACU-M641, ACU-M642, EF-M689
1-0102-PPID-M609		Miscellaneous Air Return and Exhaust Fans
1-0102-PPID-M610		Administration Building Air Handling Unit AHU-M681

Drawing No.	Sheet No.	Description
1-0102-PPID-M901		Miscellaneous
Mechanical		
1-0102-MAAA-A001	001	Legend and General Notes (1)
1-0102-MAAA-A001	002	Legend and General Notes (2)
1-0102-MGAD-M501		Administration Building - Plumbing - Basement and Ground Floor Plans
1-0102-MGAD-M601		Administration Building - HVAC - Basement and Ground Floor Plans
1-0102-MGAD-M602		Administration Building - HVAC - Detail Plans
1-0102-MGAD-MD50		Administration Building - Lab Demolition
1-0102-MGAD-MD51		Administration Building - Locker Room Demolition
1-0102-MGAD-MD52		Administration Building - Lab Demolition
1-0102-MGAD-MD53		Administration Building - Locker Room Demolition
1-0102-MSLD-M601		Existing Administration Building - Air Flow Schematic
1-0102-MSLD-M602		Existing Administration Building - Control Room, Janitor's Room and Automation Room - Air Flow Schematic
1-0102-MDTL-A002		Plumbing Standard Details (1)
1-0102-MDTL-A003		Plumbing Standard Details (2)
1-0102-MDTL-A004		Plumbing Standard Details (3)
1-0102-MDTL-A005		HVAC Standard Details (1)
1-0102-MDTL-A006		HVAC Standard Details (2)
1-0102-MDTL-A007		HVAC Standard Details (3)
1-0102-MDTL-A008		HVAC Standard Details (4)
1-0102-MDTL-A009		HVAC Standard Details (5)
1-0102-MDTL-A010		HVAC Standard Details (6)
Electrical		
1-0102-EAAA-A001		Electrical, Legend and Details
1-0102-ECBD-M001	001	MCC/Cabinet Drawing, Administration Building, MCC-M710 Layout and Schedule
1-0102-EFAS-M001	001	Fire Alarm, Administration Building, Riser Diagram, Detection and Notification Circuits
1-0102-EGAD-M001	001	Plan Layout, Administration Building, Main Control Room
1-0102-EGAD-M002	001	Power Layout, Administration Building, Locker Room
1-0102-EGAD-M003	001	Power Layout, Administration Building, Basement Floor Plan
1-0102-EGAD-M004	001	Power Layout, Administration Building, Ground Floor Plan
1-0102-EGAD-MD01	001	Power Layout Demolition, Administration Building, Room M123
1-0102-EGAD-MD02	001	Power/Lighting Layout Demolition, Administration Building, Locker Room
1-0102-EGRD-M001	001	Grounding Layout, Administration Building, Ground Floor Plan
1-0102-EGRD-M002	001	Lightning Protection Layout, Administration Building, Roof Plan
1-0102-EMCL-M605	001	Motor Starter Schematic, Administration Building, AHU-M651 Control Room and Computer Room Air Handling Unit
1-0102-EMCL-M606	001	Motor Starter Schematic, Administration Building, HCE-M651 & CU-M655 Electric Heating Coil For AHU-M651
1-0102-EMCL-M607	001	Motor Starter Schematic, Administration Building, AHU-M652 Conf. Room and Office Space Air Handling Unit
1-0102-EMCL-M608	001	Motor Starter Schematic, Administration Building, HCE-M652 & CU-M656Electric Heating Coil For AHU-M652
1-0102-EMCL-M609	001	Motor Starter Schematic, Administration Building, P-M653 Glycol Circulating Pump

Drawing No.	Sheet No.	Description
1-0102-EMCL-M610	001	Motor Starter Schematic, Administration Building, P-M654 Glycol Circulating Pump
1-0102-EMCL-M615	001	Motor Starter Schematic, Administration Building, P-M671 Hot Water Circulating Pump
1-0102-EMCL-M616	001	Motor Starter Schematic, Administration Building, P-M672 Hot Water Circulating Pump
1-0102-EMCL-M620	001	Motor Starter Schematic, Administration Building, EF-M687 Locker Room Exhaust Fan
1-0102-EMCL-M621	001	Motor Starter Schematic, Administration Building, AHU-M681
1-0102-EMCL-M621	002	Motor Starter Schematic, Administration Building, AHU-M681
1-0102-EMCL-M622	001	Motor Starter Schematic, Administration Building, HCE-M681 Electric Heating Coil For AHU-M681
1-0102-ESCH-M001	001	Administration Building, Panelboard Schedule
1-0102-ESLD-M001	001	Single Line Diagram, Administration Building and Septage Facility, MCC-M710
1-0102-EWDG-M001	001	Wiring Diagram, Fermenters/Thickeners, CU-M641, CU-M642 & ACU-M641, ACU-M642
SEP-538		Administration Bldg Expansion - Electrical - Lighting & Services Floor Plans
SEP-541		Administration Bldg Expansion - I & C, Equipment and Controls, Floor Plans
Automation		
1-0102-AAAA-A001		Automation & Network Equipment, Legend and Details
1-0102-ABDG-M001		Control System, Architecture Administration Building
1-0102-ABDG-MT01		Control System, Architecture Administration Building Network installation, Phase PreE
1-0102-ACBD-M001		Cabinet Layout, Administration Building, Control Cabinet CP-M820-1 and CP-M820-2
1-0102-ACBD-M002	001	Power Distribution Schematic, Administration Building, Control Cabinet CP-M820-1 and CP-M820-2
1-0102-ACBD-M002	002	Power Distribution Schematic, Administration Building, Control Cabinet CP-M820-1 and CP-M820-2
1-0102-ACBD-M003	001	Wiring Diagram, Administration Building, CP-M820-1 and CP-M820-2, PLC-M800 - Discrete Inputs
1-0102-ACBD-M003	002	Wiring Diagram, Administration Building, CP-M820-1 and CP-M820-2, PLC-M800 - Discrete Inputs
1-0102-ACBD-M003	003	Wiring Diagram, Administration Building, CP-M820-1 and CP-M820-2, PLC-M800 - Discrete Inputs
1-0102-ACBD-M004		Wiring Diagram, Administration Building, CP-M820-1 and CP-M820-2, PLC-M800 - Discrete Outputs
1-0102-ACBD-M005		Wiring Diagram, Administration Building, CP-M820-1 and CP-M820-2, PLC-M800 - Analog Inputs
1-0102-ACBD-M006		Wiring Diagram, Administration Building, CP-M820-1 and CP-M820-2, PLC-M800 - Analog Outputs
1-0102-ACBD-M082		Cabinet Layout, Administration Building, Junction Boxes
1-0102-ACBD-M903	001	Cabinet Layout, Administration Building, NP-M900 Network Cabinet
1-0102-ACBD-M903	002	Cabinet Layout, Administration Building, NP-M900 Network Cabinet
1-0102-ACBD-M904		Cabinet Layout, Administration Building, NP-M900. PSP Network Cabinet Power Supply Panel
1-0102-ACBD-M905		Cabinet Layout, Administration Building, CP-M901 Server Cabinet

Drawing No.	Sheet No.	Description
1-0102-ACBD-M906		Cabinet Layout, Administration Building, CP-M902 Server Cabinet
1-0102-ACBD-MD01		Cabinet Layout Demolition, Administration Building, CP-M820-1 & CP-M820-2
1-0102-AGAD-M002		Equipment Layout, Administration Building, Automation Room and Control System Office
1-0102-AGAD-M003		Equipment Layout, Administration Building, Basement Floor Plan
1-0102-AILD-M601		Loop Diagram, TT-M6591, TSH-M6601, Automation and Mechanical Rooms Temperature Transmitter and Switch
1-0102-AILD-M602		Loop Diagram, FSL-M6731, FSL-M6741, Low Flow Switch
1-0102-AILD-M603		Loop Diagram, MIT-M6874, Man's Locker Room Humidity Transmitter
1-0102-AILD-M604		Loop Diagram, ACU-M641, Control Room Air Conditioning Unit
1-0102-AILD-M605		Loop Diagram, ACU-M642, Automation Room Air Conditioning Unit
1-0102-AILD-M606		Loop Diagram, TT-M6411, Control Room Temperature
1-0102-AILD-M901		Loop Diagram, ST-M9501, XT-M9501, Wind Speed and Direction Transmitter
1-0102-AILD-M902		Loop Diagram, SCP-M960, Security System
1-0102-AILD-M903		Loop Diagram, UPS-M1, Alarms
1-0102-AILD-M904		Loop Diagram, M119, M120 and M591, Grit PA Message Generation
1-0102-ANET-M001	001	Network Diagram, Administration Building, Supervisory Network
1-0102-ANET-M001	002	Network Diagram, Administration Building, Supervisory Network
1-0102-ANET-M002		Network Diagram, Administration Building, Control Network
1-0102-ANET-M003		Network Diagram, Administration Building, Device Network
1-0102-ANET-M004		Network Diagram, Administration Building, Administration and Security Network
1-0102-ANET-M005		Network Diagram, Administration Building, Server Network
1-0102-ADTL-A003		Installation Details, Flow Instruments
1-0102-ADTL-A004		Installation Details, Temperature Instruments
1-0102-ADTL-A005		Installation Details, Level Instruments
1-0102-ADTL-A006		Installation Details, Miscellaneous Instruments
1-0102-ADTL-A007		Installation Details, Gas Detection
1-0102-ADTL-A008		Installation Details, Pressure Instruments
1-0102-ADTL-A010		Installation Details, Miscellaneous
1-0102-ADTL-A011		Cordset Assembly Details, Cordset Type 1
1-0102-ADTL-A020		Profibus DP Wiring Details
1-0102-ADTL-A021		Profibus PA Wiring Details

E2. SOILS INVESTIGATION REPORT

E2.1 Further to C3.1, a geotechnical report is appended to this Bid Opportunity and is titled "SEWPCC Upgrading/Expansion/Civil/Geotech Geotechnical Investigation Report – Final – Rev 3" dated October 2014

E3. HAZARDOUS MATERIALS

E3.1 Asbestos has been identified in areas of the Work as shown on the Drawings and removal of identified asbestos is the responsibility of the Contractor. If asbestos or other hazardous materials not identified in the Specifications and Drawings are encountered during the Work of the Contract, the Contractor shall stop all work in the area and notify the Contract Administrator immediately. Removal of unidentified hazardous materials shall be dealt with by the Contractor as instructed by the Contract Administrator.

E3.2 Further to E3.1, a hazardous materials report is appended to this Bid Opportunity and is titled "2015 Asbestos Bulk Sampling Report SEWPCC".

CONTRACTOR SUPPLIED STANDARDIZED GOODS

E4. GENERAL REQUIREMENTS

E4.1 Comply with the general requirements of E4 for all Standardized Goods supplied by the Contractor.

E4.2 Comply with the following Standardization Goods requirements:

E4.2.1 Control System and Motor Control Equipment in accordance with E5.

E4.2.2 Electric Valve Actuators in accordance with E6.

E4.2.3 Gas Detection Systems in accordance with E7.

E4.2.4 Instrumentation in accordance with E8.

E4.3 Contact the Contract Administrator regarding any potential uncertainty as to whether a good is covered under a standardization agreement.

E4.4 The Contractor may utilize a Standardization Vendor to provide other goods required under the Contract, in addition to Standardized Goods.

E4.5 The Contractor shall separately track all goods supplied under each standardization agreement.

E4.5.1 In the event that one or more Standardization Vendors are utilized to procure goods not covered under a standardization agreement, the Contractor shall ensure such goods are quoted, ordered, tracked and accounted in a separate manner.

