MCW Custom Energy Solutions Ltd.

HALIFAX REGIONAL SCHOOL BOARD
ENERGY PERFORMANCE SERVICES

TENDER #3644

LIGHTING RETROFIT & REDESIGN
SIX SCHOOLS – PACKAGE 7
REF. 01-A01-PACKAGE 7

Halifax Regional School Board

March 2014

ISSUED FOR TENDER

Closing Information:
Closing Date: **Wednesday April 23rd, 2014**
Closing Time: 2:00:00 PM
Opening Time: 2:00:00 PM

Closing Location:
Halifax Regional School Board
33 Spectacle Lake Drive
Dartmouth, NS
B3B 1X7

ESCo – MCW CES Contact:
Ted Loucks, P.Eng., Program Manager
Tel: 902-876-3182
Fax: 902-876-2796

Owner – HRSB Contact:
Deborah Beck, Financial Services
Tel: 902-464-2000 Ext. 2011
Fax: 902-464-0161

Consultant:

MCW Maricor

7051 Bayers Road, Suite 102
Halifax, Nova Scotia, B3L 2C1

A member of the
MCW Group of Companies
www.mcw.com

Project Location(s):

1. **Harold T. Barrett Junior High**
   862 Beaver Bank Rd, Beaver Bank, NS B4G 1A9
2. **Chebucto Heights Elementary**
   230 Cowie Hill Rd., Halifax, NS B3P 2M3
3. **J. L. Ilsley High**
   38 Sylvia Ave., Halifax, NS B3R 1J9
4. **Halifax Central Junior High**
   1787 Preston St., Halifax, NS B3H 3V7
5. **Harbour View Elementary**
   25 Alfred St., Dartmouth, NS B3A 4E8
6. **Ian Forsyth Elementary**
   22 Glencoe Dr., Dartmouth, NS B2X 1J1

Bidders' Site Meeting(s):
A **mandatory** site meeting is scheduled for:
Friday April 11th, 2014 starting at 8:00 am:

1. **8:00 am – Harold T. Barrett Junior High**
2. **9:30 am – Chebucto Heights Elementary**
3. **10:15 am – J. L. Ilsley High**
4. **11:00 am – Halifax Central Junior High**
5. **11:45 am – Harbour View Elementary**
6. **12:30 pm - Ian Forsyth Elementary**

Technical Specifications

Electrical

Appendices

The following drawings are to be read in conjunction with the specifications and form an integral part of the work for the project:

Drawing No.	Description	Date	Revision
E-1	**Harold T. Barrett Junior High**	March 2014	0
E-1	**Chebucto Heights Elementary**	March 2014	0
E-1	**J. L. Ilsley High**	March 2014	0
E-2	**J. L. Ilsley High**	March 2014	0
E-1	**Halifax Central Junior High**	March 2014	0
E-1	**Harbour View Elementary**	March 2014	0
E-1	**Ian Forsyth Elementary**	March 2014	0

END OF SECTION 00 00 03 – DRAWING LIST

BIDDING REQUIREMENTS, CONTRACT FORMS, & CONDITIONS OF THE CONTRACT

PART 1 - GENERAL

1.1 Invitation

.1 MCW Custom Energy Solutions are seeking bids from qualified Trade Contractors for work at the Halifax Regional School Board for the Lighting Retrofit and Redesign located at five (5) schools related to the conversion of existing lighting systems to energy efficient technologies as follows:

- .1 Harold T. Barrett Junior High
- .2 Chebucto Heights Elementary
- .3 J. L. Ilsley High
- .4 Halifax Central Junior High
- .5 Harbour View Elementary
- .6 Ian Forsyth Elementary

.2 The Work shall include all labour, materials, equipment and associated services necessary for the installation of completely finished, tested, commissioned and properly operating systems as specified and as shown on the drawings.

.3 Intent of this Bid call is to obtain an offer to perform Work for a Stipulated Price contract, in accordance with Contract Documents.

1.2 Owner

Halifax Regional School Board (HRSB)
33 Spectacle Lake Drive, Dartmouth, NS, B3B 1X7
Financial Services: Ms. Deborah Beck
Tel: (902) 464-2000 Ext. 2011
Fax: (902) 464-0161

1.3 ESCo (Energy Service Company)

MCW Custom Energy Solutions Ltd.
7051 Bayers Road, Suite 102
Halifax, Nova Scotia, B3L 2C1
Program Manager: Mr. Ted Loucks, P.Eng.
Phone: 902-876-3182
Fax: 902-876-2796
Email: tloucks@mcw.com

1.4 Consultant

MCW Maricor Consultants
Lighting Manager: Mr. Jad Butkovic
Tel: (416) 598-2920 / (800) 716-2716
Email: jbutkovic@mcw.com

And:

MCW Maricor Consultants
Attention: Mr. Robert Cormier
Phone: 506-857-8880
Email: rcormier@mcw.com

1.5 Trade Contractor

.1 The Successful bidder for this package.

1.6 Subcontractor

.1 Subcontractor to the Trade Contractor retained by the Trade Contractor.

1.7 MCW Construction Manager

.1 The ESCo's on site representative(s) shall be known as the Construction Manager.

MCW Custom Energy Solutions Ltd.
Attn: Mr. John Pike
Tel: (902) 402-3182
Fax: (902) 876-2796
E-mail: jpike@mcw.com

1.8 MCW Site Safety Coordinator (SSC)

.1 The ESCo's safety representative:

Occupational Health & Educational Services (2002) Inc.
Mr. Jim Benoit
Tel: (902) 481-0879
Fax: (902) 481-0433
Cel: (902) 478-1972
E-mail: ohes@safetyonsite.ca

1.9 HRSB Project Manager

.1 The HRSB's on-site representative who is responsible for coordinating access into areas as well as shutdowns of systems.

Halifax Regional School Board (HRSB)
Mr. Tyler Bell, P. Eng., Energy Manager
Tel: (902) 464-2000 Ext. 5119
Fax: (902) 464-5581

1.10 Agreement

.1 The Agreement will be made between the ESCo and the Trade Contractor.

.2 The Agreement shall be the Standard CCA 1 – 2001 Stipulated Price Contract as amended by the Supplementary Conditions Section 00 80 00.

.3 At the ESCo's discretion for work value under $100,000 including all taxes (HST), the Agreement between the ESCo and the Trade Contractor shall be the ESCo's standard Purchase Order with terms and conditions as indicated in the Purchase Order Terms and Conditions Section 00 80 10.

1.11 Project

.1 The work is to be performed under the HRSB Energy Performance Services agreement between the Owner and the ESCo.

1.12 Bid Submission

.1 Bid Submission:

.1 Sealed Bids will be received by the ESCO at the Owner's offices:

Halifax Regional School Board
33 Spectacle Lake Drive
Dartmouth, N.S.
B3B 1X7

.2 Bids will be received up to **2:00:00 pm** local time on **Wednesday April 23rd, 2014.**

.3 Submit two (2) sets of tender documents, that is one (1) original tender and one (1) copy of all documents on the enclosed tender forms.

.4 Each item on the form must be completed unless noted otherwise.

.5 Bids must be signed by an authorised representative of the vendor. Bids must have the corporate seal.

.6 Incomplete bids will be rejected.

.7 Bids must be submitted on or before the advertised time and date in a sealed envelope clearly marked with the following project reference:

Halifax Regional School Board (HRSB) – Energy Performance Services
Lighting Retrofit and Redesign – Package 7
Tender Number #3644
Reference: 01-A01-PACKAGE 7

.8 Submit Offers on copy of Bid Forms supplied.

.9 Offers submitted after Bid Closing time may be returned to bidder unopened.

.10 Bids will be opened in public at the office of the Owner.

.11 Oral, telephone, facsimile, telex or email Bids will not be accepted or acknowledged.

.12 It is the responsibility of the bidder to ensure their submissions are received on time.

1.13 Tender Document Identification

.1 Tender Documents are identified as documents as prepared by Consultant with the following project reference:

Halifax Regional School Board (HRSB) – Energy Performance Services
Lighting Retrofit and Redesign – Package 7
Tender Number #3644
Reference: 01-A01-PACKAGE 7

1.14 Contract/Tender Documents

.1 Definitions

.1 Tender Documents:

Specifications per the Table of Contents Section 00 00 00
Drawing Packages per the Drawing List Section 00 00 01

.2 All addenda issued during the Tender Period.

.3 Other documents included as part of this package.

.4 Bid Form (Section 00 30 00).

.5 Supplementary Bid Form (Section 00 43 00).

.2 Deliveries

.1 Indicate delivery periods in Section 00 30 00 and Section 00 43 00 as required.

.2 Limited storage is available on site so just in time delivery may be required.

.3 Examination

.1 Bidders have a duty to verify the completeness of received Tender Documents, and to notify the Consultant in writing of any discrepancies with the Tender Documents.

.2 Immediately upon finding discrepancies, errors, ambiguities, doubtful information and omissions in Tender Documents (including site, existing premises and local conditions), notify Consultant in writing and request clarification. Unless clarified in writing by the Consultant prior to Bid Closing, include in the Bid Offer the costlier option.

.3 No claim of unsuitability, unavailability, inability or willingness to use any product or method to provide first class work will be considered unless submitted in writing to the Consultant no later than three (3) days before Bid Closing date.

.4 Queries/Addenda

.1 Bidders have a duty to be informed of all aspects of the work and the Tender Documents. The ESCo shall not be liable for any claim at any time for reimbursement of any expense incurred by the bidder as a result of any misunderstanding with regard to the nature and conditions of the work and the Tender Documents.

.2 Direct questions are to be addressed to the Consultant with a copy to the ESCO in writing.

.3 The Consultant may issue written addenda during tender period to clarify and amend the Tender Documents. All addenda become part of Bid and Agreement Documents. Include costs in Bid offer.

.4 Verbal answers shall not be binding upon the ESCo and Consultant unless confirmed by written addenda issued by the Consultant, before the Bid Closing.

.5 Clarifications requested by bidders must be received by the Consultant in writing not less than (3) three days before Bid Closing date. Reply if any will be in form of an addendum.

.6 The Consultant may not be in a position nor is the Consultant required to reply to any requests for clarification.

.5 Product/System Options

.1 Bid Document stipulated products, and systems form the basis of the bid.

.2 The term "Own Forces", or other such phrase, will be acceptable only where such work is provided by bidder's own forces.

.3 Verify prior to bidding that all specified items will be available in time for installation to ensure orderly and timely progress of the work. Should specified item or items not be available, notify the Consultant in writing during tender period.

1.15 Detailed Assessment

.1 Site examination

.1 Visit the project site before submitting Bid. Evaluate if there are adequate spaces and clearances for the new equipment as well as adequate access for the equipment to be installed in place, if applicable.

.2 A **Mandatory site visit and briefing** has been scheduled for **Friday April 11th, 2014** at the following time(s) and location(s):

SCHOOL NAME	LOCATION	DATE/TIME
Harold T. Barrett Junior High	862 Beaver Bank Rd, Beaver Bank, NS B4G 1A9	Time: 8:00 am
Chebucto Heights Elementary	230 Cowie Hill Rd., Halifax, NS B3P 2M3	Time: 9:30 am
J. L. Ilsley High	38 Sylvia Ave., Halifax, NS B3R 1J9	Time: 10:15 am
Halifax Central Junior High	1787 Preston St., Halifax, NS B3H 3V7	Time: 11:00 am
Harbour View Elementary	25 Alfred St., Dartmouth, NS B3A 4E8	Time: 11:45 am
Ian Forsyth Elementary	22 Glencoe Dr., Dartmouth, NS B2X 1J1	Time: 12:30 pm

.3 Bidders should be prepared to evaluate buildings at the site visit.

.4 Examine the site, locality, means of access and disposal and all other site conditions pertinent to the Bid.

.5 Information provided relating to existing conditions is not guaranteed. Bidders are to verify and evaluate all information relative to actual conditions.

.6 Claims for extra payment and extensions to the schedule will be evaluated by the Consultant. If it's deemed by the Consultant that conditions could have been ascertained by an inspection of the site prior to close of the Bid, extensions and/or extras will be disallowed.

.7 If additional examination is required, the Bidder is directed to contact the Consultant in order to arrange date and time to visit place of work.

.8 Waiver: On taking part in a visit, briefing, or to conduct an investigation, bidders and their participants assume all risk of loss, damage, injury or death to the persons and property of itself, its representative, agents and employees from all causes, as a result.

.9 Indemnity: In consideration of the opportunity to take part in a visit, briefing, or conduct an investigation, bidders and their participants assume the defence of, and indemnify and save harmless the ESCo, Consultant, and Owner, their agents, employees and contractors, from and against all claims, losses, costs, damages, suits, actions, proceedings or demands and any liability for them to any person or property, arising there from.

1.16 Qualifications

.1 Bidders must complete and submit CCDC #11 Contractors Prequalification Form Consultant with the Bid.

.2 Subcontractors

.1 Consultant and Owner reserves right to reject a proposed subcontractor for reasonable cause.

1.17 Bid Enclosures / Requirements

.1 Security Deposit

.1 Bids shall be accompanied by security deposit as follows

.1 Bid Bond in an amount not less than **10 percent** of Bid price; or

.2 Certified cheque in amount of not less than 10 percent of Bid price.

.2 Endorse Bid Bond or certified cheque in name of ESCo (MCW Custom Energy Solutions Ltd.) as obligee with Owner (Halifax Regional School Board) as dual obligee, signed and sealed by principal (Trade Contractor) and surety.

.3 Use latest edition CCDC approved bond forms.

.4 Security deposit will be returned after delivery to ESCO of required Performance and Labour & Materials Payment Bonds by accepted bidder.

.5 If no contract is awarded, all security deposits will be returned.

.2 Consent of Surety / Agreement to Bond.

.1 Submit with Bid, a Consent of Surety / Agreement to Bond, stating that surety providing Bid Bond is willing to supply Performance and Labour & Materials Payment Bond specified in an amount not less than **50 percent** of Bid price each.

.3 Performance Assurance (Seven days from Notification of Award)

.1 Accepted Bidder must provide Performance and Labour & Materials Payment Bonds in amount not less than **50 percent** of Total Agreement Price inclusive of HST.

.2 Accepted Bidder must provide Performance and Labour & Materials Payment Bonds no later than seven (7) days from the date of the Notification of Award (Letter of Intent) issued by the ESCO to the successful Bidder.

.3 These bonds shall name the ESCO (MCW Custom Energy Solutions Ltd.) as the Obligee and the Owner (Halifax Regional School Board) as “Dual Obligee”.

.4 Use latest edition CCDC approved bond forms.

.5 The required Bonds shall be issued by a duly incorporated surety authorized to transact business in the Province of Nova Scotia.

.6 Each bond shall be in good standing until the completion of the design, installation, and during the warranty period.

.7 Include cost of bonds in Bid Price and show itemized price in the Tender Form.

.4 Insurance

.1 Provide Certificate of Insurance with the Bid.

.2 Provide on CCDC form or on standard form provided by insurance company.

.3 Insurance to be addressed to the ESCO (MCW Custom Energy Solutions Ltd.) with the Owner (Halifax Regional School Board) as additional insured.