E4.6 Pricing:

E4.6.1 The City has obtained discounted pricing for Standardized Goods. Each Standardization Vendor is obligated to sell Standardized Goods to all prospective Contractors at the discounted price, provided the goods are for the City of Winnipeg.

E4.6.2 The Standardization Vendors may at their option provide lump sum pricing for goods packages. The Standardization Vendor is not required to provide breakout pricing details to the Contractor.

E4.6.3 The Contractor and Subcontractors shall not utilize the City's agreements with the Standardization Vendors for any purpose other than City work.

E4.6.4 The City may audit the goods purchased from the Standardization Vendors under the standardization agreements and may identify to the Standardization Vendors any goods procured that are not associated with the Contract.

E4.7 The Contractor is responsible for ensuring that the Material supplied by the Standardization Vendors meets the requirement of the Contract. The Contractor shall review and confirm quotations supplied by the Standardization Vendors to ensure that all required Material is supplied.

E4.8 Without limiting or otherwise affecting any other term or condition of the Contract, including (non-exhaustive) D6.2.1:

E4.8.1 The supply of goods through a Standardization Vendor shall not relieve the Contractor of their obligations.

E4.8.2 Errors or omissions by a Standardization Vendor shall not be a cause for a Change in Work.

E4.8.3 Delays by a Standardization Vendor shall not be a cause for a Change in Work where the delay could have been avoided through reasonable planning, contingency allocation, or communication by the Contractor.

E4.9 Submittals

E4.9.1 Submittals shall be provided for Standardized Goods in accordance with the Specifications and typical industry practice. Submittals shall not be bypassed for Standardized Goods.

E5. STANDARDIZED CONTROL SYSTEM AND MOTOR CONTROL EQUIPMENT

E5.1 The City has standardized on a specific vendor for the supply and delivery of control system and motor control equipment. The Standardization Vendor was selected via RFP 756-2013 and was awarded to Schneider Electric Canada Inc. (Schneider).

(a) Refer to E5.7 for contact information.

(b) Copies of the tender documents are available from City of Winnipeg Material Management's website.

E5.2 Goods to be procured via this standardization agreement includes but is not limited to:

(a) Programmable Controllers (PLCs) including all associated components, hardware and software.

(b) PLC to Infi90 Termination Unit migration cables.

(c) Programmable Controller Programming Software.

(d) Process Simulator Software.

(e) HMI System software.

(f) Historian Server and Client Software.

(g) Touchscreen HMI systems such as Magellis HMIs.

(h) Touchscreen HMI Programming Software.

(i) Motor Control Centers including all components

(j) Loose VFDs, motor starters, soft starters, and associated components.

(k) Industrial Ethernet Switches as per design. Note that some Ethernet switches may be specified to be from other vendors due to application requirements. Refer to drawings and specifications.

(l) Version Management Software.

(m) Training sessions.

E5.3 For clarity, this standardization agreement does not include:

(a) Computer workstation hardware including operating systems;

(b) Computer server hardware, including operating systems and general terminal server / client software;

(c) Thin client terminals;

(d) Fused and un-fused disconnect switches not incorporated into a MCC or other motor starter;

(e) Control stations and pendants not incorporated into a MCC or other motor starter;

(f) Electrical Transformers not in a MCC or motor starter;

(g) Panelboards not integrated in a MCC;

(h) Switchboards / Switchgear not integrated in a MCC;

(i) System Integration Services (including programming and configuration);

(j) Control Panels to house PLCs;

(k) Instrumentation;

(l) Power supplies not integrated with the PLC / HMI systems; and

(m) Terminal blocks not integrated with the PLC / HMI systems

E5.4 The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:

(a) M580, and M340 PLCs;

(b) X80 PLC I/O;

(c) Unity Pro programming software;

(d) Vijeo Citect HMI systems;

(e) Wonderware Historian;

(f) Local HMI – Magellis HMIGTO or HMIGTU series;

(g) Model 6 MCC – NEMA rated starters, Intelligent Ethernet (unless otherwise specified);

(h) Altivar 61 series VFDs for variable torque applications; and

(i) Altivar 71 series VFDs for constant torque applications.

E5.5 Commissioning and start-up:

E5.5.1 Except as identified in E5.5.2, commissioning and start-up of all goods purchased under this standardization agreement shall be performed by the Contractor.

E5.5.2 Schneider shall provide MCC start-up services, but not commissioning services. Coordinate with Schneider as required to understand the limitations of Schneider's MCC start-up services and provide all remaining testing, commissioning and start-up services to provide a complete commissioning and start-up.

E5.6 Training

E5.6.1 Programmable Controller Local Training

(a) Overview

(i) Provide instruction to designated City personnel in the operation and maintenance of the Schneider programmable controller control system components and associated Schneider tools and equipment.

(ii) This training shall be provided by Schneider.

(iii) This training does not relieve the Contractor of other training requirements associated with the control system.

(b) Location

(i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.

(ii) The room will be classroom style.

(c) Submittals

(i) Submit the names and qualifications of the proposed instructors.

(ii) Submit training proposal complete with hour by hour schedule including brief overview of content of each training segment a minimum of 30 Working Days prior to the anticipated date of beginning of training.

(d) Quality Assurance

(i) Provide competent instructors thoroughly familiar with all aspects of the programmable controller control system.

(ii) The Contract Administrator may reject instructors it deems to not be qualified.

(iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.

(e) Duration

(i) The training shall be a minimum of one (1) day in duration.

(f) Materials

(i) Provide equipment, visual and audio aids, and materials.

(ii) Supply manual for each trainee, describing in detail the information included in each training program.

(g) Attendees

(i) The attendees are expected to include, but not be limited to: electrical and instrumentation maintenance personnel and programmable controller support specialists.

(h) Content

(i) Overview of the equipment.

(ii) Equipment maintenance training including:

- Installation
- Troubleshooting
- Preventative maintenance
- Replacement of modules
- Network communication troubleshooting and diagnostics.
- Fieldbus troubleshooting and diagnostics
- Programmable controller redundancy strategies and operation.

(iii) Maintenance use of programmable controller programming software, including:

- Basic operation of the software
- Connecting to programmable controllers
- Download and upload of software configuration.
- Diagnostics and troubleshooting.

(i) Number of Sessions:

(i) Provide a minimum of two (2) sessions.

E5.6.2 MCC and VFD Local Training Session

(a) Overview

(i) Provide instruction to designated City personnel in the operation and maintenance of the motor control centres and variable frequency drives.

(ii) This training shall be provided by Schneider.

(iii) This training does not relieve the Contractor of other training requirements associated with the control system.

(b) Location

(i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.

(c) Submittals

(i) Submit the names and qualifications of the proposed instructors.

(ii) Submit training proposal complete with hour by hour schedule including brief overview of content of each training segment a minimum of 30 working days prior to the anticipated date of beginning of training.

(d) Quality Assurance

(i) Provide competent instructors thoroughly familiar with all aspects of the MCC and VFD systems.

(ii) The Contract Administrator may reject instructors it deems to not be qualified.

(iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.

(e) Duration

(i) The training shall be a minimum of six (6) hours in duration, excluding coffee and lunch breaks.

(f) Materials

(i) Provide equipment, visual and audio aids, and materials.

(ii) Supply manual for each trainee, describing in detail the information included in each training program.

(g) Attendees

(i) The attendees are expected to include, but not be limited to:

- Electrical and instrumentation maintenance personnel.
- Programmable controller support specialists.

(h) Content

(i) Overview of the equipment.

(ii) Equipment maintenance training including:

- Installation
- Troubleshooting
- Preventative maintenance
- Replacement of modules
- Fieldbus diagnostics
- Configuration of equipment parameters.

(iii) Maintenance use of equipment configuration software, including:

- Basic operation of the software
- Connecting to intelligent starts and VFDs.
- Download and upload of software configuration.
- Diagnostics and troubleshooting.

(i) Number of Sessions:

(i) Provide a minimum of two (2) sessions.

E5.7 Primary contacts for all quotations and purchases from Schneider are:

E5.7.1 Goods to be procured directly from Schneider:

(a) Further to E5.2, goods to be procured via Schneider includes but is not limited to:

(i) PLC to Infi90 Termination Unit migration cables;

(ii) Process Simulator Software;

(iii) Historian Server and Client Software;

(iv) Version Management Software; and

(v) Training sessions.

(b) Primary Schneider contact:
Garth Eastman
21 Omands Creek Blvd
Winnipeg, MB, R2R 2V2
Telephone: 204-631-0670
E-mail: garth.eastman@schneider-electric.com

E5.7.2 Goods to be procured via Eecol Electric (Eecol), as Schneider's High Tech Automation Distributor (HTAD):

(a) Further to E5.2, goods to be procured via Eecol includes but is not limited to:

(i) Programmable Controllers (PLCs) including all associated components, hardware and software;

(ii) Programmable Controller Programming Software;

(iii) HMI System software;

(iv) Touchscreen HMI systems such as Magellis HMIs;

(v) Touchscreen HMI Programming Software;

(vi) Motor Control Centers including all components;

(vii) Loose VFDs, motor starters, soft starters, and associated components; and

(viii) Industrial Ethernet Switches as per design. Note that some Ethernet switches may be specified to be from other vendors due to application requirements. Refer to drawings and specifications.

(b) Primary Eecol contact:
Trevor Hambleton
1760 Wellington Avenue
Winnipeg, MB, R3H 0E9
Telephone: 204-774-2800
E-mail: hambletont@eecol.com

(c) All correspondence related to requests-for-quotations to Eecol for goods listed under E5.7.2(a)shall be copied to the primary Schneider contact listed under E5.7.1(b).

(d) For whatever reason, if Eecol is unable to receive or respond to request-for-quotations for goods listed under E5.7.2(a), request-for-quotations may be issued directly to the primary Schneider contact listed under E5.7.1(b).

E5.8 Quotations and orders:

E5.8.1 Reference the following in all quotation requests, quotations \ proposals, purchase orders, and invoices:

(a) This Bid Opportunity number; and

(b) A statement indicating:

"This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 756-2013."

E6. STANDARDIZED ELECTRIC VALVE ACTUATORS

E6.1 The City has standardized on a specific vendor for the supply and delivery of electric valve actuators. The Standardization Vendor was selected via RFP 331-2014 and was awarded to Rotork Control Canada Ltd. (Rotork).

(a) Copies of the tender documents are available from City of Winnipeg Material Management's website.

E6.2 Goods to be procured via this standardization agreement include but are not limited to:

(a) Multi-turn electric valve actuators and quarter-turn electric valve actuators with approximate torque requirements of:

(i) On/off torques > 250 Nm

(ii) Modulating torques > 150 Nm

(b) Associated accessories are also included in the agreement.

E6.3 For clarity, this standardization agreement does not include:

(a) Solenoid valve actuators;

(b) Small HVAC damper actuators; and

(c) Electric valve actuators with a power supply < 120 VAC.

E6.4 The use of gearboxes shall not be utilized to reduce actuator torque requirements for the purpose of bypassing this standardization agreement.

E6.5 The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:

(a) IQ3 Range – (IQ, IQM, IQS, IQT, IQTM)

E6.6 Valve Integration Assistance

E6.6.1 Coordinate with Rotork to review the integration of valves with the valve actuators. Comply with guidance provided by Rotork.

E6.6.2 The review provided by Rotork shall be for the purpose of ascertaining conformance of the actuator application with the given valve. The responsibility for integration of the valve with the valve actuator shall remain with the Contractor.