.4 Show proof of the following insurance coverage:

.1 Commercial General Liability insurance, including but no limited to products liability and completed operations, contractual liablilty, owners and contractors liability, attached machinery extensions, endorsement, independent contractor, for a combined single limit of no less than $5,000,000 per occurrence.

.2 Property Insurance, in an amount of not less than five million dollars ($5,000,000), which shall cover all owned or leased contractors equipment and tools etc to be used in the construction of the Project, against “All Risks” of physical loss or damage, Such insurance shall be maintained until the Project or contractor’s work is completed. Such policy of insurance shall waive all rights of subrogation against the Owner and the ESCo.

.3 Commercial Automobile Liability insurance covering all owned, non-owned and hired vehicles for a minimum combined single limit of $2,000,000 per occurrence.

.4 Refer to Section 00 80 00 Supplementary Conditions for requirements if any exclusions are noted.

.5 The above insurance shall be primary and shall not make reference to or require the participation of any insurance that the Owner or ESCo may have in place.

.6 Upon award, the bidder shall secure and maintain the insurance as noted above at its expense during the term of the contract.

.7 Provide thirty (30) days notice of cancellation or modification of the above insurance.

.8 Successful bidder shall at all times keep in force insurance throughout the duration of the work including all warranty periods as may be required.

.9 The Trade Contractor agrees to waive all right of recourse against the ESCo and the Owner with regard to damage to the Trade Contractor's property.

.5 Bid Form Requirements (00 30 00)

.1 State in Bid Form, time required to complete work. Completion date in Agreement must be this completion time added to commencement date.

.2 Bidder, in submitting an offer, agrees to complete work by date stated in Bid Form, but may propose a revision to contract time with an adjustment to Bid price.

.3 Owner requires that work of this contract be completed as quickly as possible and consideration will be given to time of completion when reviewing Bids submitted.

.4 The Bidder to include in the Bid Form all costs for any premium time as it relates for any work that can not be done during standard hours due to noise, accessibility, interferences, shut downs etc. Include in the Bid any required overtime, premium time and similar costs to complete the work within the quoted or stipulated time.

.6 Supplementary Bid Form (00 43 00)

.1 Include Supplementary Bid Form with Bid.

.1 References: Include four (4) references with the Bid.

.2 Subcontractors: Include names of all Subcontractors and portion[s] of work Bidder will perform.

.3 Project Personnel: Provide names of project personnel with the Bid.

.4 HST: Include HST Registration number with the Bid.

.5 Unit Prices: Include a listing of Unit Prices specifically requested in Bid Documents.

.6 Alternatives: Include cost variation for Alternatives to Bid price applicable to work.

.7 Separate Prices: Include a listing of Separate Prices as specifically requested in Bid Documents.

.8 Allowances: Include a listing of Allowances as specifically requested.

.9 Price Breakdowns: Include a Price Breakdown if indicated.

.7 Contractors Prequalification Form

.1 Bidders must complete and submit CCDC #11 Contractors Prequalification Form with the Bid.

.8 Workers' Compensation Board Letter of Good Standing

.1 Provide Workers' Compensation Board Letter of Good Standing with Bid.

.9 Certificate of Recognition

.1 Provide Certificate of Recognition for the Trade Contractor's occupational health and safety program by an auditor approved by the WCB with Bid.

.10 Project Safety Plan Outline

.1 Provide completed Project Safety Plan Outline (See Section 00 44 00) with Bid.

.2 The contractor prior to commencement of work must have a safety plan in place for use by the contractor personnel regarding potential hazards and work practices specific to the site.

.11 Warranty Information

.1 Provide applicable Warranty Information for extended warranties with Bid when requested:

.1 For Lighting Projects, provide extended lamp and ballast warranties.

.12 For lighting projects, Appendix A – Specifications and Manufacturers for Approved Materials

.1 Provide completed Appendix A – Specifications and Manufacturers for Approved Materials.

.13 Project Schedule (Seven days from Notification of Award)

.1 Accepted Bidder must provide complete Project Schedule no later than seven (7) days from the date of the Notification of Award (Letter of Intent) issued by the ESCO to the successful Bidder.

1.18 Bid Requirements / Conditions

.1 Conflict of Interest

.1 Exercise reasonable care and diligence to prevent any actions or conditions which could result in a conflict with the ESCo's best interests.

.2 This obligation applies to the activities of the employees and agents of the Trade Contractor in their relations with the employees, and their families, of the Trade Contractor and Owner, vendors, Subcontractors and third parties arising from the Agreement and accomplishing work thereunder.

.3 Efforts include, but not limited to establishing precautions to prevent employees or agents from making, receiving, providing, or offering gifts, entertainments, payments, loans or other considerations.

.2 Waiver of Reliance

.1 The Bidder shall be deemed conclusively to have acted and relied upon its own findings, conclusions, interpretations, inferences, and other opinions in evaluating the risks, contingencies and other circumstances which may be encountered in performing the work, and not to have acted and relied upon any conclusions, interpretations, inferences or opinions of the ESCo, the Consultant or the Owner and those for whom they are responsible, contained or implied in the Tender Documents, or otherwise.

.3 Hazardous Substances & Environmental Protection

.1 Refer to Section 00 80 00, Section 00 80 10 and Section 02 81 01.

.4 Supplementary Conditions

.1 Refer to Section 00 50 00, Section 00 80 00, and Section 00 80 10.

.5 Cash allowances: refer to Section 00 43 00.

.6 Supplementary Bid Information

.1 Bidders are asked to submit the Supplementary Bid Form Section 00 43 00 to assist in evaluation of Bid Offers.

.7 Regulatory and site requirements: Section 01 14 00.

1.19 Acceptance / Rejection of Tenders

.1 Except with the written consent of the Consultant, Bids shall not be withdrawn and shall remain open for acceptance and shall be irrevocable for a period of 60 days from the Bid closing date and time.

.2 The Consultant and the ESCo shall each have the absolute and unfettered discretion in determining the evaluation and assessment criteria upon which a Bidder may be eligible to bid, and in the award of the construction contract. In addition, the Consultant and ESCo shall each have the absolute and unfettered discretion in their respective evaluation and assessment of each Bidder's qualifications for the purpose of determining the eligibility of each Bidder to submit a Bid and in the award of the construction contract. The Consultant and the ESCo may, prior to the Bid closing date, or after the submission of bids, require any Bidder to submit written proof of qualifications as required by the Consultant and the ESCo in their absolute and unfettered discretion for evaluation and assessment.

.3 The mere eligibility of a Bidder to submit its Bid, either by invitation or by a pre-qualification process, shall not limit or restrict, in any manner whatsoever, the Consultant's and the ESCo's respective absolute and unfettered discretion in their respective overall evaluation and assessment of each Bid and Bidder or in the award of the construction contract.

.4 Subcontractors listed in Document 00 43 00 and their respective bids to the Bidder are considered to be included as an integral part of the Bid submitted by the Bidder. Bidders acknowledge that the List of Subcontractors shall be one of the criteria considered in the evaluation and assessment of each Bid.

.5 Bidders acknowledge that Bids may not be accepted unless accompanied by all of the required Tender Documents, completed as requested in their entirety. No names, either of Subcontractor's or Bidder's own forces, may be changed after submission of a Bid unless written approval is received from the Consultant and/or the ESCo in their respective absolute and unfettered discretion.

.6 Bids that are unsigned, improperly signed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind including but not limited to the failure to include proof of bonding as required by the Tender Documents, may in the absolute and unfettered discretion of the Consultant and/or the ESCo be declared non-compliant and therefore void.

.7 Bids with Bid Forms and enclosures which are improperly prepared may in the absolute and unfettered discretion of the Consultant and/or the ESCo be declared non-compliant and therefore void.

.8 Bids that fail to include security deposit, bonding, insurance requirements, and other required submittal documents may in the absolute and unfettered discretion of the Consultant and/or the ESCo be declared non-compliant and therefore void.

.9 Corrections prior to Bid Closing: if information provided by the Bidder on the Bid Form is corrected (e.g. wrong figure), the person(s) signing the Bid Form shall initial and date the correction failing which the Bid may not be accepted in the absolute and unfettered discretion of the Consultant and/or the ESCo.

.10 Corrections: if a number is written in both figures and script and these differ, the script governs.

.11 In their respective absolute and unfettered discretion, the Consultant and/or the ESCo each reserve the right to accept or reject non-compliant Bids.

.12 In their respective absolute and unfettered discretion, the Consultant and/or the ESCo each reserve the right to waive any non-compliance in any Bid and may consider such Bid valid and the Bidder eligible to be awarded the construction contract and the Bidder is stopped from raising any non-compliance in its Bid as a reason for failing and/or refusing to enter into the construction contract.

.13 Bidders may withdraw their Bid prior to Bid closing date and time.

.14 The Bidders acknowledge and understand that the lowest Bid may not be accepted in the Consultant's and/or the ESCo's absolute and unfettered discretion.

.15 In their respective absolute and unfettered discretion, the Consultant and/or the ESCo shall have the right to reject any Bid or all Bids.

.16 Bidders acknowledge that the Consultant, Owner and/or the ESCo in their absolute and unfettered discretion may enter into negotiations with one (1) or more Bidders after the Bid closing date. Such negotiations may include but are not limited to matters relating to the scope of work, price, schedule and terms and conditions that may or may not be set out in the Tender Documents. In their respective absolute and unfettered discretion, the Consultant, Owner and/or the ESCo may determine the successful Bidder and award the construction contract based on the outcome of any such negotiations with any Bidder(s) or based upon the original submitted Bid(s) of such Bidder(s).

.17 A Bid is deemed to be accepted by the ESCo only upon the successful Bidder being notified by written Letter of Intent from the ESCo or the Consultant. The Bidder shall acknowledge receipt of the Letter of Intent by returning a signed copy of the Letter of Intent together with the required Performance Bond and Labour and Material Payment Bond within seven (7) days of the date of

the Letter of Intent failing which the ESCo shall be entitled to exercise all of its rights and claims against such Bidder arising as a result of this breach.

.18 After Bid has been accepted, submitted bid securities will be returned to the unsuccessful Bids

1.20 No Implied Terms

.1 The Tender Documents shall be deemed by each Bidder to be complete and satisfactory for the purposes of submitting its Bid and each Bidder acknowledges and confirms that there are no implied terms and conditions in the Tender Documents upon which the Bidder relies for the purposes of, including but not limited to: submitting its Bid; respecting the evaluation and assessment of its Bid by the Consultant and/or the ESCo; and respecting the award of the construction contract.

1.21 Limitation of Damages

.1 Each Bidder, by submitting its Bid, agrees that it shall not claim damages in excess of an amount equivalent to the reasonable costs incurred by the Bidder in preparing its Bid, and the Bidder waives any and all claims for damages in negligence, in contract and in common law and equity suffered by the Bidder and without limiting the generality of the foregoing damages incurred on account of any breach of contract, misrepresentation and/or negligence by the Consultant and/or the ESCo collectively or individually respecting the Bidding process, the evaluation and assessment of any Bid and/or Bidder and/or the award of the construction contract to the successful Bidder, which claims for damages include but are not limited to any claim for loss of profit, out of pocket expenses, legal costs, consulting and expert costs, loss of reputation, loss of business, loss of labour productivity, administrative and overhead costs.

.2 Bidder, by submitting a bid to this Tender, agrees that it will not claim damages, costs or expenses for whatever reason, relating in any way to this Tender and any resulting process (including without limitation any subsequent discussions or negotiations, if any, or in respect of any competitive process) and waives any and all claims against HRSB whatsoever, whether for costs, damages or expenses incurred by Bidder in preparing its Tender, in participating in this tender process (including without limitation any subsequent discussion or negotiation, if any), loss of anticipated profit or any other matter whatsoever related to this tender and any resulting process, discussions or negotiations.

1.22 Tender Requirements and Conditions for HRSB Projects

.1 Permits and Licenses – The Trade Contractor is responsible for obtaining all provincial, municipal and other permits as required for the work, and shall adhere to all regulations from regulatory bodies, including the National Building Code, 2005. They shall pay all fees for these permits. Subcontractors are responsible for obtaining permits and following regulations as they affect their work.

.2 Bidders or their employees must not be employees of the Halifax Regional School Board.

.3 The bidder must comply with Nova Scotia Fire Safety Act and all Municipal Regulations, Ordinances and other laws including the Occupational Health and Safety Act.

.4 Alternatives

.1 Where the Tender Documents stipulate a particular product, written requests for substitutes will be considered by the Board up to three (3) days before tender closing. Such requests shall be accompanied by complete descriptive and technical information including MSDS so that a proper evaluation can be made.

.2 When a request for approval of a product is made, the Board may grant approval and will issue an Addendum to this effect to known bidders.

.5 Right to Negotiate – The ESCO and the Owner may, in their sole discretion:

.1 award to a Bidder or Bidders the Contract, based on its Tender, without further negotiation or documentation; or

.2 award to a Bidder or Bidders and negotiate and finalize such further documentation as the ESCO and Owner determines to be necessary or advisable. The entering into of such negotiation by the ESCO shall not fetter its discretion to award the Contract to other Bidders, not award any Contract, or otherwise.

.6 Schedule – Upon award of work, the successful bidder shall within one (1) week provide a schedule clearly indicating timelines for completion of all aspects of the project.

.7 Tobacco Free – Bidders are advised that, as per the Halifax Regional School Board Tobacco Free Schools and Workplace Policy, the HRSB endorses and supports implementation of the Nova Scotia Smoke Free Places Act 2002, which prohibits tobacco possession for persons under the age of 19 and declares that no person shall smoke in schools, school board offices or on school grounds.

.8 Sign-in / Sign-out – Trade Contractors are required to sign-in and sign-out daily when on site.

.9 Identification – Trade Contractors are required to display photo identification at all times on site.

.10 Police Clearance – Trade Contractors are required to provide Police Clearance (e.g. "Certificate of Adult Criminal Convictions / Record" from the Halifax Regional Police) including a Vulnerable Sector Search for all personnel to the ESCO prior to commencing any work on site.

.11 Child Abuse Registry – HRSB is directly responsible for the safety of its students and staff. Should contractors be required to work in or on school property while children are present, it is a MANDATORY HRSB REQUIREMENT that contractors assign the work to employees and/or sub-contractors who DO NOT have a CRIMINAL RECORD and who ARE NOT LISTED ON THE CHILD ABUSE REGISTRY. By checking the "Agreed" box in Section 00 43 00 you are confirming that you understand and will abide by this mandatory HRSB and MCW/CES requirement. Failure to comply with this requirement may result in immediate contract termination.

.12 "Undertaking to Comply and Contractors Safety Checklist" – After the contract has been awarded and signed, the contractor will be contacted by the ESCO Construction Manager to attend a site visit with the ESCO and the appropriate HRSB Regional Manager to complete the "Undertaking to Comply and Contractors Safety Checklist" prior to the commencement of any work.

1.23 Amendments or Withdrawal of Tender Prior to Bid Closing for HRSB Projects

.1 Tender may be amended or withdrawn by post or facsimile.

.2 Clearly indicate on the fax transmission or submitted envelope, whether your correspondence is an amendment or withdrawal and the title of the RFP/Tender. Sign and seal as required for tender, and submit at address listed under closing location on the cover of this document. Faxes may be sent to Deborah Beck, Financial Services, Halifax Regional School Board at 902-464-0161.

1.24 Signing

.1 Refer to Section 00 30 00.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 00 20 00

Note to bidder: Submit one original and one copy of completed Section 00 30 00 and Section 00 43 00 with the Tender Submission as well as two copies of all other documents.

FOR THE WORK DESCRIBED IN:
Halifax Regional School Board (HRSB) – Energy Performance Services
Lighting Retrofit and Redesign – Package 7
Tender Number: #3644
Reference: 01-A01-Package 7

To:
MCW Custom Energy Solutions Ltd.
7051 Bayers Road, Suite 102
Halifax, Nova Scotia, B3L 2C1
Program Manager: Mr. Ted Loucks, P.Eng.

1.1 Bidder

_____
Legal name of bidder

_____
Street, number and postal box number if applicable

_____
Town or city, province, postal code

_____
Contact name of bidder (printed)

_____
Telephone *Fax* *E-mail*

1.2 Bid Price

Having examined the Tender Documents including but not limited to all Addenda and Instructions to Bidders and having visited the place of work, and having a full knowledge of the locality and conditions affecting the work, we do hereby offer to enter into the Agreement to perform the work required by the Tender Documents for the stipulated price (excluding HST) of:

_____

_____

($_____) Dollars in lawful money of Canada plus,

HST amount shown on the above base Bid (Harmonized Sales Tax) @ 15%

_____

($_____) Dollars in lawful money of Canada

If notified of the acceptance of the Bid within sixty (60) days from Bid closing date. The Bid shall not be withdrawn and shall remain open for acceptance and shall be irrevocable for a period of sixty (60) days from the Bid closing date.

BIDDERS' HST REGISTRATION NUMBER:	_____

1.3 Time

.1 All time limits stated in the Tender Documents shall be of the essence.

.2 Date of commencement of the Agreement to be the date of the Letter of Intent / Notice of Award to the successful bidder by the ESCo.

.3 Work to commence within (7) days of the date of the Letter of Intent / Notice of Award to the successful bidder by the ESCo

.4 Substantial Performance of the Work requested to be achieved within **12 weeks** of the commencement date.

.5 Confirm time required to achieve Substantial Performance of the work:

TIME REQUIRED	_____ **Weeks**

1.4 Addenda

.1 Addenda received and included in Bid Offer:

ADDENDUM NO.	DATED	NO. OF PAGES

Insert "NONE" if none issued if more space is required attach a separate sheet signed and dated by the Bidder.

1.5 Bid Form Appendices

.1 This Bid Offer includes the following appendices:

- .1 Supplemental Bid Form(s)
  - .1 Section 00 43 00
- .2 10% Bid Bond or Certified Cheque
- .3 Consent of Surety / Agreement to Bond from the Surety Company stating that the Surety shall provide the required Performance Bond and Labour and Material Payment Bond.

The Bid Price includes premium charges for the Performance Bond and Labour and Material Payment Bond, as specified in Section 00 20 00 – Instructions to Bidders.

.4 Certificate of Insurance

.5 Workers' Compensation Board Letter of Good Standing

.6 Certificate of Recognition for Bidder's Health and Safety Program

.7 Completed Safety Plan

.8 Applicable Warranty Information.

.9 Completed CCDC-11 form.

.10 For lighting projects, **Appendix A** "Specifications and Manufacturers for Approved Materials"

1.6 Contract

.1 If selected as the successful Bidder to perform the work described herein, we agree to sign the Agreement which is based on the Canadian Construction Association CCA1 Stipulated Price Subcontract between Contractor and Subcontractor (Refer to Section 00 50 00), as amended by the Supplementary Conditions Section 00 80 00.

.2 At the ESCo's sole discretion for contracts under $100,000 + HST the Agreement form shall be based on the Standard ESCo Purchase Order, as amended by the Terms and Conditions in Section 00 80 10.

1.7 Bid Signing

.1 Bid form shall be signed under seal by Bidder.

.2 Sole Proprietorship: Signature of sole proprietor in presence of witness who will also sign. Insert words "Sole Proprietor" under signature. Affix seal.

.3 Partnership: Signature of at least two (2) partners in presence of witness who will also sign. Insert word “Partner” under each signature. Affix seal to each signature. The name of the signing partners must be clearly identified as well as the names of all the partners must be clearly identified on a separate accompanying attachment (to be provided by the Bidders).

.4 Corporation or Limited Company: Signed and sealed under the legal name of the Corporation or Company. Signature of duly authorized signing officer(s) in normal signatures. Insert officer's capacity in which signing officer acts, under each signature accompanied by the signature of a witness. Affix corporate seal. If Bid is signed by officials other than President or Secretary or Treasurer of company, copy of by-law resolution of Board of Directors authorizing them to do so must also be submitted with Bid in Bid envelope.

.5 Joint Venture: Each party of joint venture must execute Bid under respective seals in manner appropriate to such party as described above, similar to requirements of Partnership.

_____

Legal name of bidder

_____

Signature

_____

Name and title of person signing

_____

Second signature (if applicable, for partnerships)

_____

Name and title of second person signing (if applicable, for partnerships)

WITNESS

_____

Witness’ signature

_____

Name of witness

_____

Address of witness

SIGNED THIS _____ **of** _____ , _____
day *month* *year*

END OF SECTION 00 30 00

Note to bidder: Submit one completed Section 00 30 00, Section 00 43 00, Appendix A and Appendix D with the Tender Submission.

Project: **Halifax Regional School Board (HRSB) – Energy Performance Services**
Lighting Retrofit and Redesign – Package 7
Tender Number: #3644
Reference: 01-A01-Package 7

1.1 Bidder

Legal Name of Bidder

Street, number and postal box number if applicable

Town or city, province, postal code

Telephone Fax Email

1.2 References

.1 Furnish particulars of at least three contracts successfully completed or currently being carried to completion. The projects quoted should preferably be similar in nature to this Work and be of comparable or greater value.

CONTACT NAME, COMPANY NAME & PHONE NO.	DATE START/FINISHED	PROJECT NAME AND CONTRACT VALUE
1.	From: To:	
2.	From: To:	
3.	From: To:	
	From: To:	

1.3 Subcontractors

.1 The following conditions apply to the List of Subcontractors

.1 Parties named, including Bidder's own forces, to be used to perform the work for which they are named and not be changed without the ESCo's written consent.

.2 All of the Subcontractors shall be carried as part of the Bid Price.

.3 Subcontractors are listed as follows: Subcontractors listed are those upon whose proposals this bid is used. We recognise that the List of Subcontractors will be considered in the selection of the successful Bidder.

.4 We recognise that Bids may not be accepted unless accompanied by the completed List of Subcontractors, and that no names, either of Subcontractors or Bidder's own forces, may be changed after submission of bids, unless sufficient cause is submitted in writing and written approval received from the ESCo and Consultant.

ASPECT OF WORK	NAME OF SUBCONTRACTOR
1. Installation	
2. PCB Handling	
3. Patching and Painting	
4. Cleaning	

1.4 List of Manufacturers:

.1 The following conditions apply to the List of Manufacturers

.1 List the names of manufacturers (one per item) carried.

.2 If this Bidder neglects to list the specified or acceptable manufacturers or lists more than one manufacturer per item, or lists manufacturers not specified, the ESCo and Consultant shall have the option of making the selection of the manufacturer.

.3 There will be no substitution of Listed Manufacturers or Subcontractors except as accepted by the ESCo and Consultant.

.4 We recognise that Bids may not be accepted unless accompanied by the completed List of Manufacturers, and that no names may be changed after submission of bids, unless sufficient cause is submitted in writing and written approval received from the ESCo and Consultant.

EQUIPMENT	NAME OF MANUFACTURER
1. Ballasts	
2. Lamps	
3. Fixtures – LED Indoor	
4. Fixtures – LED Outdoor	
5. Reflectors	
6. Occupancy Sensors	

1.5 Valuation of Changes

.1 We agree that all Additions and all Credits (Deletions) are to be based on actual cost of labour and material as supplied by this Trade Contractor in Item 1.6 - Unit Prices.

.2 For items that are not covered by 1.6 Unit Prices, the following rates apply.

EQUIPMENT	RATE
1. Hourly Rate – Additions	
2. Hourly Rate – Deletions	

1.6 Unit Prices

.1 Where changes in the work are made after the Bid award, by unit prices, the following Unit Prices shall apply and include all labour, materials, products, equipment, services, overhead, profit, taxes (not including HST) disbursements and all related charges and represent the final cost or credit to the ESCo. HST shall be shown as a separate item. These unit prices are to be used for the total project. Should the project be split by packages, the contractor to provide updated unit prices at award of contract.

.2 Unit prices should indicate the incremental change in cost per item or fixture.

.3 All unit prices shall include costs for preparation/modification/removal of existing fixtures such as to permit the prescribed retrofit. For retrofit measures this shall include, but not be limited to, modification for centering kits, shunting of lamp sockets (for instant start ballasts), and relocation of ballast housings. In the case of new fixtures unit prices shall include but not be limited to costs for decommissioning and removal of existing fixtures, re-commissioning of wiring, the provision/modification of fixture mountings, the installation of switches and the removal and installation of ceiling tiles

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo			UNIT PRICE	TOTAL COST
				Lamps	Ballasts	Fixtures	$	$
A01								
1-1411-T8-LBF	120	1xF028/SS T8 low ballast factor elec. bal (28W)	12	12	12			
1-1421-T8-LBF	120	2xF028/SS T8 low ballast factor elec. bal (28W)	746	1,492	746			
1-2421-T8-KIT-RWH-RWR	120	2xF028/SS T8 elec. bal., kit & reflector, re-wire and relocate (28W)	12	24	12			
1-2421-T8-LBF	120	2xF028/SS T8 low ballast factor elec. bal (28W)	484	968	484			
1-2441-T8-LBF	120	4xF028/SST8 low ballast factor elec. bal (28W)	48	192				
1-DEL-(+PAINT)	120	Delete existing fixture and patch and paint	51					
1-DEL-(+PLATE)	120	Delete existing fixture and insert plate	2					
1-DEL-(+TILE)	120	Delete existing fixture and install new tile	133					
1-N1411-T8-CAG	120	NEW 1'x4' 1xF028/SS T8 fl. cage (28W)	12	12				
1-N1411-T8-STR	120	NEW 1'x4' 1xF028/SST8 fl. Strip (28W)	15	15				
1-N1411-T8-WRA	120	NEW 1'x4' 1xF028/SST8 fl. Wrap (28W)	203	203				
1-N1421-T8-WRA	120	NEW 1'x4' 2xF028/SST8 fl. Wrap (28W)	8	16				
1-N1821T-T8-CAG	120	NEW 1'x8' 2xF028/SS T8 fl. Cage (28W)	2	8				
1-N1821T-T8-WRA	120	NEW 1'x8' 2xF028/SS T8 fl. Wrap (28W)	349	698	349	349		
1-N1841T-T8-CAG	120	NEW 1'x8' 4xF028/SS T8 fl. Cage (28W)	17	68				
1-N1841T-T8-LBF-STR	120	NEW 1'x8' 4xF028/SS T8 fl. low ballast factor strip (28W)	1	4				
1-N1841T-T8-STR	120	NEW 1'x8' 4xF028/SS T8 fl. Strip (28W)	5	20				
1-N2421-T8-K12	120	NEW 2'x4' 2xF028/SS T8 fl. k12 acrylic lens (28W)	2	8				
1-N2442-T8-HBF-GYM	120	NEW 2'x4' 4xF028/SS T8 fl. Gym Fixture High Ballast Factor (28W), 2 ballasts	36	144				
1-NEXT-LED	120	NEW LED Exit Sign	2					
A02								
Ceiling Occupancy Sensor	120V	New Ceiling mounted occupancy sensor	38					
Wall Mount OS	120V	New Wall mounted occupancy sensor	7					
Gym Occupancy Sensor	120V	New Occupancy Sensor for Gym	30					
Wall Switch OS	120V	New Wall Switch Occupancy Sensor	4					
A03								
Photocell	120V	New Exterior Mounted Photocell	2					
A04								
1-LED12A19	120	12W LED A19 lamp	18					
1-LED12A19(2)	120	2x12W LED A19 lamp	2					
1-LED15WPAR30	120	15W LED PAR30 LAMP	8					
1-LED18PAR38	120	18W LED PAR38 LAMP	42					
1-LED20A21	120	20W LED A21 LAMP	12					

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo			UNIT PRICE	TOTAL COST
				Lamps	Ballasts	Fixtures	$	$
1-NLED 2x2	120	New LED 2x2 Panel	99					
1-NLED11	120	New LED 16W Cakepan Square - Lithonia#FMLSL-11-14840	7					
1-NLED11R	120	New LED 16W Cakepan Round - Lithonia#FMLRL-11-14840	10					
A06								
1-NLED19W-WAL	120	New 19W LED wall pack - LITHONIA#TWHLED-10C-1000-40K-T3M-120-PE-VG-DDBXD	3					
1-NLED20W-CAN	120	New 20W LED Canopy - Newstar AGV11-OP-120-30	13					
1-NLED20W-WAL	120	New 20W LED wall pack - Lithonia TWS LED-1-50K-120-PE	5					
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-50K-T3M-120-PE-VG-FS-DDBXD	7					
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-700-40K-T3M-120-PE-VG-DDBXD	8					
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-700-40K-T3M-120-PE-FS-VG-DDBXD	1					
1-NLED58W-FLO	120	New 58W LED flood - LITHONIA#DSXF2LED-3-A530/50K-FL-120-PE-VG-DDBXD ("D-SERIES" 58WATTS)	9					
1-NLED72W-PAK	120	New 72W LED Wall pack - LITHONIA#TWHLED-10C-1000-40K-T3M-120-WG-DDBXD (39 WATTS)	7					
1-NLED74W-POL	120	New 74W LED pole - LITHONIA #CSX1-LED1-30B/700/40K-SR3-120-SPA-VG-BS-P/C-DBXD	9					
1-NLED80W-FLO	120	New 80W LED Flood - LITHONIA#DSXF2LED-3-A530/50K-FL-120-PE-VG-DDBXD	1					
1-NLED80W-FLO	120	New 80W LED Flood - LITHONIA#DSXF2LED-4-A530/50K-FL-120-PE-VG-DDBXD ("D-SERIES" 79 WATTS)	3					
1-NLED80W-WAL	120	New 80W LED Wall pack - LITHONIA#DSXF2LED3-A530/40K-FL-120-PE-FV-VG-DDBXD	11					

.4 Unit Prices – Other:

.1 Labour Rate - Additions Unit Price $: _____ per hour

.2 Labour Rate - Deletions Unit Price $: _____ per hour

1.7 Other Pricing

.1 Separate prices; are for work which is not included in the Bid Price listed on Bid Form but which may be added by the ESCo at its sole discretion for the price quoted hereunder.

.2 Itemized prices are for work which is included in the Bid Price listed on Bid Form and which may be deleted by the ESCo at its sole discretion for the amount quoted hereunder.