E6.6.3 Rotork will make all applicable actuator Shop Drawings and datasheets available to the Contractor to allow for integration of the valve with the valve actuator.

E6.6.4 In the event that the valve cannot directly attach to a standard base available for the electric actuator, supply and installation of valve adaptors between the actuator base and the valve will be the responsibility of the Contractor.

E6.6.5 Costs

(a) Rotork is obligated to provide valve integration assistance services at no additional cost above the supply of the actuator.

E6.7 Valve Integration Services

E6.7.1 The Contractor may engage Rotork to provide valve integration services in addition to that required in E6.6; however, this additional work would be outside of the Standardization Agreement.

(a) The Contractor is encouraged to provide the best value for services provided.

E6.8 Field setup and commissioning:

E6.8.1 Field setup and commissioning of the actuators shall be performed by Rotork under the standardization agreement for the following:

(a) The first actuator of each type installed on site; and

(b) A minimum of two actuators additional of each type, or 5% of the actuators of that type, whichever is greater.

E6.8.2 Coordinate with Rotork as required to understand the limitations of Rotork's field setup and commissioning services and provide all remaining services to provide a complete commissioning and start-up.

E6.8.3 Field setup and commissioning of the remaining actuators may be performed by Rotork, or by a representative of the valve manufacturer.

E6.8.4 Rotork's presence to setup and commission the actuator in no way limits the valve or gate vendor's responsibility for setup and commissioning.

E6.8.5 Responsibility of the Contractor:

(a) It is the responsibility of the Contractor to ensure that the installation of the actuator is complete and that the valve is ready to commission, as per Rotork's documented pre-commissioning checklist.

E6.8.6 Field setup and commissioning servers shall include all standard manufacturer recommended start-up and commissioning procedures, as well as the following:

(a) Visual Inspection
  (i) Inspect equipment for signs of damage.
  (ii) Verify mechanical installation per drawings.
  (iii) Inspect electrical terminal compartment for foreign objects.

(b) Mechanical Inspection
  (i) Check all bolts for tightness and to the correct torque.
  (ii) Check for alignment.
  (iii) Ensure appropriate clearances for all connecting bushings and connecting faces.

(c) Electrical Inspection
  (i) Check all power wiring connections for tightness.
  (ii) Check all fuses for continuity.
  (iii) Confirm input voltage and phase rotation is correct.
  (iv) Confirm that the control / fieldbus connections are correct.

(d) Start-up Services
  (i) Coordinate turning on power to the actuator.
  (ii) Perform functional tests.
  (iii) Coordinate with City personnel and designated representatives to confirm and finalize the application requirements.
  (iv) Configure and document all settings, as appropriate for the application.
  (v) Perform test runs.
  (vi) Verify that all configuration values are in the correct state.
  (vii) Transfer the configuration settings to on-site personnel.

E6.8.7 Training

(a) In addition to the requirements of E6.9, provide up to fifteen (15) minutes of training to personnel on site for each actuator started-up and commissioned.

E6.8.8 Documentation

(a) Provide a signed documented commissioning form for each actuator, in a format acceptable to the Contract Administrator.

E6.8.9 Travel

(a) Provide all travel and accommodations at no additional cost.

E6.8.10 Personnel:

(a) Personnel shall be factory trained in the maintenance, configuration, and service of the proposed electric actuators.

E6.9 On-Site Training Session

E6.9.1 Operation and Basic Maintenance

(a) Overview
  (i) Provide instruction to designated City personnel in the operation and basic maintenance of the electric actuators.

(b) Location
  (i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.

(c) Travel
  (i) Provide all travel and accommodations at no additional cost.

(d) Submittals
  (i) Submit the names and qualifications of the proposed instructors.
  (ii) Submit training proposal complete with hour by hour schedule including brief overview of content of each training segment a minimum of 30 Calendar Days prior to the anticipated date of beginning of training.

(e) Quality Assurance
  (i) Provide competent instructors thoroughly familiar with all aspects of the electric actuators.
  (ii) The Contract Administrator may reject instructors it deems to not be qualified.
  (iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.

(f) Duration
  (i) The training shall consist of two (2) three and a half (3.5) hours periods, excluding coffee breaks. Both sessions shall be in one day.
  (ii) Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.

(g) Materials
  (i) Provide equipment, visual and audio aids, and materials.
  (ii) Supply manual for each trainee, describing in detail the information included in each training program.

(h) Attendees
  (i) The attendees are expected to include, but not be limited to:
    - Operations personnel.
    - Mechanical maintenance personnel.
    - Electrical and instrumentation maintenance personnel.

(i) Content
  (i) Overview of the equipment.
  (ii) Internal operation of the actuators.
  (iii) Equipment operating training including:
    - Local operation of the actuator,
    - Manual / handwheel operation,
    - Remote operation, and
    - Operation via the remote configuration tool.

(j) Basic equipment maintenance training including:
  (i) Basic diagnostics,
  (ii) Basic troubleshooting,
  (iii) Access to historical information and torque values, and
  (iv) Preventative maintenance

(k) Number of Sessions:
  (i) Provide a minimum of three (3) sessions.

E6.9.2 Detailed Configuration and Service

(a) Overview

(i) Provide instruction to designated City personnel in the detailed setup, configuration, and service of the electric actuators.

(b) Location

(i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.

(c) Travel

(i) Provide all travel, meals and accommodations at no additional cost.

(d) Submittals

(i) Submit the names and qualifications of the proposed instructors.

(ii) Submit training proposal complete with hour by hour schedule including brief overview of content of each training segment a minimum of 30 Calendar Days prior to the anticipated date of beginning of training.

(e) Quality Assurance

(i) Provide competent instructors thoroughly familiar with all aspects of the electric actuators.

(ii) The Contract Administrator may reject instructors it deems to not be qualified.

(iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.

(f) Duration

(i) The training shall consist of two days, each seven (7) hour sessions, excluding lunch and coffee breaks. The session days shall be back-to-back.

(ii) Each session (2-days) shall be assumed to be independent of other training sessions, and not necessarily aligned with other on-site work or training.

(g) Materials

(i) Provide equipment, visual and audio aids, and materials.

(ii) Supply manual for each trainee, describing in detail the information included in each training program.

(h) Attendees

(i) The attendees are expected to include, but not be limited to:

- Mechanical maintenance personnel.
- Electrical and instrumentation maintenance personnel.

(i) Content

(i) Detailed overview of the equipment and its internal construction.

(ii) Equipment configuration training, including:

- Setup of the actuator parameters,
- Establishing communications, and
- Setting torque limits and end limits.

(j) Equipment maintenance training including:

(i) Detailed diagnostics,

(ii) Detailed troubleshooting,

(iii) Preventative maintenance,

(iv) Disassembly,

(v) Replacement of modules, and

(vi) Fieldbus diagnostics

(k) Maintenance use of equipment configuration software, including:
  (i) Basic operation of the software,
  (ii) Connecting to electric actuators,
  (iii) Download and upload of the actuator configuration, and
  (iv) Diagnostics and troubleshooting.

(l) Number of Sessions:
  (i) Provide a minimum of two (2) sessions.

E6.10 Primary contact for all quotations and purchases from Rotork:

Mr. Henry Zenteno
#6, 820 - 28th Street North East Street
Calgary, Alberta, T2A 6K1
Telephone: 403-569-9455
Mobile: 403-813-5850
E-mail: Henry.Zenteno@rotork.com

E6.11 Quotations and orders:

E6.11.1 Reference the following in all quotation requests, quotations \ proposals, purchase orders, and invoices:

(a) This Bid Opportunity number; and

(b) A statement indicating:
"This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 331-2014."

E7. STANDARDIZED GAS DETECTION SYSTEMS

E7.1 The City has standardized on a specific vendor for the supply and delivery of gas detection systems. The Standardization Vendor was selected via RFP 123-2014 and was awarded to Mine Safety Appliances Company, LLC (MSA) c/o CB Engineering Ltd.

(a) Copies of the tender documents are available from City of Winnipeg Material Management's website.

E7.2 Goods to be procured via this standardization agreement include but are not limited to:

(a) Gas detection sensors;

(b) Gas detection transmitters;

(c) Gas detection controllers;

(d) Gas detection sensor consumables; and

(e) Associated accessories.

E7.3 The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:

(a) UltimaX gas detection systems.

(b) GasGard XL controllers.

E7.4 Field setup and commissioning:

E7.4.1 Field setup and commissioning of the gas detection systems may be performed by MSA under the Standardization Agreement. Coordinate with MSA as required to understand the capabilities and limitations of MSA's field setup and commissioning services and provide all remaining services to provide a complete commissioning and start-up.

E7.4.2 The Contractor may provide field setup and commissioning services for the gas detection system via alternate means, provided that this does not result in a reduction of the services or quality of work.

E7.4.3 Where MSA is utilized to provide field setup and commissioning, their scope of work has been standardized as follows:

(a) Provide the services for a factory-trained instrument technician to setup and commission the gas detection instruments and controllers, as requested by the City. It is expected that setup and commissioning will be required for some, but not all, of the equipment.

(b) Qualification

(i) The personnel provided shall be a factory trained and certified technologist, with a minimum of one year of experience working with the products proposed.

(c) Services

(i) Provide a full eight hours of on-site labour, for each allocated day, to setup and commission the gas detection systems.

(ii) Provide all travel and tools required.

E7.5 Training

E7.5.1 Local Training Session

(a) Overview

(i) Provide instruction to designated City personnel in the operation and maintenance of the gas detection equipment.

(b) Location

(i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.

(c) Travel

(i) Provide all travel, meals and accommodations at no additional cost.

(d) Submittals

(i) Submit the names and qualifications of the proposed instructors.

(ii) Submit training proposal complete with hour by hour schedule including brief overview of content of each training segment a minimum of 30 Working Days prior to the anticipated date of beginning of training.

(e) Quality Assurance

(i) Provide competent instructors thoroughly familiar with all aspects of the gas detection equipment.

(ii) The Contract Administrator may reject instructors it determines to not be qualified.

(iii) In the event that the training provided is not satisfactory, reduction of payment may be applied.

(f) Duration

(i) The training shall be a minimum of eight (8) hours in duration, excluding coffee and lunch breaks.

(ii) Each session shall be assumed to be independent of other training sessions, and not necessarily aligned with other on-site work or training.

(g) Materials

(i) Provide equipment, visual and audio aids, and materials.

(ii) Supply manual for each trainee, describing in detail the information included in each training program.

(h) Attendees

(i) The attendees are expected to include, but not be limited to:

- Electrical and instrumentation maintenance personnel and
- Operations personnel.

(i) Content

(i) Overview of the equipment.

(ii) Equipment maintenance training including:

- Installation,
- Configuration,
- Troubleshooting, and
- Preventative maintenance

(j) Number of Sessions:

(i) Provide a minimum of two (2) sessions.

E7.6 Primary contact for all quotations and purchases from MSA:

Mr. David Quiring
Account Manager
5040 12A Street SE
Calgary, AB
T2G 5K9
Telephone: 1-800-992-2364
Mobile: 306-716-9700
E-mail: dquiring@cbeng.com

E7.7 Quotations and orders:

E7.7.1 Reference the following in all quotation requests, quotations \ proposals, purchase orders, and invoices:

(a) This Bid Opportunity number; and

(b) A statement indicating:
"This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 123-2014."

E8. STANDARDIZED INSTRUMENTATION

E8.1 The City has standardized on a specific vendor for the supply and delivery of specific instrumentation. The Standardization Vendor was selected via RFP 449-2014 and was awarded to Trans-West Supply Company Inc. (Trans-West).