.3 Alternate prices are for work which may be substituted by the ESCo at its sole discretion for work which is included in the Bid Price (no price listed shall mean no change in cost).

The ESCo reserves the right at its sole discretion to accept or reject any of the prices identified hereunder.

.4 Cash Allowance: The Cash Allowance is for work that will be done and applied against the amount carried. This amount shall be carried in the Bid Price.

.5 Price breakdown; are work that may take the place in a number of facilities and is included for budgeting purposes.

1.8 Separate Prices (Not included in Bid Price):

.1 Cost to provide separate price for re-lamping of areas found in Appendix C.1. Total counts per school found in section 2 of Appendix D. Bid Price $: _____

.2 Harbour View Elementary Bid Price $: _____

.3 J.L. Ilsely High Bid Price $: _____

.4 Harold T. Barrett Junior High Bid Price $: _____

.5 Ian Forsyth Elementary Bid Price $: _____

.6 Unit Prices Per Retrofit: (Table Below):

CODE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo	UNIT PRICE	TOTAL COST
			Lamps		
A01					
1-1411-28W-RELAMP	1xF028/SS T8 relamp only	251	251		
1-1421-T8-28W-RELAMP	2xF028/SS T8 relamp only	2258	2258		
1-1821T-28W-LAMP	2xF028/SS T8 relamp only	1	1		
1-2441-T8-RELAMP	4xF028/SS T8 relamp only	75	75		

1.9 Itemized Prices (Included in Bid Price)

.1 Cost to provide Attic Stock (spare parts) as per Section 26 50 00, Subsection 2.9.

Bid Price $: _____

.2 Cost to recycle all fluorescent tubes. Include handling and offsite recycling.

Unit Price $:_____per lamp

Bid Price $:_____(Approx.5,357 Lamps)

.3 Cost to label, sort, barrel and send for disposal all PCB Ballasts. Trade Contractor to provide methods of disposal, and provide verification that PCBs have been properly destroyed.

Unit Price $:_____per ballast

Bid Price $:_____(approx.556 Ballasts)

.4 Cost to provide Labour and Material Payment Bond as per Section 00 20 00

$: _____ per $1,000 of Bid Price

Bid Price $_____

.5 Cost to provide Performance Bond as per Section 00 20 00

$: _____ per $1,000 of Bid Price

Bid Price $_____

1.10 Alternate Prices (Not Included in Bid Price)

.1 None required.

1.11 Cash Allowances (Included in Bid Price)

.1 Contingency allowances per school as identified by Consultant and ESCO.

$: $2,000 per school plus HST.

Bid Price $ $12,000 plus HST

1.12 Price Breakdown

SCHOOL	PRICE [$]
1. Halifax Central Junior High	
a. A01 - Lighting Retrofit	
b. A02 – Occupancy Sensors	
c. A04 – Interior LEDs	
d. A06 – Exterior LEDs	
e. Cash Allowance	$2,000.
Subtotal	
2. Harbour View Elementary	
a. A01 - Lighting Retrofit	
b. A02 – Occupancy Sensors	
c. A04 – Interior LEDs	
d. A06 – Exterior LEDs	
e. Cash Allowance	$2,000.
Subtotal	
3. J. L. Ilsley High	
a. A01 - Lighting Retrofit	
b. A02 – Occupancy Sensors	
d. A03 – Photocell Sensors	
d. A04 – Interior LEDs	
e. A06 – Exterior LEDs	
f. Cash Allowance	$2,000.
Subtotal	
4. Chebucto Heights Elementary	
a. A01 - Lighting Retrofit	
b. A02 – Occupancy Sensors	
c. A04 – Interior LEDs	
d. A06 – Exterior LEDs	
e. Cash Allowance	$2,000.
5. Harold T. Barrett Junior High	
a. A01 - Lighting Retrofit	
b. A02 – Occupancy Sensors	
c. A03 – Photocell	
d. A06 – Exterior LEDs	
e. Cash Allowance	$2,000.

Subtotal	
6. Ian Forsyth Elementary	
a. A01 - Lighting Retrofit	
b. A02 – Occupancy Sensors	
c. A04 – Interior LEDs	
d. A06 – Exterior LEDs	
e. Cash Allowance	$2,000.
Subtotal	
7. Total - All SIX (6) Buildings	
8. Less Bulk Discount, if applicable for all sites: _____%	
9. TOTAL - TO MATCH BID PRICE	$_____ (Plus HST)

1.13 Bulk Discount

Provide discount if any if awarded all schools.

ASPECT OF WORK	DISCOUNT
1. Award of All Schools	_____%

1.14 Project Personnel and Site Supervision

.1 The tender shall include the names, position, qualifications, and experience of those people who will be directly involved with the project. The names shall, for example, include project manager and/or project engineer, foreman, superintendent, labourers and trade staff, including names for any major sub-contractors.

NAME	POSITION	QUALIFICATIONS / EXPERIENCE	YEARS OF EXPERIENCE
1.	_____ (project manager)		
2.	_____ (site supervisor – Must be onsite at all times during work)		
3.	_____ (technical person		

	responsible for project)		

.2 Enclose Curriculum Vitae's (CVs) of first three personnel with submission of Section 00 43 00.

.3 No substitution of indicated personnel shall be permitted, unless sufficient cause is submitted to the ESCo in writing, and upon written approval by the ESCo.

1.15 Work Time

.1 Lighting work is required to be done after 3 pm and before 11 pm, Monday to Friday.

.1 Lighting work is not permitted during school operating hours from 8 am to 3 pm, Monday to Friday.

.2 Work between 11 pm and 8 am and on weekends requires HRSB security personnel coordinated in advance, and the cost for this will be borne by this Trade Contractor.

.3 Indicate work times on which the bid is based.

ASPECT OF WORK TIME	TIME AND DAYS
1. Work Start Time – Typical Day:	_____ AM / PM
2. Work End Time – Typical Day:	_____ AM / PM
3. Days of Week:	_____ (Indicate the typical days of the week to be worked)

1.16 Criminal Record and Child Abuse Registry

.1 HRSB and MCW/CES are directly responsible for the safety of its students and staff. Should contractors and sub-contractors be required to work in or on school property while children are present, it is a MANDATORY HRSB REQUIREMENT that contractors assign the work to employees and/or sub-contractors who DO NOT have a CRIMINAL RECORD and who ARE NOT LISTED ON THE CHILD ABUSE REGISTRY. Failure to comply with this requirement may result in immediate contract termination.

.2 By checking the "Agreed" box below you are confirming that you understand and will abide by this mandatory HRSB requirement.

.3 Agreed: ☐

1.17 Signature

Where the Bidder is a Partnership, the Bid must be signed by at least two (2) partners, accompanied by the name and signature of a witness. The name of the signing partners must be clearly identified as well as the names of all the partners must be clearly identified on a separate accompanying attachment (to be provided by the Bidders).

Where the Bidder is a Corporation, the Bid must be signed and sealed under the legal name of the Corporation followed by the legal signature(s) of an officer(s) authorized to bind the Corporation into the Agreement accompanied by the signature of a witness. A certified copy of a resolution naming the person(s) as authorized to sign Agreement for and on behalf of the Corporation shall be submitted to the ESCo if and when requested.

Where the Bidder is a sole proprietorship the Bid must be signed by the sole proprietor and accompanied by the signature and name of a witness. The name of the sole proprietor must be clearly identified.

_____
Legal Name of Bidder

_____
signature

_____
name and title of person signing

_____
second signature (if applicable)

_____
name and title of second person signing (if applicable)

WITNESS _____
witness' signature

_____
name of witness

_____
address of witness

SIGNED THIS _____ of _____, _____
day *month* *year*

END OF SECTION 00 43 00

PART 1 - GENERAL

1.1 PROJECT SAFETY PLAN OUTLINE

During the planning of each project, environmental and occupational health and safety issues will be assessed like any other key project component.

Prior to beginning a new project, tendering Trade Contractors shall examine the work area to identify potentially hazardous site specific situations.

Once identified, these hazards should be prioritized on this Project Safety Plan Outline for Hazard Assessments and corrective *actions* noted to eliminate or control each hazard. The dates of when and names of the persons who are responsible for completing the *action* should also be assigned.

Copies of the completed Safety Plan Outline shall be submitted as part of the tender document submittal, sent to the MCW Construction Manager, HRSB Operations Services Regional Manager, made available on the job site and communicated to the workers. Any updates are to be distributed in the same manner.

Project Name: _____

Project Location: _____

Project Start date: _____

Project End date: _____

Company Name: _____

Completed by: _____
(Contractor's project manager)

Date: _____

Copy to: MCW CES – _____

Copy to: HRSB – _____

Copy to: Site – _____

Copy to: _____

PLANNING:

Does the Trade Contractor's Occupational Health and Safety Program deal with the work activities associated with this project? O Yes O No

Describe tasks to be undertaken:_____

_____

_____

_____

HAZARDS ASSESSMENT:

Identify the hazards that could present themselves on this project (e.g. live electrical wires, over water, confined space, etc) and describe what steps will be taken to prevent an incident (e.g. cover up, de-energize, safe work practices, netting, etc). Prioritize from #1 as needing immediate action.

HAZARD	REQUIRED ACTION	COMPLETED BY	DATE
1.			
2.			
3.			

ENVIRONMENTAL ASSESSMENT:

Identify the environmental issues that could present themselves on this project (e.g. oil spills, asbestos, etc.) and describe the action that will betaken to eliminate or reduce the risk of occurrence (e.g. mop kits, air sampling, etc.)

HAZARD	REQUIRED ACTION	COMPLETED BY	DATE
1. Asbestos			
2. Oil Spills			
3. PCB's			

EMERGENCY RESPONSE:

In the event of an incident, pre-plan the response and write up the procedures. Minimally, the following list should be completed and posted on site:

CONTACT	PHONE #	CONTACT	PHONE #
Fire	911	Poison Control	428-8161
Ambulance	911	Dangerous Goods	1-800-565-1633
Doctor	911	Waste Disposal	
Police	911	Insurance	
MCW Office	876-3182	Min./Dept.of Transport.	
MCW OH&S	481-0879	Min/Dept of Labour	1-800-952-2687
HRSB Office	493-5110	Min/Dept of Environment	1-800-565-1633

- Identify and arrange source of first aid, ambulance and rescue.
- Accidents will be reported to: _____
- Accidents will be investigated by: _____
- Back-up call to: _____
- MCW CES emergency/after hours no.: day 876-3182 after 4:00 pm 499-3572
- HRSB emergency/after hours no.: day 493-5110 after 4:00 pm 442-2476

SAFETY MEETINGS:

On this project, given the nature of the work and the anticipated size of the work force, the following frequency will apply:

Site meetings _____

Site Audits _____

Follow up with MCW Construction Manager: _____

SITE IMPLEMENTATION:

- Health and Safety Rep & Safety Committee:
  Establish liaison between MCW, HRSB, Trade Contractor, site administration
  First Aid, PPE, other safety items as required.

- Documentation:
  Applicable MSDS
  Safety program
  Applicable work procedures
  Permits
  First Aid Certification

TRAINING:

The following training/testing will be mandatory on site (e.g. first aid, WHMIS, fall arrest, asbestos, confined space, etc.)

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____

7) _____

END OF SECTION 00 44 00

PART 1 - GENERAL

1.1 Form of Agreement

.1 Stipulated Price Subcontract: The Agreement Form between the “ESCo” and the “Trade Contractor” shall be the Canadian Construction Association CCA-1 (2001) standard form of Stipulated Price Subcontract between Prime Contractor and Subcontractor, together with all amendments and supplements thereto as described hereunder which shall apply in their entirety to this Agreement.

.1 The ESCo shall be named as the “Prime Contractor” in the Agreement and the Trade Contractor being awarded this tender package shall be named as the “Subcontractor” in the Agreement.

.2 The Agreement as modified by Section 00 80 00 Supplementary Conditions shall be the basis of the Agreement between the ESCo and the Trade Contractor.

.3 A copy of the Agreement can be viewed or obtained from MCW Custom Energy Solutions Ltd. if it is not bound in the tender documents.

.2 Purchase Order: At the ESCo’s sole discretion for contracts under $100,000 including HST the Agreement form shall be based on the Standard ESCo Purchase Order.

.1 The Standard ESCo Purchase Order Terms and Conditions are included in Section 00 80 10.

1.2 Prime Contract

.1 At the Bidder’s request relevant sections of the Prime Contract between MCW Custom Energy Solutions Ltd. ("ESCo") and the Halifax Regional School Board ("Owner") can be reviewed at the ESCo’s offices. Arrangements can be made with Ted Loucks at MCW Custom Energy Solutions Ltd. at 902-876-3182.

END OF SECTION 00 50 00

PART 1 - GENERAL

1.1 Agreement

.1 The "GENERAL CONDITIONS" of the CANADIAN CONSTRUCTION ASSOCIATION STIPULATED PRICE SUBCONTRACT BETWEEN CONTRACTOR AND SUBCONTRACTOR, CCA 1 (2001) between the Contractor and the Subcontractor, as amended by the Supplementary Conditions, shall be read as part of this Contract.

.2 The Definitions and General Conditions of the CCA 1 and the Supplementary General Conditions included in this Section form a part of, and govern all Sections of the Specifications.

1.2 Supplementary Conditions

.1 For the purposes of the document CCA1 (2001) Stipulated Price Subcontract, the following definitions apply to all CCA1 documents:

"Owner" – Halifax Regional School Board

"Consultant" – MCW Maricor Consultants

"Contractor" – MCW Custom Energy Solutions Ltd.

"Subcontractor" – The successful bidder

PART 2 - AMENDMENTS

The following additional amendments to the CCA1 shall be read as part of this contract:

2.1 ARTICLE 3A SUBCONTRACT DOCUMENTS

.1 Add sentence: "The Instructions to Bidders, Bid Form and Bid supplements, and General Conditions shall be a part of the Contract Documents."

2.2 DEFINITIONS

.1 17. Subcontract Time, Add sentence:

.1 "All time limits stated in the Contract documents are of the essence of the contract."

2.3 SCC 5.1 APPLICATIONS FOR PAYMENT

.1 Add new clause 5.1.6 through 5.1.10:

5.1.6 Invoice – The Subcontractor shall Include Purchase Order number on each invoice. The Subcontractor shall date invoices for the last day in the month in which the work was performed.

5.1.7 Statutory Declaration – The Subcontractor shall submit, with each application after the first, a statutory declaration in a form approved by the ESCo and Consultant (CCDC-9B) to the effect that all payments for wages and salaries, all payments due to subcontracts and all payments for materials furnished to the end of the month immediately preceding that covered by the current application, have been made.

5.1.8 Certificate of Recognition – The Subcontractor shall submit valid Certificate of Recognition for the Health and Safety Program with each application for payment.

5.1.9 WCB Clearance Certificate – The Subcontractor shall submit valid Clearance Certificate from WCB with each application for payment.

5.1.10 Final Inspection and Holdback Release – Before final inspection is requested and before applying for release of holdback, the Subcontractor shall submit to the Consultant:

.1 all specified written guarantees, bonds, records, certificates and operation & maintenance manuals, verification of training and demonstration (including instructions to the Owner's staff in the operation of any plant or equipment);

.2 a statement from the Workers' Compensation Board stating that all assessments from such Board have been paid in full;

.3 an acceptable statutory declaration of the Trade Contractor to the effect that the work is complete and all labour, material, work and services have been paid in full and that no liens do or can exist with respect to work.