(a) Copies of the tender documents are available from City of Winnipeg Material Management's website.

E8.2 Goods to be procured via this standardization agreement include but are not limited to:

(a) Flowmeters – Electromagnetic;

(b) Flowmeters – Differential pressure based;

(c) Pressure Transmitters including manifold assemblies;

(d) Temperature Transmitters including temperature elements and thermowells;

(e) Ultrasonic Level Transmitters; and

(f) Associated accessories.

E8.3 For clarity, this standardization agreement does not include:

(a) Flowmeters - Coriolis;

(b) Flowmeters – Thermal Dispersion;

(c) Flowmeters – Ultrasonic;

(d) Flow switches (i.e. mechanical);

(e) Pressure switches;

(f) Temperature switches;

(g) Radar Level Transmitters; and

(h) Level Switches (non-ultrasonic based).

E8.4 The following model series shall be utilized unless otherwise indicated in the Specifications, Drawings or otherwise approved by the Contract Administrator:

(a) Magnetic Flowmeter Flowtubes – SITRANS F M MAG 5100W series.
  (i) SITRANS F M MAG 3100W series may be utilized where specified.

(b) Magnetic Flowmeter Transmitters - SITRANS F M MAG 6000 series.

(c) Pressure Transmitters - SITRANS P DS III.

(d) Temperature Transmitters
  (i) SITRANS TF (Process Applications)
  (ii) SITRANS TH400 (HVAC applications)

(e) Ultrasonic Level Transmitters
  (i) Integrated applications: SITRANS Probe LU
  (ii) Separate controller applications: Multiranger 100/200 with EchoMax transducers.

E8.5 Field setup and commissioning:

E8.5.1 Field setup and commissioning of the instrumentation may be performed by Trans-West under the Standardization Agreement. Coordinate with Trans-West as required to understand the capabilities and limitations of Trans-West's field setup and commissioning services and provide all remaining services to provide a complete commissioning and start-up.

E8.5.2 Field setup and commissioning of the standardized instrumentation shall be performed by Trans-West under the standardization agreement for the following:

(a) The first instrument of each type installed on site; and

(b) A minimum of five additional instruments of each type, or 10% of the actuators of that type, whichever is greater.

E8.5.3 The Contractor may provide field setup and commissioning services for the remaining instrumentation via alternate means, provided that this does not result in a reduction of the services or quality of work.

E8.5.4 The services provided are to include at all standard manufacturer recommended start-up and commissioning procedures, as well as the following:

(a) Visual Inspection
  (i) Inspect instrument for signs of damage,
  (ii) Verify mechanical and piping installation per drawings and manufacturer requirements,
  (iii) Verify wiring installation per drawings and manufacturer requirements, and
  (iv) Inspect electrical terminal compartment for foreign objects.

(b) Mechanical Inspection
  (i) Check all connections and bolts for tightness and to the correct torque,
  (ii) Check for alignment, and

(iii) Ensure appropriate clearances for all connecting bushings and connecting faces.

(c) Electrical Inspection

(i) Check all power wiring connections for tightness,

(ii) Check all fuses in the instrument for continuity,

(iii) Confirm input voltage is correct, and

(iv) Confirm that the signal / fieldbus connections are correct.

(d) Start-up Services

(i) Coordinate turning on power to the instrument,

(ii) Configure all applicable settings and parameters that could not be configured prior to installation,

(iii) Perform functional tests,

(iv) Coordinate with City personnel and designated representatives to confirm and finalize the application requirements,

(v) Configure and document all settings, as appropriate for the application,

(vi) Coordinate to perform test demonstrations to verify instrument performance,

(vii) Verify that all configuration values are in the correct state, and

(viii) Transfer the configuration settings to on-site personnel.

(e) Documentation

(i) Provide a signed documented commissioning form for each instrument, in a format acceptable to the Contract Administrator.

(f) Travel

(i) Provide all travel and accommodations at no additional cost.

(g) Personnel:

(i) Personnel shall be factory trained in the maintenance, configuration, and service of the proposed instrumentation.

E8.5.5 Responsibility of the Contractor:

(a) It is the responsibility of the Contractor to ensure that the installation of the instrumentation is complete and that the instrument is ready to commission prior to engaging Trans-West to commission any instrumentation.

E8.6 Training

E8.6.1 Local Training Session – General Requirements

(a) Overview:

(i) Provide instruction to designated City personnel in the operation, configuration, and maintenance of the proposed instruments and associated components.

(b) Location:

(i) The location of the training will be in the City of Winnipeg, in a facility provided by the City.

(ii) The room will be classroom style.

(c) Submittals:

(i) Submit the names and qualifications of the proposed instructors.

(ii) Submit training proposal complete with hour by hour schedule including brief overview of content of each training segment a minimum of 30 Calendar Days prior to the anticipated date of beginning of training.

(d) Quality Assurance:

(i) Provide competent instructors thoroughly familiar with all aspects of the instruments.

(ii) The Contract Administrator may reject instructors it deems to not be qualified.

(iii) In the event that the training provided is not satisfactory, reduction in payment may be applied.

(e) Materials:

(i) Provide equipment, visual and audio aids, and materials.

(ii) Sample instruments of each type shall be provided, along with all equipment required to power and configure the instruments.

(iii) Supply manual for each trainee, describing in detail the information included in each training program.

(f) Attendees:

(i) The attendees are expected to include, but not be limited to:

- Electrical and instrumentation maintenance personnel.

E8.6.2 Local Training Session – Electromagnetic Flowmeter, Pressure, Temperature

(a) Provide local training sessions, in accordance with E8.6.1:

(b) Duration:

(i) Each training session shall be a minimum of six (6) hours in duration, excluding coffee and lunch breaks.

(ii) Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.

(c) Scope:

(i) Each training session shall address the complete scope of all products proposed.

(d) For each instrument type, provide the following training content:

(i) Overview of the instrument,

(ii) Equipment maintenance training, including:

- Installation,
- Troubleshooting,
- Preventative maintenance,
- Replacement of components,
- Fieldbus network troubleshooting and diagnostics, and
- Calibration procedures.

(iii) Maintenance use of associated software and HART/PROFIBUS parameters, including:

- Basic operation of software,
- Connecting to instruments,
- Configuration of parameters,
- Download and upload software configuration, and

(iv) Diagnostics and troubleshooting.

(e) Number of Sessions:

(i) Provide a minimum of two (2) sessions for each instrument type.

E8.6.3 Local Training Session – Ultrasonic Level

(a) Provide local training sessions, in accordance with E8.6.1:

(b) Duration:

(i) Each training session shall be a minimum of three (3) hours in duration, excluding coffee and lunch breaks.

(ii) Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.

(c) Scope:

(i) Each training session shall address the complete scope of all products proposed.

(d) For each instrument, provide the following training content:

(i) Overview of the instrument,

(ii) Equipment maintenance training, including:

- Installation,
- Troubleshooting,
- Preventative maintenance,
- Replacement of components,
- Fieldbus network troubleshooting and diagnostics, and
- Calibration procedures.

(iii) Maintenance use of associated software and HART/PROFIBUS parameters, including:

- Basic operation of software,
- Connecting to instruments,
- Configuration of parameters,
- Download and upload software configuration, and
- Diagnostics and troubleshooting.

(e) Number of Sessions:

(i) Provide a minimum of two (2) sessions for each instrument type.

E8.6.4 Electromagnetic Flowmeter Calibration Verification Tool Training

(a) Provide local training sessions, in accordance with E8.6.1:

(b) Provide one training session per unit supplied, to instruct designated City personnel in the operation, configuration, and maintenance of the proposed instruments and associated components.

(c) The location of the training will be in the City of Winnipeg, in a facility provided by the City.

(d) Provide competent instructors thoroughly familiar with all aspects of the verification tool.

(i) The Contract Administrator may reject instructors it deems to not be qualified.

E8.6.5 Each training session shall be a minimum of four (4) hours in duration, excluding coffee and lunch breaks, or longer as required to instruct personnel in the required operation.

E8.7 Primary contact for all quotations and purchases from Trans-West:

Amurthan Abimanan
Branch Manager
126 Bannister Road
Winnipeg, MB, R3R 0S3
Telephone: 204-783-0100
Mobile: 204-782-1864
E-mail: amu@transwest-mb.com

E8.8 Quotations and orders:

E8.8.1 Reference the following in all quotation requests, quotations \ proposals, purchase orders, and invoices:

(a) This Bid Opportunity number; and

(b) A statement indicating:

"This request / purchase order is subject to the Terms and Conditions of City of Winnipeg Request for Proposal RFP 449-2014."

E9. SYSTEMS INTEGRATION WORK

E9.1 The Systems Integration Work shall include the supply, installation, programming, testing, commissioning and decommissioning of both hardware and software aspects of a fully integrated process automation system.

E9.2 The Systems Integrator shall have sufficient capability and capacity both in the programming hardware they possess and the associated software licences to effectively develop the site automation systems.

E9.3 The Systems Integrator shall not be dependent upon the City to provide any programming hardware, software, or licences to complete the Work.

E9.4 At the point of final completion and sign off of the automation system, if items were provided by the City to assist the Systems Integrator, the Systems Integrator will turn over those items to the Contract Administrator within ninety (90) Calendar Days.

E9.5 The Systems Integrator shall be responsible for the following requirements:

E9.5.1 The Systems Integrator shall ensure the requirements of the City standards and guidelines are followed and implemented correctly. The standards and guidelines include, but are not limited to:

(a) WWD Historical Data Retention Standard;

(b) WWD Identification Standard;

(c) WWD Tag Naming Standard; and

(d) WWD HMI Layout and Animation Plan

E9.5.2 The Systems Integrator shall be responsible for developing the application software programming of the automation control systems.

E9.5.3 The Systems Integrator shall be responsible for programming, configuration, testing and commissioning of the following automation components:

(a) All automation HMIs;

(b) All automation MCC systems and stand alone VFDs;

(c) All automation server system components;

(d) All automation historians;

(e) All automation PLC systems; and

(f) All automation communication systems and associated components for Ethernet, PROFIBUS DP & PA, MODBUS and HART.

E9.5.4 The Systems Integrator shall integrate the controls of both intelligent and non-intelligent MCCs and associated VFDs into the control system. The supply and/or installation of the MCCs may be via other Subcontractors.

E9.5.5 The Systems Integrator shall integrate all applicable automation panels into the control system. The supply and/or installation of the automation panels may be via other Subcontractors.

E9.5.6 The Systems Integrator shall integrate existing automation equipment into the PCS.

E9.5.7 The Systems Integrator shall integrate packaged third party automation systems into the PCS.

E9.5.8 The Systems Integrator shall provide all software and licences for a complete and operational control system.

E9.5.9 The Systems Integrator shall be responsible for conducting Factory Acceptance Testing (FAT) and SIFT (System Integration Functional Testing) for the automation control system to the satisfaction of the City and representatives of City in attendance. The Systems Integrator shall provide a facility for each FAT within the limits of the City of Winnipeg.

E9.5.10 The Systems Integrator shall be responsible for conducting Site Acceptance Testing (SAT) for the automation control system.

E9.5.11 The Systems Integrator shall develop a comprehensive software simulator for the PCS, to allow for complete off-line testing of each process. The simulator shall simulate the process and process equipment by providing automated responses for all control system inputs, based upon control system outputs. In addition, a user interface shall be provided to allow the user to easily override and force control system inputs to simulate various abnormal scenarios. The user interface shall be user-friendly and presented on a plant process area and system basis. An I/O watch window is not an acceptable user interface.

E9.5.12 The Systems Integrator shall be responsible for the migration of existing processes controlled from the existing ABB DCS automation system and other existing PLC based systems to the new PLC based automation system. The Systems Integrator shall take into consideration the complex nature of a sewage treatment plant running 24 hours a day serving the population of Winnipeg. Shut down of an existing system(s) may or may not be possible and the process may be required to remain live during the changeover of automation systems.

E9.5.13 The System Integrator shall be on-site to support commissioning of the process control and troubleshooting efforts.

E9.5.14 The Systems Integrator shall provide staff to service extended shutdowns and start-ups on a 24-hour working basis during critical windows of Work such as those of DCS migration, commissioning and performance test windows.

E9.5.15 The Systems Integrator shall provide a 24-hour support system, whereby a capable service technician experienced with the City's control systems being installed, is available on an emergency call basis.

E9.5.16 The Systems Integrator shall be responsible for producing the detailed Shop Drawings and any other drawings pertaining to the automation and control systems that forms a part of the scope of work of this project.

E9.5.17 The Systems Integrator shall be responsible for authentication (sealing) of all programming and other automation designs by a Professional Engineer registered with Engineers Geoscientists Manitoba (EGM).

E9.5.18 The Systems Integrator shall provide the specific portions of the operations and maintenance manuals detailing the automation system components, software, configuration, functionality, specific application software documentation, and commissioning records. However, the portions of the Area Manual(s) that describe the general process operation including, but not limited to, the PCS interaction, are not required to be within the System Integrator's scope.

E9.6 The Systems Integrator shall participate in the training provided by the Contractor to train City personnel.

E9.7 The training provided by the Systems Integrator shall be detailed and comprehensive and at minimum cover the following:

(a) City personnel should have an overview of the functionality of the HMI and PCS systems; and

(b) At the completion of the training, City personnel should have an in-depth understanding of the entire range of the automation and control system installed inclusive of the:

(i) Field addressable instrumentation;

(ii) HMI and PCS;

(iii) Historian;
(iv) PLCs;
(v) PROFIBUS, MODBUS and HART networks;
(vi) Fibre Optic and Copper network installation; and
(vii) Servers, Virtual Private Networks (VPNs), DMZs, Firewalls and network protections.

E10. PCS DEMONSTRATION SYSTEM

E10.1 The Contractor shall provide a complete, computer hardware and software system that simulates the PCS and the process (the "PCS Demonstration System") which includes:

(a) A HMI Operator Workstation complete with CitectSCADA server and client software as required;
(b) A Process Simulator Workstation with Schneider Electric SimSci DynSim software;
(c) Other computer hardware as required to simulate the PLCs and other automation hardware;

E10.2 The PCS Demonstration System shall utilize completely independent hardware from the PCS and be turned over to the City.

E10.3 The Contractor shall integrate a PCS Demonstration System into classroom training course where:

(a) The content includes equipment monitoring and control via the HMI;
(b) The content includes alarming and alarm response;
(c) The content includes coordination of maintenance events and states to PCS/HMI status indications; or
(d) The use of the PCS Demonstration System would clarify and/or aid in the training of the attendees.

E10.4 Where use of the PCS Demonstration System is included in a training course, the Contractor shall:

(a) Provide the PCS Demonstration System in accordance with the Specifications;
(b) Ensure that the PCS Demonstration System in no way impacts the actual operating PCS or in any other way expose the PCS to any risk of inadvertent operation; and
(c) Provide a second projector and screen to display the HMI Operator Workstation to all participants.

E11. CHAMBER #7

DESCRIPTION

E11.1 This specification shall cover the construction of Chamber #7 that transitions the 2 metre by 2 metre cast-in-place square concrete tunnel to the 2.1 metre diameter precast concrete pipe.

E11.2 Materials and construction methods as prescribed in the following specifications:

(a) Division 01 - General Requirements
(b) Division 03 - Concrete
(c) Division 31 - Earthwork
(d) CW2030 - Excavation Bedding and Backfill

MEASUREMENT AND PAYMENT

E11.3 Supply and installation of precast concrete piles for Chamber 7 will not be measured and are incidental to the work.

E11.4 Construction of Chamber #7 concrete structure will be paid for at the Contract Lump Sum Price for Item 13.9 Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this Specification.

E12. OUTFALL CHAMBER RAISING

DESCRIPTION

E12.1 Six cast-in-place concrete outfall chamber structures are required to be raised for flood protection along the SEWPCC outfall alignment. This specification shall cover the modification of the six concrete outfall structures to raise the top of chamber elevation to above flood protection level.

MATERIALS

E12.2 Materials and construction methods shall be as prescribed in the following specifications:

(a) Division 01 - General Requirements
(b) Division 02 - Existing Conditions
(c) Division 03 - Concrete
(d) Division 05 - Metals
(e) Division 31 - Earthwork
(f) CW2030 - Excavation Bedding and Backfill

MEASUREMENT AND PAYMENT

E12.3 Partial demolition of the existing chamber roof and construction of the cast-in-place concrete chamber extensions will be paid for at the Contract Lump Sum Price for Item 1.1. Said prices shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

E13. OUTFALL MANHOLE RAISING

DESCRIPTION

E13.1 Four precast concrete manhole structures are required to be raised for flood protection along the SEWPCC outfall alignment. This specification shall cover the modification of the four manholes to raise the rim elevation to above flood protection level.

MATERIALS

E13.2 Materials and construction methods shall be as prescribed in the following specifications:

(a) Division 01 - General Requirements
(b) Division 02 - Existing Conditions
(c) Division 03 - Concrete
(d) Division 05 - Metals
(e) Division 31 - Earthwork
(f) CW2030 - Excavation Bedding and Backfill

MEASUREMENT AND PAYMENT

E13.3 Partial demolition of the existing chamber roof and construction of the precast concrete manhole extensions will be paid for at the Contract Unit Price for Item 1.2. Said price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

E14. EFFLUENT MONITORING STATION MODIFICATIONS

DESCRIPTION

E14.1 The sampling floor hatch in the existing effluent monitoring station will be raised above the flood protection level. This specification shall cover the modification of the hatch and piping equipment within the existing Effluent Monitoring Station.

MATERIALS

E14.2 Materials and construction methods shall be as prescribed in the NMS format specifications.

(a) Division 01 - General Requirements
(b) Division 02 - Existing Conditions
(c) Division 03 - Concrete
(d) Division 05 - Metals
(e) Division 40 - Process Integration

MEASUREMENT AND PAYMENT

E14.3 Partial demolition of the existing chamber roof and construction of the chamber extensions will be paid for at the Contract Lump Sum Price for Item 1.3. Said price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

E15. SHORING

E15.1 Shoring shall be designed and installed in accordance with CW 2030.

E15.2 The Contractor shall be responsible for designing shoring as required to facilitate construction of the works shown on the design drawings. The shoring shall be designed by a professional engineer registered to practice in the Province of Manitoba.

E15.3 Sealed engineered Shop Drawings for the shoring shall be submitted for review and approval by the Contract Administrator prior to installation.

E15.4 Shoring supplied and installed under this contract shall be removed upon completion of the work.

E15.5 At a minimum, shoring shall be designed to handle HS32 (CL800) highway live loading.

E15.6 With the exception of shoring required for the Grit & Screenings Building construction and the Chemical Line Duct Bank construction, both of which have separate pay items, any other shoring required for construction on this Contract shall be incidental to the Work.

E15.7 Shoring plans shall take into account the presence of any buried underground services and include provision for working around them and maintaining them in service during Construction. If shoring plans require that a buried service to the plant be affected, the Contractor shall present a plan for temporarily re-routing and maintaining the service for the duration of construction, and restoration of the service along the original alignment following completion of construction.

E15.8 Shoring plans developed for the new Grit & Screenings Building shall not impede upon Ed Spencer Drive or the new approach to be constructed on the east side of the existing Screen Building.

MEASUREMENT AND PAYMENT

E15.9 All shoring required shall be incidental to the construction cost of the area requiring shoring, with the exception of shoring required for construction of the Chemical Line Duct Bank and

construction of the Grit & Screenings Building Excavation, where separate pay items are included for each of these two specific areas as follows:

(a) Chemical Line Duct Bank Shoring – Item 3.12;

(b) Grit & Screenings Building Excavation Shoring – Item 5.12;

E15.10 Temporary re-routing during construction and re-instatement following construction for buried utility service lines affected by shoring shall be incidental to the Work. No additional payment shall be made for temporary service re-routing or reinstatement of servicing following Construction. It is the responsibility of the Contractor to determine a shoring plan that minimizes impact on existing buried utility services and a plan to accommodate maintaining those services during construction and reinstating them following construction.

E16. CHEMICAL LINE DUCT BANK EXCAVATION

E16.1 Excavation for the Chemical Line Duct Bank shall be performed in accordance with CW 3170-R3.

E16.2 Disposal of excavated material for the Chemical Line Duct Bank shall be to the designated stockpile areas west of the site, at the locations indicated on the design drawings.

E16.3 The Contractor is responsible for developing and submitting for approval by the Contract Administrator, an excavation plan for the Chemical Line Duct Bank, taking into account the following:

(a) Access Requirements

(i) The plan shall indicate proposed access requirements for completing the Work, including but not necessarily limited to, vehicular access ramps to the bottom of the excavation.

(b) Dewatering

(i) Plan shall include provision for dewatering of excavations and locations for disposal.

(c) Shoring Requirements

(i) The plan shall indicate the location of proposed shoring required for the access plan. Excavation plan maybe developed in conjunction with the proposed shoring plan.

(d) Buried Utilities

(i) Where the excavation affects buried utilities, the plan shall indicate how buried utilities will be maintained during construction and, if required, reinstated following backfill of the excavation and removal of shoring. Existing utilities may include, but are not necessarily limited to, existing water service and existing sewer services.

E16.4 The Contractor shall be responsible for maintaining their excavation in a safe manner and ensure that the side slopes are protected from erosion. If the excavation plan has side slopes, the contractor shall cover the side slopes in 6mm polyethylene plastic or waterproof tarpaulins to protect from erosion. Any 6mm polyethylene plastic or tarpaulins supplied and installed by the Contractor shall be maintained for the duration of construction and removed at the end of the contract during backfilling.

E16.5 The Contractor shall submit a plan for protection of excavation slopes during construction to the Contract Administrator for approval a minimum of seven (7) days prior to construction of building foundation excavations.

E16.6 The Contractor is responsible for keeping their excavations free of water infiltration from runoff and shall at their own expense implement a water management plan in accordance with section E36 of this specification document.

E16.7 Costs for maintaining excavation in a safe manner and free of water shall be incidental to the costs of excavation for building foundations. No additional payment will be made for use of tarpaulins or polyethylene cover over side slopes of excavations.

MEASUREMENT AND PAYMENT

E16.8 Notwithstanding CW 3170-R3, the cost for excavation of the Chemical Line Duct Bank shall be paid for at the Contract Lump Sum price for Item 3.11, and shall include provision for all labour, equipment and materials required to perform the excavation in accordance with the plan developed by the Contractor and approved by the Contract Administrator, and in accordance with the Specification.

E17. GRIT & SCREENINGS BUILDING EXCAVATION

E17.1 Excavation for the Grit & Screenings Building shall be performed in accordance with CW 3170-R3.

E17.2 Disposal of excavated material for the Grit & Screenings Building shall be to the designated stockpile areas west of the site, at the locations indicated on the design drawings.

E17.3 The Contractor is responsible for developing and submitting for approval by the Contract Administrator, an excavation plan for the Grit & Screenings Building, taking into account the following:

(a) Access Requirements

(i) The plan shall indicate proposed access requirements for completing the Work, including but not necessarily limited to, vehicular access ramps to the bottom of the excavation. The Grit & Screenings Building excavation and any access ramps, as required, cannot impede upon Ed Spencer Drive or the new access approach to the east side of the existing Screenings Building.