2.4 SCC 10.2 LAWS, NOTICES, PERMITS, AND FEES

.1 10.2.2 Delete Clause

.2 Add new clause 10.2.2:

10.2.2 "The Subcontractor shall obtain and pay for all necessary approvals, permits, charges for performance of the work."

2.5 SCC 11.1 – LIABILITY INSURANCE

.1 Change 11.1.1 from:

11.1.1 "Without restricting the generality of SCC 12.1 – INDEMNIFICATION, the *Subcontractor* shall provide, maintain and pay for general liability insurance, automobile liability insurance, aircraft and watercraft liability insurance in the amounts of not less than $2,000,000 or as acceptable to the *Contractor* but not more than as described in the *Contract Documents* unless specified otherwise. The *Contractor* shall be identified as an additional insured under general liability insurance, with respect to liability arising out of the operations of the *Subcontractor* with regard to the *Subcontract Work*. Prior to commencement of the *Work* and upon the placement, renewal, amendment, or extension of all or any part of the insurance, the *Subcontractor* shall promptly provide the *Contractor* with confirmation of coverage and, if require, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any amending endorsements."

To Read:

11.1.1 "Without restricting the generality of SCC 12.1 – INDEMNIFICATION, the *Subcontractor* shall provide, maintain and pay for general liability insurance, automobile liability insurance, aircraft and watercraft liability insurance in the amounts of not less than **$5,000,000 per occurrence** or as acceptable to the *Contractor* but not more than as described in the *Contract Documents* unless specified otherwise. The *Contractor* ***and the Owner*** shall be identified as an additional insured under general liability insurance, with respect to liability arising out of the operations of the *Subcontractor* with regard to the *Subcontract Work*. Prior to commencement of the *Work* and upon the placement, renewal, amendment, or extension of all or any part of the insurance, the *Subcontractor* shall promptly provide the *Contractor* with confirmation of coverage and, if require, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any amending endorsements."

.2 Add new 11.1.3 through 11.1.10:

11.1.3 Liability Insurance – Insurance shall include or be included by endorsement coverage the following:

.1 contingent employer's liability;

.2 products and completed operations five (5) years

.3 owners and contractors protective liability;

.4 blanket contractual liability

.5 contractor's protective liability

.6 severability of interests and cross liability

.7 non-owned automobile liability unless otherwise insured under owned and non-owned automobile liability;

.8 limited pollution coverage – time element – 120-hr. reporting and detection, and

.9 licensed or unlicensed industrial machines, cranes, winches, etc. unless insured under the automobile insurance, if applicable.

11.1.4 Exclusions – Exclusions pertaining to any of the following operations to be performed by the Trade Contractor or anyone on the Trade Contractor's behalf are to be deleted: shoring, blasting, excavating, underpinning, demolition, pile driving and caisson work, use of explosives or radioactive material, asbestos – removal / contamination / transportation and disposal.

.1 Where exclusions exists for asbestos regarding removal / contamination / transportation and disposal the Trade Contractor must provide (if applicable to the work) proof of the following coverages in amounts of $5,000,000 (five million dollars) inclusive per occurrence prior to commencement of Work.

.1 Asbestos Abatement Liability, including resultant pollution damage (if applicable to the work).

.2 Trade Contractor's Pollution Liability (if applicable to the work).

11.1.5 Automobile Liability – Automobile liability insurance for a limit of not less than $5,000,000 (five million dollars) inclusive per occurrence for liability for bodily injury, death and damage to property including accidental benefits, in respect of all licensed motor vehicles owned, non-owned, leased, operated and/or licensed in the name of the Trade Contractor used in the performance of this Contract.

11.1.6 Professional Liability – If the applicable to the work performed by the Trade Contractor or any party on behalf of the Trade Contractor, Professional Liability for a limit of not less than $2,000,000 (two million dollars) inclusive per occurrence.

11.1.7 On-hook Liability – If the applicable to the work performed by the Trade Contractor or any party on behalf of the Trade Contractor, On-hook liability for a limit of not less than $5,000,000 (two million dollars) inclusive per occurrence.

11.1.8 Collapse and Underground Liability – If the applicable to the work performed by the Trade Contractor or any party on behalf of the Trade Contractor, Collapse and Underground Liability for a limit of not less than $5,000,000 (five million dollars) inclusive per occurrence.

11.1.9 Sub-Subcontractors – Each Sub-Subcontractor performing any work on the Agreement shall be covered by its own or the Trade Contractor's insurance to the extent and under the conditions set out in the above paragraphs.

11.1.10 Trade Contractors' Equipment Insurance – The Trade Contractor shall take out and maintain "all risks" contractors' equipment insurance covering construction machinery and equipment used by the Trade Contractor for the performance of the Work, including boiler insurance on temporary boilers and pressure vessels, shall be in a form acceptable to the Owner and shall not allow subrogation claims by the insurer against the Owner. The policies shall be endorsed to provide the Owner with not less than 30 days notice in writing in advance of cancellation, change, or amendment restricting coverage.

2.6 SCC 11.3 CONTRACT SECURITY

.1 Add new clause 11.3.3:

11.3.3 "The Subcontractor shall prepare Contract Security in the name of the ESCO (MCW Custom Energy Solutions Ltd.) as Obligee, with Dual Obligee for the Owner (Halifax Regional School Board)".

2.7 SCC 12.1 INDEMNIFICATION

.1 Change clause 12.1.2 from:

12.1.2 The obligation of the *Subcontractor* to indemnify hereunder shall be limited to $2,000,000 per occurrence from the commencement of the *Subcontract Work* until *Substantial Performance of the Work* and thereafter to an aggregate limit of $2,000.000.

To read:

12.1.2 The obligation of the *Subcontractor* to indemnify hereunder shall be limited to **$10,000,000** per occurrence from the commencement of the *Subcontract Work* until *Substantial Performance of the Work* and thereafter to an aggregate limit of **$10,000.000**.

END OF SECTION 00 80 00

PART 1 - GENERAL

1.1 Agreement

.1 At the ESCo's sole discretion for contracts under $100,000 including HST the Agreement form shall be based on the Standard ESCo Purchase Order.

.1 The Standard ESCo Purchase Order Terms and Conditions are included below.

1.2 Standard ESCo Purchase Order Terms and Conditions (when CCA1 not used)

.1 The supply of the equipment shall consist of items listed and in accordance with terms and conditions of this Purchase Order and the Specifications / Tender Documents.

.2 Work to begin within 7 days of this purchase order date or as indicated.

.3 Progress Payments submissions to be submitted every 30 days for Work completed less 10% statutory hold back. Applications to be made by the 23rd day of the month.

.4 Payment Terms – Payment terms are outlined in Section 01 29 00.

.5 WCB Clearance Certificate – First, progress and final payment(s) to be accompanied by Workers Compensation Board Certificate of Clearance. Progress draws not accompanied with the certificate will not be processed.

.6 Statutory Declaration – Progress and final payments to be accompanied by a Statutory Declaration (CCDC-9B).

.7 Stop Work – The ESCo will have the right, after giving written notice, to stop the Work, stop payment of any further monies, and terminate this Purchase Order should execution of the Work fail to meet the completion date (within reasonable limits) or if the Trade Contractor/Installer becomes insolvent or fails to perform the Work to standards in keeping with the Specifications or standard Industry Practice or fails to maintain adequate insurance coverage.

.8 Project Schedule – Within one week of signing Purchase Order, Trade Contractor to provide the ESCo with schedule showing anticipated progress stages within time period required.

.9 Assignment – Neither party will assign this Purchase Order without the written consent of the other.

.10 Changes – The Work may be changed, altered or reduced by written order from the ESCo for which the Purchase Order amount will be adjusted accordingly.

.11 Law of the Place of Work – The Work shall be performed in accordance with the Law of the Place of Work.

.12 Permits, Licenses, Certificates

.1 The Trade Contractor shall obtain at its own cost all licenses, permits and certificates that are deemed necessary for the implementation of the work including electrical and necessary permits, shall supply copies of such licences and permits to the ESCo. The cost of required permits, licenses and certificates shall be included in the Purchase Order Price.

.2 In the event that the need to effect modifications to the work arises after the work has been started as a result of the Trade Contractor not having obtained necessary permits and licenses for the work, the costs associated with bringing the work into compliance shall be at no additional cost to the ESCo. The Trade Contractor shall reimburse the ESCo for any fines or penalties resulting from non-compliance of the work with all applicable laws, ordinances, rules, regulations, by-laws, and codes.

.13 Insurance – The Trade Contractor shall include in the Purchase Order Price the cost of insurance for materials up to acceptance of delivery at site, as well as the amounts listed in Section 00 20 00 of the specifications. In all cases the ESCo as well as the Owner (Halifax Regional School Board) shall be listed as additional insured.

.14 Indemnification

.1 The Subcontractor shall indemnify and hold harmless the ESCo and its agents, officers, directors and employees from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings by third parties that arise out of, or are attributable to, the Trade Contractor's performance of this Agreement (hereinafter called "claims"), provided such claims are:

.1 attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, and,

.2 caused by negligent acts or omissions of the Trade Contractor or anyone for whose acts the Trade Contractor may be liable, and,

.3 made in writing within a period of six years from the date of substantial performance of the Prime Contract as set out in the Certificate of Completion (i.e. substantial performance)substantial performance of the Prime Contract or within such shorter period as maybe prescribed by any limitation statute of the province or territory of the place of the project.

.2 The ESCo expressly waives the right to indemnity for claims other than those stated above.

.3 The obligation of the Trade Contractor to indemnify hereunder shall be limited to five million dollars per occurrence from the commencement of the Subcontract work until the date of substantial performance of the Prime Contract and thereafter to an aggregate limit of five million dollars.

.15 Licenses and Permits

.1 The Trade Contractor shall obtain at its own cost all licenses and permits that are deemed necessary for the implementation of the work including electrical and necessary permits, shall supply copies of such licences and permits to the ESCo.

.2 In the event that the need to effect modifications to the work arises after the work has been started as a result of the Trade Contractor not having obtained necessary permits and licenses for the work, the costs associated with bringing the work into compliance shall be at no additional cost to the ESCo. The Trade Contractor shall reimburse the ESCo for any fines or penalties resulting from non-compliance of the work with all applicable laws, ordinances, rules, regulations, by-laws, and codes.

.16 Asbestos – Work in areas containing asbestos to be provided in accordance with Provincial regulations respecting asbestos (Nova Scotia – Asbestos Waste Management Regulations NS Reg. 53/95) (Ontario – Asbestos on Construction Projects and in Buildings and Repair Operations made under the Occupational Health and Safety Act) as well as in Accordance to Section 02 82 00 of the Specification. Any questions and concerns with respect to light hazard asbestos work shall be forwarded to the ESCo Site Safety Coordinator (SSC). The Trade Contractor to set up all necessary barriers and provide protection. In areas where asbestos abatement is required that is not currently included in the Contract, immediately notify the Consultant and the ESCo Construction Manager.

.17 Hazardous Substances and Environmental Matters

.1 For the purposes of applicable environmental legislation, the Owner shall be responsible for Hazardous Substances located on, in or at the place of work prior to the commencement of the work. The Trade Contractor shall be responsible for all Hazardous Substances brought by it or its subcontractors onto the place of the work.

.2 The Owner, ESCo, and Trade Contractor shall each take such steps as are required by applicable legislation to deal with Hazardous Substances for which they are respectively responsible.

.3 The Trade Contractor shall:

.1 ensure that the work and the resulting work of any sub-contractors, consultants, consortium members or apprentices shall comply with all applicable Federal, Provincial and Municipal environmental statutes, regulations, by-laws, directives, orders, instructions, and publicly available policies of governmental authorities;

.2 review existing relevant environmental site assessment reports for the work and related areas to determine potential problem areas that may impact the work and provide identification and description only of such Hazardous Substances, in, under or around the work areas which may impact on the work;

.3 assess and inform the ESCo the cost/risk of proceeding with the work for the building(s) in question in light of the potential environmental hazards or risks identified;

.4 for any potential environmental hazard or risk identified develop an outline of an environmental management plan and methodology for handling, removal and disposal of Hazardous Substances related to but not limited to the following potential hazards:

.1 Asbestos and asbestos-containing materials;

.2 Electrical generators, transformers, capacitors, fluorescent ballasts, hydraulic equipment that may contain PCBs;

.3 CFCs;

.4 Urea formaldehyde foam insulation;

.5 Mould;

.6 Lead.

.5 prepare a financial and technical proposal which shall include sufficient environmental information about Hazardous Substances present, in, under or around the work areas to permit the ESCo to clearly understand the implications of proceeding with the work;

.6 in the event that the ESCo and the Owner agree to proceed with the work in respect of which it is necessary to deal with Hazardous Substance, through subcontractors and consultants, handle and remove such Hazardous Substances or remedy such hazardous conditions as necessary for the successful completion of the work;

.7 ensure that its employees, subcontractors, consultants, consortium members or apprentices and the like apply in the conduct of the work all approved environmental guidelines, checklists or other protocols in place for the proper handling, management and disposal of Hazardous Substances that may be discovered during the course of proceeding with the work;

.8 ensure that any subcontractors, consultants, consortium members or apprentices to be used in this Agreement to deal with environmental issues have the necessary environmental qualifications, expertise and experience to address the Hazardous Substances that may be discovered;

.9 ensure that the environmental requirements are included in any contracts with subcontractors, consultants, apprentices or other persons engaged by the Trade Contractor in accordance with this Agreement; and

.10 obtain and maintain throughout the term of this Subcontract Agreement such insurance protection for environmental risks and hazards as is commonly available in the market for the work to be performed and ensure that any sub-contractors, or consultants retained for work obtain and maintain the same. The Trade Contractor shall provide evidence of all such insurance to the ESCo.

.4 If it is discovered during construction that Hazardous Substances exist in any of the work areas which are not known to the Owner and not discovered by the Consultant during the preparation of the Tender documents, then the Trade Contractor shall cease work at the location where such Hazardous Substances are found until the Owner and ESCo reach a decision for the treatment and/or removal of such substance.

.18 Clearing of Site – During the work and upon its completion, the Trade Contractor shall clear and clean each area of work in accordance with any directions of the ESCo, so as to render it tidy and free from accumulation of waste material and debris, and shall dispose of all Hazardous Substances in accordance with relevant standards and guidelines.

.19 Cleaning – On completion of the Work, the Trade Contractor shall remove all tools, equipment and materials and thoroughly clean up and remove all rubbish that was created during the performance of the Work.

.20 Cutting, Patching and Remedial Work – All costs for cutting, patching and remedial work are to be included in the Purchase Order Price.

.21 Fire Protection System – The Trade Contractor shall be familiar with the fire protection system at the Place of the Work and activate this system when required.

.22 Warranty – All work, components and equipment to have a labour, parts and material warranty as detailed in the Specifications, minimum one (1) year.