(b) Dewatering

(i) Plan shall include provision for dewatering of excavations and locations for disposal.

(c) Shoring Requirements

(i) The plan shall indicate the location of proposed shoring required for the access plan. Excavation plan maybe developed in conjunction with the proposed shoring plan.

(d) Buried Utilities

(i) Where the excavation affects buried utilities, the plan shall indicate how buried utilities will be maintained during construction and, if required, reinstated following backfill of the excavation and removal of shoring. Existing utilities may include, but are not necessarily limited to, existing water service and existing sewer services.

E17.4 The Contractor shall be responsible for maintaining their excavation in a safe manner and ensure that the side slopes are protected from erosion. If the excavation plan has side slopes, the contractor shall cover the side slopes in 6mil polyethylene plastic or waterproof tarpaulins to protect from erosion. Any 6mil polyethylene plastic or tarpaulins supplied and installed by the Contractor shall be maintained for the duration of construction and removed at the end of the contract during backfilling.

E17.5 The Contractor shall submit a plan for protection of excavation slopes during construction to the Contract Administrator for approval a minimum of seven (7) days prior to construction of building foundation excavations.

E17.6 The Contractor is responsible for keeping their excavations free of water infiltration from runoff and shall at their own expense implement a water management plan in accordance with section E36 of this specification document.

E17.7 Costs for maintaining excavation in a safe manner and free of water shall be incidental to the costs of the Grit & Screenings Building Excavation. No additional payment will be made for use of tarpaulins or polyethylene cover over side slopes of excavations.

MEASUREMENT AND PAYMENT

E17.8 Notwithstanding CW 3170-R3, the cost for excavation of the Grit & Screenings Building shall be paid for at the Contract Lump Sum price for Item 5.11, and shall include provision for all labour, equipment and materials required to perform the excavation in accordance with the plan developed by the Contractor and approved by the Contract Administrator, and in accordance with the Specification.

E18. REMOVAL OF RAILWAY TIE WHEEL STOPS

E18.1 The Contractor shall remove and dispose of existing railway tie wheel stops that are in temporary construction parking lots.

E18.2 Railway tie wheel stops shall be removed and disposed of off-site at a legal disposal site, as approved by the Contract Administrator.

MEASUREMENT AND PAYMENT

E18.3 Removal and disposal of existing railway tie wheel stops will be for at the Contract Unit Price for Item 13.23. The unit price shall include all labour, equipment and materials and fees required to perform the Work.

E19. PRECAST CONCRETE WHEEL STOPS

E19.1 The Contractor shall supply and install pre-cast concrete wheel stops at the ends of parking stalls at locations indicated on the design drawings.

MEASUREMENT AND PAYMENT

E19.2 Precast concrete wheel stops will be measured on a unit basis and paid for at the Contract Unit Price for Item 13.43 for each wheel stop supplied and installed in accordance with this specification. The unit price shall include all labour, equipment and materials and fees required to perform the Work.

E20. CATCH BASIN ON 300MM DIA CONCRETE CULVERT

E20.1 The Contractor shall construct shallow-bury catchbasins without a sump over the 300mm diameter concrete culvert to be installed along the east side of the site adjacent to Ed Spencer Drive at locations indicated on the contract drawings.

E20.2 The shallow-bury catchbasins shall include a TF-112 round frame and grated cover over a pre-cast concrete reducer and 900mm diameter pre-cast concrete manhole riser section to meet the required grades on the drawing. A cast-in place water-tight base shall be poured to eliminate infiltration from surrounding groundwater.

MEASUREMENT AND PAYMENT

E20.3 Catch basin on 300mm diameter concrete culvert shall be measured on a unit basis for each shallow bury catchbasin and paid for at the Contract Unit Price for Item 13.48 for each catch basin supplied and installed in accordance with this specification. The unit price shall include all labour, equipment and materials and fees required to perform the Work.

E21. SODDING

DESCRIPTION

E21.1 Further to CW 3510, this specification shall cover the supply and installation of sod over existing gravel surface laydown areas and non-gravel surfaced areas.

MATERIALS

E21.2 All sod placed shall be a mineral sod in accordance with CW3510.

E21.3 Topsoil shall be supplied and placed in accordance with CW3540.

CONSTRUCTION METHODS

E21.4 When placing sod over gravel surface construction laydown areas, parking lots or construction roadways, the Contractor shall place a 200mm thick layer of topsoil prior to placement of sod.

E21.5 When placing sod over non-gravel surfaced areas, the Contractor shall be required to place a 100mm thick layer of topoil prior to placement of sod, in accordance with CW3510.

MEASUREMENT AND PAYMENT

E21.6 Supply and installation of sod shall be at the Contract unit prices per square metre for placement of sod based upon the respective pay items as follows:

(a) Placement of sod over granular surfaced areas – Item 13.45;

(b) Placement of sod over non-granular surfaced areas – Item 13.46;

and shall include all labour, equipment and materials necessary to perform the work in accordance with the specification.

E21.7 The unit prices shall cover sod placement regardless of width of sod placed.

E22. HYDROEXCAVATION

E22.1 Prior to excavation over exisiting buried utility lines, including but not necessarily limited to, buried gas lines, electrical cables, air lines, the Contractor shall perform hydroexcavation to confirm the depth, alignments and sizes of buried utilities.

E22.2 Hydroexcavation may only be performed by a contractor with suitable equipment licensed to perform sewer and water work in the City of Winnipeg.

E22.3 Hydroexcavation shall be performed in a fashion such that the buried utility lines identified are not damaged during the process.

E22.4 Upon identifying the depth, alignment and size of existing buried utilities via hydro-excavation, the Contractor shall record the information with alignment and depth surveyed using GPS equipment. The resultant information shall be shared with the Contract Administrator for use in record as-built drawings.

E22.5 The Contractor shall provide the Contract Administrator with notification of planned locations where hydroexcavation is to be performed a minimum of seven (7) days prior to performing hydroexcavation.

E22.6 The Contractor shall notify respective utilities, such as Manitoba Hydro, for hydroexcavation over buried electrical service and gas service feeds and coordinate and arrange for any required safety watch from the utility during hydroexcavation.

Measurement and Payment

E22.7 Hydroexcavation shall be measured on an hourly basis and paid for at the Contract Unit Price per hour for Item 13.65.

E23. PERMANENT CHAIN LINK FENCING

E23.1 Portions of the chain link fencing to be supplied and installed around the perimeter of the site are classified as permanent to define the finished perimeter boundaries of the facility. The

sections to be considered permanent fencing shall be per the locations indicated on the design drawings.

E23.2 Permanent Chain Link Fencing shall be constructed in accordance with CW 3550-R3 and the following material specifications:

(a) Fencing fabric shall be galvanized chain link fencing at a minimum height without top guard of 3.65 meters.

(b) Fencing mesh shall consist of 9 gauge wire with 50mm diamond mesh.

(c) Distance between posts shall be no more than 3 meters.

(d) Post hole depths shall be as indicated in the detail on design drawing 1-0102-DTL-A001-002. Note: Corner post hole depths shall be deeper than non-corner post hole depths, as indicated in the aforementioned detail in the design drawing. The post holes shall be backfilled with concrete with the concrete extended 50mm above grade with a crowned surface to shed water.

(e) When fences cross a stream, culvert, depression, or other openings that fencing does not enclose, where the opening size is 62,000mm2 or larger, these openings should be protected by additional grilles, fencing, or other barriers against intrusion.

(f) The bottom fence fabric shall be secured to a bottom rail and securely anchored at midpoint.

(g) Permanent fencing shall have a top guard consisting of 600mm tall outrigger at 45 degree angle, facing outward with 3 strands of 13.5 gauge barbed wire, as indicated on the design drawings.

(h) Fence Signage shall be placed every 30 meters on the exterior of the fence.

Measurement and Payment

E23.3 Permanent Chain Link Fencing shall be measured on a linear measure basis and paid for at the Contract Unit Price per metre for Item 13.57, which price shall be payment in full for all materials, labour and equipment required to supply and install the fence.

E24. NON-CONDUCTIVE CONCRETE WALL PERMANENT SECURITY FENCING

E24.1 A portion of the of the security fencing to be supplied and installed around the perimeter of the site runs underneath incoming overhead high voltage power lines to the site, north of the 66kV Substation and will need to be made of non-conductive material, spanning a length of 62 metres centred on the middle of the two incoming overhead power supply lines, as indicated on the drawings.

E24.2 The non-conductive security fencing shall consist of 3.65 metre tall, 4.57m long sections of pre-cast concrete panel walls. Permanent Chain Link Fencing shall be constructed in accordance with the following material specifications:

(a) Shall be pre-cast concrete wall at a minimum height without top guard of 3.65 meters.

(b) Spans of concrete panels shall be no more than 4.57 meters between supporting posts.

(c) Post hole depths shall be as required by the manufacturer.

(d) Fence Signage shall be placed every 30 meters on the exterior of the fence.

Measurement and Payment

E24.3 Non-conductive concrete wall security fencing shall be measured on a linear measure basis and paid for at the Contract Unit Price per metre for Item 13.58, which price shall be payment in full for all materials, labour and equipment required to supply and install the fence.

E25. POWERED CHAIN LINK FENCE SLIDING SECURITY GATES

DESCRIPTION

E25.1 Further to CW 3550 this specification shall cover the supply and installation of sliding security gate with an electronic sliding gate operator to facilitate opening and closing of the gate.

MATERIALS

E25.2 Sliding gate shall be made of chain link fence material per CW 3550 and as shown on the design drawings.

E25.3 The sliding gate shall be operated by a Chamberlain SL595U Sliding Gate Operator motor.

E25.4 The security fence shall be 3.65m tall with three strand barbed wire along the top, consistent with the permanent chain link fence on the remainder of the site.

CONSTRUCTION METHODS

E25.5 The Contractor shall install the security fence gate in accordance with CW 3550 and shall install the electronic slide gate operator in accordance with the manufacturer's specifications.

E25.6 The Contractor shall provide plan for providing electrical service to the slide gates and submit Shop Drawings for the slide gate and all associated components for review and approval prior to installation.

MEASUREMENT AND PAYMENT

E25.7 Supply and installation of the slide gate will be paid for at the Contract Unit Price for Item 13.61 for each slide gate and operator supplied and installed and measured as specified herein, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification.

E26. CHAIN LINK FENCING GATES

E26.1 All non-sliding gates for chain link fences in this contract shall be constructed in accordance with CW 3550-R3 unless noted otherwise in this specification.

E26.2 The new gates for access to the field west of the Effluent Sampling Facility shall be a 7.5m wide swinging gate opening at the centreline of the opening, with the following specifications:

(a) Gate shall be 3.65m tall plus a 600mm tall top guard consisting of an outrigger at 45 degree angle, facing outward with 3 strands of 13,5 gauge barbed wire, as indicated on the design drawings.

Measurement and Payment

E26.3 The new swinging Chain Link Fencing gate for access to the field west of the Effluent Sampling Facility shall be measured and paid for at the Contract Unit Price for Item 13.60, which price shall be payment in full for all materials, labour and equipment required to supply and install the gate.

E27. REMOVAL OF TEMPORARY CHAIN LINK FENCE

E27.1 The Contractor shall remove and dispose of all temporary construction chain link fence at locations as directed by the Contract Administrator.

E27.2 Removal of chain link fence shall include removal of chain link mesh, posts and any other related fasteners and appurtenances from the site.

Measurement and Payment

E27.3 Removal and disposal of temporary chain link fence shall be measured on a linear metre basis and paid for at the Contract Unit Price for Item 13.59, which price shall be payment in full for all materials, labour and equipment required to remove and dispose of the material at a suitable approved location off-site.

E28. PARKING LOT HITCHING RAIL FENCE AND STALL NUMBER TAGS

E28.1 The Contractor shall supply and install a parking lot hitching rail in the new parking lot to be constructed west of the Administration Building, in accordance with the details on the design drawings and as directed by the Contract Administrator.

E28.2 Each stall shall be equipped with a Stall Number tag affixed to the face of the hitching rail centered on the middle of the stall per the materials and detail shown on the design drawings.

E28.3 Each stall shall be equipped with an electrical outlet as indicated on the design drawings and coordinated with the Electrical design drawings.

Measurement and Payment

E28.4 Supply and installation of the parking lot hitching rail fence shall be measured on a lump sum basis and paid for at the Contract Unit Price for Item 13.56, which shall include all materials, labour and equipment required to install the hitching rail fence in accordance with the design drawings.

E29. BOLLARDS

E29.1 The Contractor shall supply and install bollards around fire hydrants and specified testholes as indicated on the design drawings.

E29.2 Bollards shall be constructed in accordance with the details shown on the design drawings detail sheet.

E29.3 The contractor shall supply all equipment, labour and materials required to supply and install the bollards per the design drawings.

Measurement and Payment

E29.4 Supply and installation of bollards will be at the Contract Unit Price for Item 13.62 for each bollard supplied and installed in accordance with this specification.

E30. MOBILIZATION AND DEMOBILIZATION

E30.1 Notwithstanding the City of Winnipeg Standard Construction Specifications, a separate pay item is included for mobilization and demobilization.

E30.2 Mobilization shall be as defined in specification “Section 01 50 00 – Temporary Facilities and Controls”. Demobilization shall mean the removal of all mobilized equipment and materials as defined in Section 01 50 00.

Measurement and Payment

E30.3 Mobilization and Demobilization will be measured and paid for at the Contract Lump Sum Price for “Mobilization and Demobilization”, which price shall be payment in full for supplying all materials and for performing all operations herein described and all other items incidental to the Work included in this Specification.

E30.4 Mobilization and Demobilization will be paid out at 50% of the unit price will be paid on the first progress payment following commencement of the Work.

E30.5 The remaining 50% of the Mobilization and Demobilization unit price will be paid subsequent to the completion of the Work.

E31. EXTRA WORK ALLOWANCE

E31.1 The Extra Work Allowance is intended to address general site maintenance and additional upgrade work authorized by the Contract Administrator.

E31.2 The City reserves the right to delete any or all of the Extra Work Allowance from the Contract if the Work intended to be covered by the Extra Work Allowance is not required, or if the Works intended are found to be more extensive than the provisional Extra Work Allowance.

Road and Parking Area Maintenance

E31.3 For the duration of the contract, the Contractor shall be responsible for maintaining 24-hour access to the site for the City of Winnipeg for their continuous operation of the SEWPCC.

E31.4 Maintaining 24-hour site access shall include, but not necessarily be limited to, clearing snow and sanding all site roadways utilized by the City of Winnipeg in the course of their operation of the plant, as required during the winter months. This primarily refers to uninterrupted access to the site by sludge trucks 24-hours a day, but also includes access by any other means or vehicles required for daily operation of SEWPCC.

E31.5 Provide snow removal (when snowfall exceeds 25mm) on west access road from Seniuk Dr through to the sludge haul truck bay doors 6 and 7 and surrounding truck turnaround area at the haul bay location on the south side of the SEWPCC on a 24/7 basis. Include snow removal by hand at the truck haul bay doors 6 and 7 and the man door between them. Include snow removal by hand at west road access gate location to ensure automatic gates operate effectively.

E31.6 Provide snow removal for vehicle access to the UV building. Include snow removal by hand at the man door located on the south side of the UV building.

E31.7 Provide snow removal for vehicle access to the outfall building. Include snow removal by hand at the two man doors located on the south side of the outfall building.

E31.8 The Contractor shall ensure the West Access road main gate is operational 24/7 for sludge hauling operations.

E31.9 Provide periodic sanding of roads as required, to the satisfaction of the Contract Administrator

E31.10 Provide maintenance to site roads and parking areas including fencing and gates, and roadside reflectors to the satisfaction of the Contract Administrator

E31.11 Provide maintenance of road/ditch reflectors as required to maintain reflector visibility

E31.12 Provide snow removal at gravel parking area located east side of Project Site Trailers and provide hand snow removal at Project Site trailer entrance stairs to man gate and stairs at emergency egresses from each trailer.

E31.13 Provide snow removal from site ditches between the depressurization pump location and the ditch connection to outfall.

E31.14 Provide maintenance of site drainage system, ditches and culverts located on the site.

E31.15 Provide vegetation control as required for safe maintenance and cleanliness of the site to the satisfaction of the Contract Administrator

Deep Well Ground Water Monitoring and Depressurization

E31.16 Supply and Install two temporary generators (one duty and one standby) from March 1, 2018 to July 31, 2018 and March 1, 2019 to July 31, 2019, March 1, 2020 to July 31, 2020, and March 1, 2021 to July 31, 2021 to power the deep well pumps. Connect generators to existing VFD's mounted in weather proof enclosure.

E31.17 Supply fuel and generator maintenance including periodic start up (weekly).

E31.18 Provide well measurements twice daily during the periods noted in E31.16 at five test well locations, record data on spreadsheet and submit to Contract Administrator daily.

E31.19 Operate depressurization system pumps when directed by Contract Administrator and record volume of water pumped on a daily basis via flow meter (supplied by others) and submit to Contract Administrator

Method of Measurement and Basis of Payment for Extra Work Allowance

E31.20 Payment for Road and Parking Area Maintenance will be based on Time and Materials. The Contractor shall submit labour and equipment hours and rates and total cost for each work activity performed as requested by the Contract Administrator for approval and a Change Order will be prepared by the Contract Administrator. Approved costs will be paid from the Extra Work Allowance defined in Item E in Form B: Prices.

E31.21 Payment for Deep Well Ground Water Monitoring and Depressurization will be based on Time and Materials. The Contractor shall submit labour and equipment hours and rates and total cost for each work activity performed as requested by the Contract Administrator for approval and a Change Order will be prepared by the Contract Administrator. Approved costs will be paid from the Extra Work Allowance defined in Item E in Form B: Prices.

E31.22 Cost of all other Extra Work shall be evaluated by the methods outlined in C7.4, and a Change Order prepared by the Contract Administrator. Cost of the Change Order will be paid on the Progress Estimate and deducted from the Extra Work Allowance. If the valuation of the authorized work exceeds the Value of the Extra Work Allowance, the Contract Value will be adjusted by the shortfall.

E32. GRADING AND MAINTAINING STOCKPILES

E32.1 The excavated materials to be stocked at the location of existing stock piles at the west end of the SEWPCC site.

E32.2 The stockpiles at the west end of the SEWPCC site shall be graded in accordance with the slopes on the design drawings. The contactor shall maintain the stockpiles in a safe manner throughout the duration of construction keeping and protect them from erosion.

E32.3 Maintenance of the stockpiles shall be performed to the satisfaction of the Contract Administrator.

E32.4 Material that is acceptable for backfilling according to specifications will be taken from the Northern/or the Southern pile as directed by the Contract Administrator.

E32.5 A stock pile management plan is to be submitted to the Contract Administrator for approval.

Measurement and Payment

E32.6 No additional payment shall be made for grading and maintaining stockpiles and is considered incidental to the Work.

E33. OUTFALL PIPE LOADING

E33.1 The Contractor shall exercise caution when crossing the existing outfall pipes running west underneath the site perimeter roadway running along the west side of the site.

E33.2 The maximum allowable loading over the outfall pipes is HS28 (CL800) live highway loading. The Contractor shall be responsible for ensuring that loading over the outfall pipes does not exceed the aforementioned limit during construction.

E33.3 If the Contractor needs to transport equipment, materials or any load exceeding the limit specified in E33.2 to a location south of the outfall pipes, the Contractor shall use an alternate route along Ed Spencer Drive along the east side of the site.

E33.4 If using an alternate route along Ed Spencer Drive is not feasible such that a route over the outfall is the only viable option, the Contractor shall notify the Contract Administrator and be responsible for hiring a professional engineer to design temporary bridging over the outfall pipes, suitable for the required design load, and installing the temporary bridging prior to transport of the required load.

E33.5 If the Contractor chooses to install temporary bridging over the outfall pipes, the design shall be prepared by a professional engineer and submitted to the Contract Administrator for review and approval prior to construction of the temporary bridging.

E33.6 Any temporary bridging over the outfall pipes to facilitate excessive loading above the load specified in E33.2 shall be incidental to the Contractor's prices for the work. No additional payment shall be made for temporary bridging over the outfall pipes.

E33.7 If the Contractor chooses to install temporary bridging over the outfall pipes, the bridging shall be removed upon completion of the contract and the roadway restored to equal or better condition than it was prior to installation of the temporary bridging over the outfall pipes.

Measurement and Payment

E33.8 No additional payment shall be made for protection of the outfall pipes or installation of temporary bridging over the outfall pipes. Such work shall be incidental to the Contractor's prices for work on this project.

E33.9 The excavated materials to be stocked at the location of existing stock piles at the west end of the SEWPCC site.

E34. CONSTRUCTION LAYOUT

E34.1 Notwithstanding CW 1130-R2, the Contractor shall be responsible for performing their own layout and staking site construction works based upon control point elevations provided by the Contract Administrator.

E34.2 Construction layout shall also comply with specification section "01 43 33 Contractor Field Services".

E34.3 Costs for Construction layout shall be incidental to the Work. No additional payment will be made for construction layout performed by the Contractor.

E35. TEMPORARY SHUTDOWNS

E35.1 Any required temporary shutdowns of services to the SEWPCC or any other activity affecting normal plant operation to accommodate completion of the Work shall be limited in duration and subject to the conditions defined in the Specifications.

E36. WATER MANAGEMENT PLAN

E36.1 Further to CW 2030, work areas can receive flow of an undetermined amount from groundwater infiltration, snow melt, rainfall and other unforeseen sources.

E36.2 Dewatering of work areas shall be in accordance with this specification and supplemental specification "31 23 19.01 – Dewatering".

E36.3 The Contractor shall provide water management measures to prevent water ponding in work areas and excavations. Water management measures shall include but not be limited to diversions, flumes and by-pass pumping. Pumping of runoff water from excavations shall be discharged to a grass field area outside the excavation before running off into ditches. The Contractor shall not discharge any water off-site without prior written approval from the Contract Administrator.

E36.4 Discharge hoses for pumping from excavations shall not be laid across vehicle access roads without adequate protection over them and the hoses must be protected from freezing during winter months. Pumping equipment, if used, shall be set-up in a location and in such a way as approved by the Contract Administrator.

E36.5 The Contractor shall not discharge water containing residual chlorine into water courses without first providing testing and dechlorination.

E36.6 The Contractor shall provide a water management plan to the Contract Administrator for review before beginning any excavation work.

E36.7 Costs for water management to maintain dry working conditions shall be considered incidental to the work. No separate payment will be made for water control.

E36.8 Costs for deep well ground water depressurization shall be paid from the Extra Work Allowance as per E.5.21.

E37. ENVIRONMENTAL PROTECTION PLAN

E37.1 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the Environmental Protection Plan as herein specified, Fisheries Authorization & CEAA Screening report.