END OF SECTION 00 80 10

PART 1 - GENERAL

1.1 UNDERTAKING TO COMPLY FORM

.1 Complete this form upon award of work and deliver signed copy to the ESCO.

Name of Trade Contractor: _____

Project Name: _____

Project Location: _____

The Agreement:

.1 The Trade Contractor hereby undertakes to MCW and HRSB:

- .1 to comply with all health, safety and environmental legislation in the performance of this Agreement; and
- .2 to maintain a safe and healthy work environment during the performance of this Agreement.

.2 The Trade Contractor hereby agrees with MCW and HRSB:

- .1 that compliance with all health, safety and environmental legislation is a condition of this Agreement and that non-compliance with the same may, in MCW's and / or HRSB's discretion, lead to the termination of this Agreement; and
- .2 to permit MCW and HRSB to audit the Trade Contractor's health, safety and environmental records during the term of this Agreement and upon its conclusion and to cooperate fully with any such audit(s).

.3 The Trade Contractor understands that, at MCW and HRSB's discretion, any Trade Contractor safety deficiencies will be addressed by MCW and HRSB in the following progressive steps:

- .1 the problems will be identified to the Trade Contractor (site supervisor);
- .2 the Trade Contractor's head office will be contacted about the problem, orally and later in writing;
- .3 if required by law to report the problem to a Provincial and or Federal Ministry, MCW and/or HRSB will immediately do so;
- .4 if not required by law to report the problem, and the problem remains unresolved, MCW and/or HRSB may report the problem; and
- .5 the Agreement may, in MCW and HRSB's discretion, be suspended or terminated and/or payment withheld by HRSB.

.4 The Trade Contractor acknowledges and agrees with HRSB that, depending upon the nature and/or seriousness of the deficiency, MCW and HRSB reserves the right to bypass any or all of the steps described in Section 3.

.5 The Trade Contractor acknowledges that it has read and understood the Asbestos Report (or Hazardous Material Assessment) for the project location(s).

The undersigned hereby confirms that he/she has the authority to bind the Contractor:

TRADE CONTRACTOR	**MCW CUSTOM ENERGY SOLUTIONS LTD.**
_____ FULL COMPANY NAME _____ PRINT NAME _____ AUTHORIZED SIGNATURE _____ POSITION _____ DATE	_____ PRINT NAME _____ AUTHORIZED SIGNATURE _____ POSITION _____ DATE
HALIFAX REGIONAL SCHOOL BOARD _____ PRINT NAME _____ AUTHORIZED SIGNATURE _____ POSITION _____ DATE	

PART 1 - GENERAL

1.1 TRADE CONTRACTOR SAFETY CHECKLIST

.1 Complete this form together with MCW representative and HRSB representative upon award of work and deliver signed copy to the ESCO.

Meeting Date:: _____ Tender No.: _____

Project Name: _____

_____

Project Location: _____

_____

Trade Contractor Company: _____

Trade Contractor Representative: _____

MCW Representative: _____

HRSB Representative: _____

√ **Means complied to**	**X Means not complied with**	**n/a means not applicable**

1.	Notice of Project filed with Nova Scotia Infrastructure (if applicable)	O
2.	Review Board Safety Compliance	O
	Undertaking to Comply Form Signed	O
	Progressive Disciplinary Action Reviewed	O
3.	Trade Contractor Health and Safety Policy	O
	Contractor and Safety Management Certificate	O
4.	Health & Safety Representatives/Joint Site Health & Safety Committee	O

Name and Phone _____

5. Personal Protective Equipment:

- Hard Hats O
- Footwear O
- Safety Glasses O
- Hearing O
- Dust and Fumes O
- Face Protection O
- Others:

_____ O
_____ O
_____ O

6. Equipment Certification

- Trench Boxes O
- Boom Cranes O
- Scaffolds O
- Others:

_____ O
_____ O
_____ O

7. Provision of Hazardous Material Information to Contract O

Confirmation of Employee Awareness of Hazardous Material

- Asbestos O
- Lead O
- PCB O

Confirmation that Trade Contractor reviewed Asbestos Inventory at the work site

8. Contractor Staff Training:

- Roles and Responsibilities O
- Emergency Response O
- WHMIS Training Verification O
- O H & S O
- MSDS Received O
- Scaffold Training O
- Confined Space Code of Practice Training O

	- TDG Training Verification	O
	- Working Alone Training	O
9.	Review Contractor Signage & Barricades	O
10.	Written Work Site Hazard Assessment and Control Plan/Schedule Submitted	O
11.	Building Fire Plan	O
12.	Accident Investigation / Notification / Reporting Procedure	O
13.	Contingency Plan for Control & Clean-up of a Spill	O
14.	Fire Protection/Extinguishers	O
15.	First Aid Kits on Site	O
16.	First Aiders on Staff Names: _____	O
17.	Fall Protection / Safety Harness	O
18.	Methane Gas Detection in Sewer	O
19.	Clean Up - Good Housekeeping	O
20.	Weekly Safety Talks/Meetings	O
21.	Other Issues	
	- Item: _____	O
	- Item: _____	O
	- Item: _____	O

END OF SECTION 00 85 20

PART 1 - GENERAL

1.1 TRADE CONTRACTOR'S CHECKLIST

.1 The following documents must be enclosed with your bid:

- O **Bid Form** – Section 00 30 00
- O **Supplementary Bid Form** – Section 00 43 00
- O **Appendix A – Materials** and **Appendix D – Total Counts**
- O For bids greater than $100,000, provide a **Bid Bond** in the amount of 10% of the Total Contract Price (before HST) OR Certified Cheque in the amount of 10% of the Total Contract Price.
- O For bids greater than $100,000, provide a **Letter of Consent from Surety Company** confirming that if successful, the bidder will provide a Performance Bond, and a Labour & Materials Bond for 50% each of the total amount of the contract (before HST).
- O **Certificate of Insurance** indicating a minimum of **$5,000,000** Commercial General Liability insurance per occurrence and Commercial Auto Liability Insurance covering all owned, non-owned and hired vehicles for a minimum combined single limit of **$2,000,000** per occurrence
- O **Workers' Compensation Board** Letter of Good Standing
- O **Certificate of Recognition** for the Trade Contractor's occupational health and safety program by an auditor approved by the WCB.
- O Completed Preliminary **Project Safety Plan Outline**
- O Applicable Warranty Information for extended warranties requested
- O CCDC#11 – Contractors Prequalification Form

.2 The following documents must be submitted within five (5) business days of tender:

- O **Tentative Work Schedule** (Timelines) – Subsequently, within five (5) business days of tender award the successful bidder shall provide a schedule clearly indicating timelines for completion of all aspects of the project.
- O Completed Final **Project Safety Plan Outline**

END OF SECTION 00 99 00

DIVISION 1
GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 Section Includes

.1 General description of Work.
.2 Contract Method.
.3 Work by other trade contractors.
.4 Assigned contracts.
.5 Work sequence.
.6 Trade Contractor use of premises.

1.2 Related Sections

.1 Section 01 31 00 - Construction Management and Coordination.
.2 Section 01 32 00 - Construction Progress Documentation
.3 Division 26

1.3 Work Covered by Tender Documents

.1 Lighting Retrofit : Perform all electrical work associated with the conversion of existing lighting systems to energy efficient technologies:
  .1 Generally, the retrofit will comprise the removal of existing lamps and ballasts and replacement with electronic ballasts and T8 lamps.
  .2 White reflectors and recentering kits will be required as part of some retrofits.
  .3 Incandescent fixtures will be retrofitted with new LED fixtures or screw in LED replacement lamps.
  .4 Existing incandescent exit signs will be retrofit to LED sources.
  .5 New linear fluorescent fixtures to be installed.
  .6 Occupancy sensors to be installed.
  .7 Replacement of gymnasium or auditorium high intensity discharge lighting with new fixtures.
  .8 Replace exterior lighting with LED.
.2 Supply of Material
  .1 Some material supplied by Owner / ESCo. Coordinate pick-up of materials available through the ESCo.
  .2 Material stored at Focus Logistics by Guillevin International Inc.
  .3 Allow for one (1) delivery only of Owner / ESCo supplied material. Contractor is responsible for arranging one (1) complete pick up from Focus Logistics in its entirety.
  .4 Provide on-site storage (e.g. trailer, sea-container etc.) to house all purchased and provided material.
  .5 Upon receipt of material, assume all warranty responsibilities for material purchased and supplied by Owner/ESCo.
  .6 Trade Contractor to examine the material available and provide additional material to provide complete work.
  .7 Trade Contractor to thoroughly examine material and assume responsibility of material picked up from Focus Logistics. Once material is received, Contractor is responsible for replacing any broken or damaged product.
.3 The Trade Contractor shall clean the interior surfaces of all fixtures.
.4 The Trade Contractor is responsible for removing all tar residue found in the ballast covers of any fixtures to be retrofitted. At the Trade Contractor's discretion the ballast cover may be replaced at the Trade Contractor's cost with a new unit of equivalent construction in lieu of cleaning.

.5 The Trade Contractor shall, when performing fixture retrofits in which the number of lamps are being reduced, re-centre remaining lamp sockets using a Consultant approved kit. Where knockouts in the existing fixture housing allow for the symmetrical mounting of lamps, this method of re-centring will be deemed acceptable. In low traffic areas, where leaving lamp sockets in existing positions will not adversely affect the appearance of the space, the Trade Contractor may appeal to the Consultant to relieve the Trade Contractor of the requirement to re-centre fixtures in this area only.

.6 The Trade Contractor shall be responsible for replacing any cracked or broken lamp sockets with new sockets during the course of the retrofit.

.7 The Trade Contractor shall visit each building prior to ordering materials to assess the individual requirement of all areas, to ensure an orderly retrofit within the budget.

.8 The Trade Contractor shall be responsible for identifying and safely storing any replaced ballasts containing PCBs. Storage shall be preformed in accordance with the practices outlined in Section 26 05 00. The Trade Contractor must have written procedures on site for handling PCB ballasts and communicate these procedures to all employees and Sub-Contractors that will be handling PCB. Submit such handling procedures to the Construction Manager before the start of Work.

.9 The Trade Contractor shall be responsible for the removal of all garbage from the site associated with their work. Trade Contractor responsible for removal of lamps and non PCB Ballasts. Fluorescent lamps shall be packaged and made ready for removal in accordance with the practices outlined in Section 26 05 00.

.10 The Trade Contractor shall be responsible for removing all lamps and recycling them properly as per section 26 05 00.

.11 The areas of work as well as the redesigned areas have been detailed in Appendix C & F.

.12 ACM (asbestos control measures) as outlined in Section 02 82 00. Refer to Asbestos Section.

.13 Comply with the grounding requirements detailed in Section 26 05 00.

.14 Submit on a bi-weekly basis an updated as-built database for review.

.15 All Work to be substantially complete within **12 weeks**. Indicate if there are any issues at the time of the submission and what the required start date is to achieve the completion date.

.16 Contractor to verify the compatibility of existing dimmer to ensure the new lamp or luminaire will be in working condition upon completion of lamp or luminaire installation. Verification shall be completed prior to tender close. Should existing dimmer be incompatible, contractor to price and propose replacement with Bid submission.

.17 Where an occupancy sensor is to be installed in a room with exterior windows or skylights, sensor shall include a photocell. Contractor to verify using drawings provided in Appendix F and line by line detail in Appendix C.

.18 Where a new exterior fixture is to be installed, contractor to supply 120V-347V transformer where applicable.

1.4 Contract Method / Completion

.1 Construct the work under a single lump sum fixed price contract as described in Section 00 50 00.

.2 Complete the work so as to be certifiable by the Consultant as having attained Substantial Performance on or before the date and time proposed in Section 00 30 00.

.3 The Trade Contractor will need to work closely with the ESCo, HRSB Project Coordinator, as well as other trade contractors engaged to carry out related work.

.4 The Trade Contractor is required take the leading role in the organizing, scheduling and coordinating all of the work for an efficient and speedy completion.

.5 Provide sufficient labour and materials to complete the work within the time required for each construction phase, as well as to meet overall completion within the Agreement time. Any required overtime and similar costs to complete the project by the agreed completion date is included in the Bid price.

.6 All parties shall cooperate and resolve disputes so as not to affect progress of the work. The Trade Contractor to take remedial action to correct and make up any default, as the work progresses.

.7 Arrange and carry out the work so as to maintain access and exits; avoid conditions of unacceptable noise, dust, and appearance; minimize disruption to HRSB operations.

.8 The Owner's requirement to maintain HRSB operations takes precedence over the Trade Contractor's requirements.

.9 The project design is to be carried out so as to provide a high and consistent level of workmanship and appearance for the entire work, including at all buildings and all elements of the site.

1.5 Work Sequence

.1 It is intended that the construction work proceed in a phased and organized manner which minimizes disruption to HRSB operations.

.2 The Trade Contractor shall prepare a preliminary and proposed sequence of construction and construction schedule, for presentation at a preconstruction meeting for review and acceptance in principle by the ESCo and the Consultant. The Trade Contractor to revise the proposed sequence schedule as directed for final acceptance by the ESCo and the Consultant, before commencement of on-site construction work.

.3 The finalized schedule to clearly define:

.1 the phasing and duration of the work

.2 the limit of construction work during each phase and sub-phase, including location of barriers, hoarding, and covered ways (if applicable to the project)

.3 the sequence of construction within each phase to co-ordinate the work of all trades, and that work under other contracts.

.4 For each phase, Trade Contractor to provide all hook-ups and services required, provide relocation and removal as required, and work required to keep all life safety, communications, and security systems fully operational during construction if effected by the construction.

1.6 Trade Contractor Use of Premises

.1 Coordinate use of premises with ESCo and HRSB Project Coordinator to allow;

.1 Continued Owner occupancy and normal use.

.2 Work by other contractors.

.3 Public usage.

.2 The Owner will occupy and operate all of the mechanical rooms during implementation of the work.

.3 Co-operate with the ESCo and Consultant in scheduling the work to minimise interference with Owner usage.

1.7 Work by Owner or Other Trade Contractors

.1 ESCo Supplied Products:

Work of this project includes the coordination, as well as the installation unless otherwise noted, of products including ESCo supplied equipment shown, scheduled, specified or identified in Tender Documents as NIC (Not-in-Contract) or similar designation.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 11 00

PART 1 - GENERAL

1.1 Section Includes

.1 General Restrictions.
.2 HRSB Traffic and Parking Regulations.
.3 Hours of Work.
.4 Service Shutdown / Interruption.
.5 Markings.
.6 Publicity / Advertising.

1.2 Related Sections

.1 Section 01 32 00 - Construction Progress Documentation.
.2 Section 01 35 29 - Health and Safety.
.3 Section 01 35 30 - HRSB Construction Safety Guidelines.
.4 Section 01 56 00 - Temporary Barriers and Enclosures.

1.3 General Restrictions

.1 No work of any kind can begin until the following have been submitted:
  .1 Signed Letter of Intent
  .2 Required bonds
  .3 Insurance certificates
  .4 Current WCB certificate
  .5 Worker information
    .1 Names of employees
    .2 Name of supervisor
    .3 Name of First Aid attendant
  .6 Copies of WHMIS and Fall Arrest training cards.
  .7 Site safety plan and work safety plans.
  .8 Project schedule.
  .9 MSDSs for all materials or items used during the work organized in a binder.
  .10 Building permits and work permits.
.2 Stop work around an area where existing previously unidentified hazardous material is discovered including materials suspected of containing asbestos, and immediately contact the ESCo and the Consultant for direction before continuing with the work affected.
.3 NO SMOKING on any HRSB property, including adjacent sidewalks and pathways.

1.4 HRSB Traffic and Parking Regulations

.1 Trade Contractor to abide by City traffic and parking regulations.
  .1 All parking must be co-ordinated with Building Operator.
  .2 No vehicle parking on grassed areas, boulevards, sidewalks, etc.

1.5 Hours of Work

.1 Core Work hours: Monday to Friday, 3:00 pm to 11:00 pm.
.2 Construction work time:
  .1 School hours are 7:30 a.m. to 3:00 p.m. Monday to Friday with functions and other activities during the evening.

.2 The schools are generally open until 11:00 pm when an HRSB representative is working. Trade Contractors shall only be in buildings when there is an HRSB representative present.

.3 Work that is disruptive, noisy, affects public areas, requires shutdown of the air handling systems, or is deemed unacceptable during normal construction hours shall be performed after hours. Monday to Friday from 23:00 to 07:00 hours and during similar hours on Saturdays and Sundays. Indicate all allowances made for premium time in your bid.

.4 During winter break or other breaks, work hours may be modified to allow work in public areas between 7:30 – 18:00 hrs as coordinated with the ESCO Construction Manager and HRSB Project Coordinator.

.5 Trade Contractor to indicate in Section 00 43 10 the hours of work that this bid has been based on.

.3 Construction work time, additional restrictions:

.1 Noisy operations such as jack hammering, cutting and coring, are generally to be carried out after hours unless specifically authorized in writing by the Construction Manager.

.2 Limit construction activities, particularly those generating noise and other distractions, so as not to affect HRSB operations.

.3 Where air handling equipment is required to be shut down to enable work, or welding to be performed, Work shall be performed after hours or on weekends. Times and dates of shutdowns shall be coordinated with the Construction Manager and HRSB. All costs for after hours work shall be carried in the bid price.

.4 All welding work shall take place as scheduled by the Construction Manager. Air handling units to be shut down during welding procedures. Trade Contractor is also to supply “smoke-eaters” or supplementary exhaust systems to facilitate welding fume removal. Account for welding work taking place outside the core hours.

.5 The ESCo and Consultant reserve the right to adjust the Trade Contractor's activities relative to any HRSB scheduled activities and/or examinations at no additional cost.

.4 Accessing the Job Site after hours: Arrangements must be made in advance with the Construction Manager, to access a job site outside of regular operating hours. The Owners’ site personnel will not permit access to a job site without formal authorization from the HRSB Project Coordinator, in advance which will be made through the Construction Manager.

.5 Complaints and work carried out contrary to hours of work restrictions will be assessed by the ESCo, whose instructions are to be followed immediately.

.6 In general air handlers will not be shut down immediately during standard work hours.

1.6 Code of Conduct

.1 While at HRSB buildings, Trade contractors and trade contractor employees are expected to behave in a manner that is lawful and respectful of others. The Trade Contractor Code of Conduct has been designed to ensure that a consistent approach to contractor behaviour is achieved in order to provide a respectful and safe environment for all HRSB staff, faculty, students and visitors.

.2 Identification Badges: The ESCo/Construction Manager will arrange for identification badges for all Trade Contractors and Trade Contractor employees. Site supervisors may be provided with ‘photo’ identification badges. Identification badges are expected to be worn at all times by all on-site personnel, including visitors, while on the Owners’ property. Those found without their badge may be asked to leave the premises. The Trade Contractor will be responsible for all badges, must keep a record of who has been given a badge, and be must able to produce this record at any given time. The badges will remain the property of Owner.

.3 Dress Code: Trade Contractors are required to wear appropriate work wear, hard hats and safety footwear on the project site. Articles of clothing shall be neat and tidy in appearance, and shall not display offensive language, symbols or graphics. The Owner and the Construction Manager have the right to decide if such clothing is inappropriate to be worn by workers under Agreement.

.4 Appropriate Use of Language: When working on site, Trade Contractors should act in a socially responsible manner. The Trade Contractor and Trade Contractor employees shall be respectful and sensitive to all members of the HRSB community at all times. The use of profane, harassing or threatening behaviour (including language and gestures) is unacceptable, regardless of the actions of others. Respect, sensitivity and restraint should be shown at all times. In the event of an altercation, the Trade Contractor shall report the matter to the Construction Manager immediately.

.5 Smoking and Alcohol Consumption: Smoking is not permitted on HRSB grounds, including outdoor areas. Trade Contractors shall comply with all municipal, provincial and federal laws, including the Smoke-free Places Act. Alcohol is prohibited on all project sites, including staging and delivery areas, in parking lots and on the grounds.

1.7 Additional Owner Requirements

.1 Responding to Enquiries Raised by HRSB Community Members

.1 The Trade Contractor and Trade contractor employees are asked not to discuss with or provide information about a project to any faculty, staff, student or visitor. If an individual has questions or concerns, the Trade Contractor shall direct him/her to the ESCo Construction Manager.

.2 Care of HRSB Property:

.1 It is expected that Trade Contractor and Trade Contractor employees will take every necessary precaution to protect the property of the HRSB prior to starting work (e.g., cover carpeting, floors, workstations, computers, personal belongings, etc.). In situations where the Trade Contractor and Trade Contractor employees notice that valuables or personal belongings (e.g., wallets, keys, electronic devices) have been left by building occupants within or adjacent to the work area, the Construction Manager should be contacted to have items removed and secured before work is initiated or resumed.

.2 The Trade Contractor shall not make use of any HRSB waste and recycling containers to dispose of unwanted materials. Approval must be given in writing from the Construction Manager before using any property that belongs to the Owner (e.g., equipment, material, etc.).

.3 The Trade Contractor is responsible for securing and locking the work area at the end of each day and shall ensure that the work area is not left unattended unless it is secured.

.3 Work in Interior of Occupied Buildings

.1 The Owner requires that health and safety be a primary objective in every area of operation and that all Trade Contractor(s) performing work within HRSB premises comply with procedures, regulations and standards relating to health and safety.

.2 Classes take precedent over all construction, renovation or maintenance work. Therefore, depending on the nature of the activities taking place in adjacent areas, there may be times when work may need to be rescheduled.

.3 Any activity with excessive noise, dust, or fumes should be coordinated with the Construction Manager prior to the start of the work.

.4 Audio devices, such as radios, shall not be used within or adjacent to the project area, including in interior corridors and foyers that are adjacent to rooms/facilities used for teaching, study, research and/or administration.

.5 Upon completion of project work, the Trade Contractor is responsible for ensuring that the work area is cleaned up to the satisfaction of the Construction Manager.

.4 Notifications

.1 The Construction Manager shall outline to the Trade Contractor at the start of the project which of the following notification periods will be required for the implementation of the Work.

.1 48 hours notice is required for shutdown of any fire panel

.2 48 hours notice is required for shutdown of any sprinkler system

.3 5 days notice is required for weekend and/or after hours work

.4 72 hours notice is required for shutdown of any electrical panel

.5 72 hours notice is required for shutdown of any electrical receptacles in occupied space that computers are connected to

.6 72 hours notice is required for shutdown of lighting panels/circuits in occupied space

.2 Exterior excavating or trenching is not permitted until all applicable “line locates” (e.g., gas line, telecommunication lines, water lines, etc.) have been undertaken and confirmation provided to the named HRSB Project Representative.

1.8 Service Shutdown / Interruption

.1 The Trade Contractor shall provide a written requirement of all service shutdowns to the HRSB Project Coordinator and the Construction Manager a minimum of 48 hours in advance.

.2 A Service Shut-down is defined as a total stoppage of the distributed service to a particular area.

.3 There is no cost to the Trade Contractor for a service shut-down. Shut-downs shall be kept to a minimum.

.4 Service shut-downs can be scheduled during unoccupied hours only.

1.9 Markings

.1 No organic markings such as felt pens or paint shall be used on any surface, whether exposed or to be concealed or covered by subsequent work, unless part of a specified identification system.

.2 No temporary markings shall remain visible in exposed areas after Project completion.

1.10 Publicity / Advertising

.1 All publicity relating to the work is subject to the approval of the ESCo. No mention of the project in advertising or articles in any publication will be permitted unless approved in writing by the ESCo. Publicity or advertising implying endorsement of a product, Trade Contractor or Consultant is not permitted.

.2 No project signage shall be permitted on this project. No signage which includes, markings, posters, advertising, product identification, manufacturer's labelling, shall be permitted, without prior approval of the ESCo in writing. Removal of all unapproved signage shall be at the Trade Contractors expense.

1.11 Safety

.1 All personnel are required to attend a site safety orientation meeting prior to working on site. This includes all personnel working or visiting the site. Refer to Section 01 35 29 and 01 35 30.

1.12 Sign-In

.1 All Trade Contractors shall sign in on a daily basis in the Office at each School. Conform to the school’s sign in/sign out policy.

1.13 Police Background Checks

.1 Clearance Letter - Police Background Checks

.1 The Trade Contractor is required to provide a “Clearance Letter” with “Vulnerable Sector” clearance (also known as a police check) for each of the Trade Contractor personnel and Subcontractor personnel.

.2 A Clearance Letter is a formal document produced on secure paper indicating that the subject of the inquiry has no criminal convictions in the National Repository of Criminal Records maintained by the Royal Canadian Mounted Police (RCMP).

.3 A request for a Clearance Letter must be made in person at the individual's local or regional police services office. For more details contact the following:

.1 HRSB Region residents: www.police.HRM.on.ca

.4 The Clearance Letter should be presented to the Construction Manager before any personnel allowed on site.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 14 00

PART 1 - GENERAL

1.1 Section Includes

.1 Cash allowances.

1.2 References

.1 Section 00 30 00 Bid Form.

.2 Section 00 43 00 Supplementary Bid Form.

1.3 Cash Allowances

.1 Included in Tender Price are Cash Allowances as detailed in Section 00 43 00.

.2 Included in Tender Price are Cash Allowances to be carried in subcontracts for work specified in respective specification sections. Coordinate to ensure no omission or duplication.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 21 00

PART 1 - GENERAL

1.1 Section Includes

.1 Alternate work to Bid.

.2 Separate work to Bid.

.3 Itemized Bid work.

1.2 Related Sections

.1 Section 00 20 00 - Instructions to Bidders.

.2 Section 00 30 00 - Bid Form.

.3 Section 00 43 00 - Supplementary Bid Form

1.3 Definitions

.1 The work under alternative prices shall include as part of each alternative price, miscellaneous labour and products, adjustments in completion time, overheads and profit, incidental to or required to fully integrate the alternate into the work whether or not specifically mentioned as part of the alternate.

1.4 Requirements

.1 Referenced specification sections stipulate pertinent requirements for products and methods to achieve the work stipulated under each alternate.

.2 Coordinate affected related work and modify surrounding work to integrate the work under each alternate.

.3 Provide new material and equipment as specified and to acceptance of the Consultant.

.1 Manufacturer's names are listed to set a standard of quality, performance, capacity, appearance and serviceability. Other manufacturers may be deemed acceptable, and their products may be used in the work subject to conditions stipulated by the Consultant.

.4 Requests for acceptance of manufacturers not listed shall be submitted not less than seven (7) working days prior to closing date of the Bid. Submissions must bear proof of acceptance by the Consultant.

.5 Subsequent substitutions of manufacturers and products will only be permitted in situations where proposed materials are found to be unsuitable for the intended retrofit or the proposed materials become unavailable. Under such circumstances the Consultant shall specify alternate manufacturers or products in keeping with the proposed standard of quality, performance, capacity, appearance and serviceability.

.6 Should specified manufacturers not be available, list alternate manufacturer(s) in Bid. All alternates must be submitted to the Consultant no less than seven (7) working days prior to closing date of the Bid. Consultant

.7 Assume full responsibility for ensuring that when providing other acceptable manufacturer(s) all costs and requirements including but not limited to space, weight, connections, power and wiring requirements are considered, and included in the Bid. Equipment requiring greater than specified energy requirements or unduly limiting service space requirements will not be accepted.

.8 All electrical equipment, material, wiring and devices to conform to the Canadian Electrical Code for the purpose for which they are to be used and bear the approval of the C.S.A. or have special approval of the inspection authority. All equipment to be designed and manufactured in accordance with applicable EEMAC and ANSI specifications.

1.5 Award/Selection of Alternatives

.1 Immediately following the award of the Bid, notify each party involved, in writing, of the status of each alternate. Indicate whether Alternate and Separate Price work have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 23 10

PART 1 - GENERAL

1.1 Section Includes

.1 Schedule of values.

.2 Applications for payments.

.3 Substantial performance procedures.

.4 Release of holdback procedures.

1.2 References

.1 The Agreement Form shall be the Canadian Construction Association CCA-1 (2001) standard form of Stipulated Price Subcontract between Prime Contractor and Subcontractor (Refer to Section 00 50 00 and Section 00 80 00), together with all amendments and supplements thereto as described hereunder which shall apply in their entirety to this Agreement.

.2 At the ESCo's sole discretion for contracts under $100,000 + HST the Agreement form shall be based on the Standard ESCo Purchase Order (Refer to Section 00 50 00 and Section 00 80 10).

.3 Section 01 78 00 Closeout Submittals.

1.3 Schedule of Values

.1 The format and schedule of values requires the review and acceptance by the ESCo and the Consultant prior to submittal of the first progress claim.

.2 Make schedule of values out in such form and supported by such evidence as the Consultant and the ESCo may reasonably require.

.3 Any change order shall be listed individually and shown separately from the Agreement value.

.4 Include the schedule of anticipated monthly progress payments with the first application for payment, and an updated schedule for subsequent applications per month.

1.4 Applications for Progress Payment

.1 Invoices must indicate 10% holdback based on the current draw amount before HST.

.2 Invoices must show the HRSB Energy Performance Project number, project name, measure name and reference number, Purchase Order number, cost code, draw number, date, and the HST registration number of the firm submitting the invoice.

.3 Invoices are to be addressed as follows.

.1 MCW Custom Energy Solutions Ltd.
on behalf of Halifax Regional School Board
7051 Bayers Road, Suite 102
Halifax NS, B3L 2C1

.4 A statutory declaration using form CCDC-9B confirming that all accounts for materials services and equipment included in the application for payment are paid in full except for statutory holdbacks shall be submitted with the second and subsequent Progress Applications for progress payment.

.5 A current Worker's Compensation Clearance Certificate verifying coverage shall be submitted with every Progress Application for progress payment.

.6 An updated Construction schedule as per Section 01 32 00 shall be submitted with every Progress Application for progress payment.

.7 A record copy of all bi-weekly Safety Toolbox Talks held during that month shall be submitted with every Progress Application for progress payment.

.8 Invoices that are missing any of the above information will not be processed and will be returned to the Trade Contractor to be corrected and will be processed in the next month.

1.5 Submittals prior to first Progress Payment

.1 Schedule of values & schedule of anticipated monthly progress payment (cash flow).