E37.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work and are available for viewing at the office of the Contract Administrator.

(a) Federal
  (i) Canadian Environmental Protection Act (CEPA)
  (ii) Transportation of Dangerous Goods Act and Regulations c.34
  (iii) The Fisheries Act
  (iv) Navigable Waters Protection Act

(b) Provincial
  (i) The Dangerous Goods Handling and Transportation Act D12
  (ii) The Endangered Species Act E111
  (iii) The Environment Act c.E125
  (iv) The Fire Prevention Act F80
  (v) The Manitoba Heritage Resources Act H39.1
  (vi) The Manitoba Noxious Weeds Act N110
  (vii) The Manitoba Nuisance Act N120
  (viii) The Public Health Act c.P210
  (ix) The Workplace Safety and Health Act W210
  (x) And current applicable associated regulations.
  (Note: Provincial regulations updated as of September 1999)

(c) Municipal
  (i) The City of Winnipeg By-law No. 1/2008
  (ii) The City of Winnipeg Environmental Management Policy (Appendix D)
  (iii) And any other applicable Acts, Regulations, and By-Laws.

E37.3 The Environmental Protection Plan shall address the following:

(a) Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.

(b) Name[s] and qualifications of person[s] responsible for manifesting hazardous waste to be removed from Site.

(c) Name[s] and qualifications of person[s] responsible for training Site personnel.

(d) Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

(e) Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features including vegetation to be preserved within authorized Work areas.

(f) Environmental Emergency Response: including procedures, instructions, and reporting in the event of unforeseen spill of regulated substance.

(g) Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

(h) Hazardous materials and waste management plan outlining storage, transportation and disposal.

(i) Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project Site.

(j) Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

(k) Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete wash or curing water, clean-up water, dewatering of ground water, hydrostatic test water, and water used in flushing of lines.

(l) Monitor and report to ensure implementation of environmental protection measures.

E37.4 The Contractor is advised that the following environmental protection measures apply to the Work.

(a) Materials Handling and Storage

(i) Construction materials shall not be deposited or stored on riverbanks or river shorelines unless written acceptance from the Contract Administrator is received in advance.

(ii) Construction materials and debris shall be prevented from entering the Red River and Assiniboine River. In the event that materials and/or debris inadvertently enter the watercourse, the Contract shall be required to remove the material and restore the watercourse to its original condition.

(b) Fuel Handling and Storage

(i) The Contractor shall obtain all necessary permits from Manitoba Conservation for the handling and storage of fuel products and shall provide copies to the Contract Administrator.

(ii) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.

(iii) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.

(iv) In accordance with Section 2.5 (Construction: General Guidelines) of the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, (DFO and DNR, 1996), the Contractor shall ensure that any temporary fuel storage areas established for construction of the project are contained by an impermeable dike and are located a minimum distance of 100 metres away from the high water line of the nearest river. Dikes shall be designed, constructed, and maintained to retain not less than 100% of the capacity of the total number of containers or 110% of the largest container, whichever is greatest. The dikes shall be constructed of clay or similar impervious material. If this type of material is not available, the dike shall be constructed of locally available material and lined with high density polyethylene (HDPE). Furthermore, the fuel storage area(s) shall be secured by a barrier such as a high fence and gate to prevent vandalism.

(v) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.

(vi) Products transferred from the fuel storage area(s) to specific Work Sites shall not exceed the daily usage requirement.

(vii) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill.

(viii) Refuelling of mobile equipment and vehicles shall take place at least 100 metres from a watercourse.

(ix) The area around storage Sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.

(x) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills shall be stored nearby on-site. The Contractor shall ensure that additional material can be made available on short notice.

(c) Waste Handling and Disposal

(i) The construction area shall be kept clean and orderly at all times during and at completion of construction.

(ii) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction Site, other than at a dedicated storage area as may be approved by the Contract Administrator.

(iii) All resulting debris shall be deposited at a Waste Disposal Ground operating under the authority of Manitoba Regulation #150/91. Exceptions are liquid industrial and hazardous wastes which may require special disposal methods (see SC:21.4 D).

(iv) Indiscriminate dumping, littering, or abandonment shall not take place.

(v) No on-site burning of waste is permitted.

(vi) Waste storage areas shall not be located so as to block natural drainage.

(vii) Run-off from a waste storage area shall not be allowed to cause siltation of a watercourse.

(viii) Waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.

(ix) Equipment shall not be cleaned near watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.

(d) Dangerous Goods/Hazardous Waste Handling and Disposal

(i) Dangerous goods/hazardous wastes are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.

(ii) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations.

(iii) The Contractor shall have on-site staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on-site for the performance of the Work.

(iv) Different waste streams shall not be mixed.

(v) Disposal of dangerous goods/hazardous wastes shall be at approved hazardous waste facilities.

(vi) Liquid hydrocarbons shall not be stored or disposed of in earthen pits on-site.

(vii) Used oils shall be stored in appropriate drums, or tankage until shipment to waste oil recycling centres, incinerators, or secure disposal facilities approved for such wastes.

(viii) Used oil filters shall be drained, placed in suitable storage containers, and buried or incinerated at approved hazardous waste treatment and disposal facilities.

(ix) Dangerous goods/hazardous waste storage areas shall be located at least 100 metres away from the high water line and be dyked.

(x) Dangerous goods/hazardous waste storage areas shall not be located so as to block natural drainage.

(xi) Run-off from a dangerous goods/hazardous waste storage area shall not be allowed to cause siltation of a watercourse.

(xii) Dangerous goods/hazardous waste storage areas shall be left in a neat and finished appearance and/or restored to their original condition to the satisfaction of the Contract Administrator.

(e) Emergency Response

(i) The Contractor shall ensure that due care and caution is taken to prevent spills.

(ii) The Contractor shall report all major spills of petroleum products or other hazardous substances with significant impact on the environment and threat to human health and safety (as defined in Table 1 below) to Manitoba Conservation, immediately after occurrence of the environmental accident, by calling the 24-hour emergency phone number (204) 945-4888. The Contract Administrator shall also be notified.

(iii) The Contractor shall designate a qualified supervisor as the on-site emergency response co-ordinator for the project. The emergency response co-ordinator shall have the authority to redirect manpower in order to respond in the event of a spill.

(iv) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response co-ordinator:

(i) Notify emergency-response co-ordinator of the accident:

- identify exact location and time of accident
- indicate injuries, if any
- request assistance as required by magnitude of accident (Manitoba Conservation 24-hour Spill Response Line (204) 945-4888, Police, Fire Department, Ambulance, company backup)

(ii) Attend to public safety:

- stop traffic, roadblock/cordon off the immediate danger area
- eliminate ignition sources
- initiate evacuation procedures if necessary

(iii) Assess situation and gather information on the status of the situation, noting:

- personnel on-site
- cause and effect of spill
- estimated extent of damage
- amount and type of material involved
- proximity to waterways, sewers, and manholes

(iv) If safe to do so, try to stop the dispersion or flow of spill material:

- approach from upwind
- stop or reduce leak if safe to do so
- dike spill material with dry, inert sorbet material or dry clay soil or sand
- prevent spill material from entering waterways and utilities by diking
- prevent spill material from entering manholes and other openings by covering with rubber spill mats or diking Resume any effective action to contain, clean up, or stop the flow of the spilled product.

(v) The emergency response co-ordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to Manitoba Conservation according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.

(vi) When dangerous goods are used on-site, materials for containment and cleanup of spill material (e.g. absorbent materials, plastic oil booms, and oversized recovery drums) shall be available on-site.

(vii) Minor spills of such substances that may be contained on land with no significant impact on the environment may be responded to with in-house resources without formal notification to Manitoba Environment.

(viii) City emergency response, 9-1-1, shall be used if other means are not available.

(ix) The on-site emergency response coordinator shall contact The Canadian Coast Guard, Selkirk (204) 785-6030, if the spill material reaches and is on or in the Red or Assiniboine Rivers.

Table 1 Spills that must be reported to the Manitoba Conservation as Environmental Accidents

Classification		Hazard	Reportable Quantity/Level
1		Explosives	All
2.1		Compressed Gas (flammable)	100 L*
2.2		Compressed Gas	100 L*
2.3		Compressed Gas (toxic)	All
2.4		Compressed Gas (corrosive)	All
3		Flammable Liquids	100 L
4		Flammable Solids	1 kg
5.1	PG** I & II	Oxidizer	1 kg or 1 L
	PG III	Oxidizer	50 kg or 50 L
5.2		Organic Peroxide	1 kg or 1 L
6.1	PG I	Acute Toxic	1 kg or 1 L
	PG II & III	Acute Toxic	5 kg or 5 L
6.2		Infectious	All
7		Radioactive	Any discharge or radiation level exceeding 10 mSv/h at the package surface and 200 uSv/h at 1 m from the package surface
8		Corrosive	5 kg or 5 L
9.1		Miscellaneous	50 kg (except PCB mixtures)
9.1		PCB Mixtures	500 g
9.2		Aquatic Toxic	1 kg or 1 L
9.3		Wastes (Chronic Toxic)	5 kg or 5 L

* Container capacity (refers to container water capacity)
** PG = Packing Group(s)

E38. APPLICABLE MRST/PST FOR ELECTRICAL AND MECHANICAL WORKS

E38.1 Electrical work and mechanical work are subject to MRST/PST. Line items in the "Form B: Prices" have been added for accounting for respective MRST/PST for electrical and mechanical works.

Measurement and Payment

E38.2 The Lump Sum Price for each line item titled "Applicable MRST/PST for All Mechanical and Electrical Work" Item 18.1 shall be based upon the applicable percentage of MRST/PST required for the respective items of Work in the MRST/PST line item.

E39. COLD WEATHER REQUIREMENTS

E39.1 Further to Specification section 03 30 00 – Cast-in-place Concrete, should any concrete work to be carried out when the daily mean temperature is below 5°C or anticipated to be below 5°C within the next 24 hours, cold weather requirements will be specified herein.

E39.2 All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.

E39.3 The following are minimum requirements for protecting concrete during and after placement during freezing weather, but mere adherence to these requirements will not relieve the Contractor of the necessity for producing concrete which has not been weakened or injured by frost or freezing, or replacing such damaged Work at no additional cost to the City;

(a) Before any concrete is placed, all ice, snow, and frost shall be completely removed from all formwork. Where concrete Work is to come in contact with the earth, the surface of the earth shall be completely free of frost when concrete is placed thereon.

(b) Heating enclosures shall be strong and wind-proof, well ventilated with heating units so located as to prevent local overheating or drying of the concrete or damage from combustion gases. Only indirect fired heaters will be accepted. Units must be vented outside the enclosure. No direct fired units will be accepted.

(c) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection he proposes to employ.

(d) Cold weather requirements shall be considered incidental to the Works of this Contract and no measurement or payment will be made for this item.

E40. DOCUMENT MANAGEMENT SYSTEM

E40.1 The City will implement an on-line Document Management System (DMS) for Bid Op 976-2016 for the distribution and management of submittals and documents, as well as project correspondence. The Aconex platform will be utilized to provide the DMS service. See the Aconex website at www.aconex.com to become familiar with the functions and requirements of the Aconex. Online training material is available at www.aconex.com/support.

E40.2 The Contractor will be required to employ the Aconex system for all submittals and Contract communications. One training session for will be provided at no cost to the Contractor. The costs of providing Aconex Document Management System for up to twenty (20) users allocated by the Contractor (including Subcontractors) will be paid for by the City. The Contractor will be responsible for any labour or other internal costs incurred by the Contractor for use of the system.