.2 Construction schedule.

.3 Schedule of Shop Drawings.

.4 Items listed in Section 01 14 00.

.5 Trade Contractor's Project Directory.

A list of all Subcontractors, suppliers, other contractors, and others related to the work, to include addresses, telephone/fax numbers, Email address, and name of a contact person, shall be maintained current by the Trade Contractor, and copies distributed at least to the Consultant, and the ESCo.

1.6 Progress Payment

.1 All progress invoices shall be submitted by the 23rd day of the month, for all work to the end of the month.

.2 Any invoices received after the 23rd day of the month shall not be processed during that month and shall be resubmitted the following month.

.3 Fax a copy of each Progress Payment to the ESCo prior to submittal of the originals.

.4 All invoices shall be dated the month of the submission for the last day of the month.

.5 Include supporting documentation as a pre-condition for certifying payment for that work as applicable.

.6 After acceptance by the ESCo and Consultant submit originals, and not photocopies nor faxes. Invoices shall be accompanied by a current WCB Certificate and the required Statutory Declaration.

.7 The Consultant will review the progress payment request, and forward to the ESCo, for processing of payment to the Trade Contractor.

.8 Application for Progress Payments and invoices shall not be sent to HRSB Departments such as Purchasing or Operations Services.

.9 Once the Owner has approved and paid the ESCo the milestone amount which includes the amount of the Trade Contractor’s progress payment the ESCo will prepare a cheque which will be mailed to the Trade Contractor.

.10 All progress payments shall be accompanied by an updated Construction schedule as per Section 01 32 00, as well as a record copy of all bi-weekly Safety Toolbox Talks held during that month.

1.7 Certificate of Measure Completion

.1 The issuance by the Consultant of a Certificate of Measure Completion of the Trade Contractor’s work is a document related to the energy agreement between the Owner and the ESCO, and:

.1 Does NOT imply nor constitute an instruction to release a portion or all of the Statutory Holdback pursuant to the local lien legislation.

.2 Does NOT imply nor constitute a Certificate for Payment nor an instruction for the payment of a portion or all of the Agreement Price; and

.3 Shall not be issued until all closeout documentation, commissioning and training as detailed in Section 01 78 00 has been received and approved by the Consultant.

.4 In general closeout documentation and training will be valued at 5-20% of the value of the agreement as determined by the Consultant.

1.8 Progressive Release of Holdback

.1 Where legislation permits, if Consultant has certifies that Work of Trade Contractor has been performed prior to Substantial Performance of Work of overall Energy Performance Services agreement between the ESCo and the Owner, Owner shall pay holdback amount retained for such Trade Contract Work on day following expiration of holdback period for such Work stipulated in lien legislation applicable to Place of Work to the ESCo. The ESCo in turn will pay holdback to the Trade Contractor.

.2 In addition to provisions of preceding paragraph, and certificate wording, ensure that such Trade Contract Work or products is protected pending issuance of final certificate for payment and be responsible for correction of defects or Work not performed regardless of whether or not such was apparent when such certificates were issued.

1.9 Substantial Performance or Work

.1 As the Work of this agreement is a subcontract to the overall Energy Performance Services agreement between the ESCo and the Owner, the term Substantial Performance is not applicable to this agreement.

.2 The achievement of Total Performance is required to satisfy requirements for the Progressive Release of Holdback for the work of this Trade Contractor.

1.10 Total Performance of Work

.1 Prepare and submit to Consultant with copy to ESCO letter indicating all work and deficiencies, closeout documentation, commissioning and training have been completed or corrected and apply for a review by Consultant to establish Total Performance of Work. Failure to include items on list does not alter responsibility to complete Contract.

.2 No later than 10 days after receipt of list and application, Consultant will review Work to verify validity of application, and no later than 7 days after completing review, will notify Contractor if Work or designated portion of Work is totally performed.

.3 Consultant to state date of Total Performance of Work or designated portion of Work in certificate.

.4 In general, closeout documentation and training will be valued at 5-20% of the value of the agreement as determined by the Consultant.

1.11 Payment of Lien Holdback

.1 On issuance of the certificate of Total Performance, the Trade Contractor may forward to the ESCo the application for payment of the statutory holdback.

.2 Include submittal of the required Statutory Declaration and WCB Clearance Certificate with the application.

.3 The local lien legislation, the provisions of the Agreement, the application for payment, and the advice of ESCo's legal counsel will establish the amounts due and payable to the Trade Contractor.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 29 00

PART 1 - GENERAL

1.1 Section Includes

.1 Project meetings.

.2 Coordination work with other contractors.

.3 Supplementary Instructions.

.4 Modification Procedures.

.5 Documents On-Site.

1.2 Related Sections

.1 Section 01 11 00 - Summary of Work.

.2 Section 01 32 00 - Construction Progress Documentation.

.3 Section 01 33 00 - Submittal Procedures.

1.3 Description

.1 Project Management and coordination procedures to incorporate work of other trade contractors, clarifications, and revisions.

.2 The ESCo may propose reasonable additional or modified procedures to meet the Project requirements, for acceptance.

.3 It is the Trade Contractor's responsibility to manage and coordinate the various parts of the work so that they are executed in the intended manner and within the agreed time.

1.4 Project Meetings: General

.1 Construction Manager will:

.1 Schedule and administer project meetings throughout progress of work.

.2 Notify affected parties of each meeting.

.3 Arrange for suitable space in the ESCo site office to hold the meeting.

.2 Trade Contractor Project Manager to:

.1 Preside at meetings.

.2 Record minutes. Include list of participants, significant proceedings and decisions. Identify action by parties.

.3 Distribute minutes by Fax or email transmission within four days after each meeting to the ESCo for review. Trade Contractor shall keep records of all fax transmission reports with each set of minutes,

.3 All attendees: be familiar with the project and have authority to conclude matters relating to the work.

1.5 Pre-Construction Meeting (by Construction Manager)

.1 Before starting construction, a Pre-Construction meeting time will be scheduled convenient to the ESCo, to review the project requirements.

.2 Required attendees will be the ESCo, the Consultant, the Trade Contractor, the Owner and major Subcontractors and other Trade Contractors affected by the work.

.3 The ESCo, who attends will be accompanied by the Site Safety Coordinator. The ESCo will chair the meeting and introduce the work and the ESCo's on-site representative identified as the Construction Manager, then hand over the meeting to the Consultant, who will review the work and the phasing of work.

.4 Agenda: discuss topics of significance that could affect progress, and the following:

.1 Overview of Trade Contractor's work and frequency of project meetings
.2 Preliminary and proposed sequence of construction and construction schedule
.3 Critical work sequencing
.4 Designation of responsible personnel
.5 Procedures for processing field decisions
.6 Quality assurance and sustainability requirements
.7 Submittal of shop drawings, product data, and samples
.8 Preparation of record documents
.9 Use of the premises
.10 Parking availability and keys
.11 Temporary facilities and services, office work and storage areas, site sign
.12 Deliveries, access routes, and priorities
.13 Safety procedures
.14 First aid
.15 Security
.16 Housekeeping
.17 Working hours
.18 Owner-provided products
.19 Take-over procedures
.20 Operations and maintenance manuals
.21 Administrative procedures
.22 Monthly progress claims and invoicing procedures
.23 Submittal of any documents: Insurance, WCB, safety plan, etc.
.24 Other business

.5 The Construction Manager will prepare and distribute the Minutes of the Pre-construction Meeting.

1.6 Progress Meetings

.1 The Trade Contractor, Owner Project Manager and ESCO Construction Manager will conduct progress meetings at the work site at regular intervals (at a minimum of once a month). Coordinate dates of meetings with preparation of the payment request.

.2 The Trade Contractor shall take minutes of the meeting in the format supplied by the ESCo. The minutes shall be provided to the ESCo in MS Word format.

.3 Attendees: In addition to the Trade Contractor key personnel, the Construction Manager and the Consultant, Subcontractors, or other entities on the Trade Contractor's agenda may be present at these meetings. All participants at the meeting shall be familiar with the work and authorized to conclude matters relating to the work.

.4 Agenda: Include topics for discussion as appropriate to the status of the work, including:

.1 Review, approval of minutes of previous meeting
.2 Review of work progress since previous meeting
.3 Coordination and scheduling issues with Owner
.4 Review of any observations, requests for clarification, problems, conflicts and coordination which may impede work progress
.5 Problems which impede construction schedule, and corrective measures and procedures to regain projected schedule
.6 Review of off-site fabrication delivery schedules
.7 Revision to construction schedule

.8 Review submittal schedules: expedite as required
.9 Maintenance of quality assurance and sustainability requirements and standards
.10 Review proposed changes affecting construction schedule and on completion date
.11 Other business

.5 Review the present and future needs of each participant, including the following:
.1 Interface requirements
.2 Schedule
.3 Sequences
.4 Status of submittals
.5 Deliveries
.6 Off-site fabrication problems
.7 Access
.8 Site utilization
.9 Temporary facilities and services
.10 Hours of work
.11 Hazards and risks
.12 Housekeeping
.13 Quality assurance and work standards
.14 Take-over procedures, warranties, maintenance

.6 Revise the Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the Minutes of each meeting, based on the format provided by the ESCo.

.2 Trade Contractor Co-ordination Meetings

.1 Trade Contractor to conduct internal Trade Contractor Coordination Meetings at regular intervals at times established by the Trade Contractor. Such meetings are intended for the discussion and resolution where possible prior to Progress Meetings. Trade Contractors shall maintain separate minutes of the Trade Contractors coordination meetings.

1.7 Coordination of work with the work by owner or other Trade Contractors

.1 Refer to Section 01 11 00 Summary of Work

.2 Work by other trade contractors

.1 For all work not included in Agreement, but which is part of the overall Project and which will be carried out by other trade contractors under separate contracts.

.1 The Trade Contractor is responsible for:

.1 Obtaining and the review of information required for the work and provided by other trade contractors. Prior to proceeding with the Trade Contractor's related work, Trade Contractor to confirm proper interface and coordination of all work.

.2 Coordination, including all service requirements.

.3 Provide and connect all services forming part of the work, including related cutting, drilling, coring, and doing all necessary patching and making good.

.4 Disconnect and/or capping off existing services for existing equipment to be relocated by other trade contractors as detailed in the Tender Documents.

.5 Damage caused by this Trade Contractor.

.2 The Construction Manager is responsible for:

.1 Providing information required of other trade contractors for the work.

.2 Ensuring the timing of information and the work of other trade contractors conforms to the agreed construction schedule.

.3 ESCo-Supplied and Owner-Supplied Products

.1 For all products not included in Agreement (NIC or similar designation), but which are part of the overall Project and which will be supplied by the ESCo;

.1 The Trade Contractor, in addition to the same responsibilities described above for other trade contractor work, is responsible for:

.1 Obtaining and the review of information required for the work and provided by product manufacturers.

.2 Move to location, and install required anchors; similarly, for existing equipment to be relocated by the Trade Contractor. Work to manufacturers' recommendations.

.3 Arrange for the manufacturer(s) field representatives to clarify installation and carry out placing in service and testing, when required by the particular product and equipment.

.4 Testing and placing in operation all identified ESCo supplied products.

.5 Ensuring the timing of information and the delivery of all identified ESCo supplied products and that they conform to the agreed construction schedule.

.6 For all identified ESCo supplied products installed by the Trade Contractor, supply all required anchors to adequately support weight, resist vibration, and supply lateral and seismic restraints.

.2 The Construction Manager is responsible for:

.1 Inspect deliveries jointly with Trade Contractor.

.2 Submit claims for transportation damage.

.3 Arrange for replacement of damaged, defective or missing items, and determine responsibility for costs.

.3 HRSB Project Coordinator is responsible for;

.1 Coordinate utility service shut downs and start-ups.

.2 Coordinate with HRSB Managers and staff and thereby inform building occupants.

1.8 Supplementary Instructions

.1 The Trade Contractor shall submit a written request to the Construction Manager to provide written clarification of errors, ambiguities or doubtful information contained in the Agreement documents. The Construction Manager shall forward such requests to the Consultant for response.

.2 Requests shall be on a standardized form, numbered in sequence, dated, and referenced to the specification section and drawing deemed affected. These requests shall be forwarded by Fax or Courier.

.3 If requested the Consultant will issue a Job Instruction (JI) referencing the request for information.

.4 A verbal instruction, or an instruction or JI issued by others and not the Consultant shall not to be accepted as a JI.

.5 The Trade Contractor to maintain and issue a summary record of all requests for information and JIs issued on a regular basis, but at least monthly, distributed to the Construction Manager.

1.9 Change Order Procedure

.1 Contemplated Change Order or Contemplated Revision (CR) is a proposed change order initiated by the Consultant, on a standard revision form. CRs will be sequentially numbered. CR's will be forwarded by the Consultant to the ESCo who in turn will forward the CR to the Trade Contractor. The Trade Contractor will forward the CR to all affected parties.

.2 On receipt by the Trade Contractor of the CR, the Trade Contractor will provide cost or credit breakdowns for the CR in accordance with the Agreement and in a manner that is acceptable to the ESCo. Breakdowns not submitted in an acceptable format shall be resubmitted. The Trade Contractor will forward the quotation including all quotations from Subcontractors and suppliers to the ESCo.

.3 If the Consultant and the ESCo accept the quotation, the ESCo will issue a Change Order (CO) to the ESCo who intern will forward the CO to the affected Trade Contractors.

.4 No modifications described by a CR are to proceed without a written Change Order signed by the ESCo and the Trade Contractor.

.5 The CO will be issued, numbered sequentially to previously-approved COs (i.e. not necessarily the same as the CR Number, but referenced to it).

1.10 Cash Allowance Procedure

.1 Contemplated Revision for Cash Allowances (CR - CA) is a proposed change or cash allowance item maybe initiated by the Consultant, on a standard revision form. CR-CAs will be sequentially numbered with the suffix CA (Cash Allowance). CR-CAs will be forwarded by the Consultant to the ESCo who in turn will forward the CR-CA to the Trade Contractor. The Trade Contractor will forward the CR-CA to all affected parties.

.2 On receipt by the Trade Contractor of the CR-CA, the Trade Contractor will provide cost or credit breakdowns for the CR-CA in accordance with the Agreement and in a manner that is acceptable to the ESCo. Breakdowns not submitted in an acceptable format shall be resubmitted. The Trade Contractor will forward the quotation including all quotations from Subcontractors and suppliers to the ESCo.

.3 If the Consultant and the ESCo accept the quotation, the ESCo will issue a Cash Allowance Allocation (CAA) to the ESCo who intern will forward the CAA to the affected Trade Contractors.

.4 No modifications described by a CR-CA are to proceed without a written Cash Allowance Allocation by the ESCo.

.5 The CAA will be issued, numbered sequentially to previously-approved CAAs (i.e. not necessarily the same as the CR-CA Number, but referenced to it).

.6 There will be some situations that the Consultant will issue a CAA to the Trade contractor without the need of a CR-CA, where scope and costs are known. In these situations, work cannot occur or be invoiced until a CAA has been issued releasing the funds.

1.11 On-Site Documents

.1 Trade Contractor to maintain at job site, one copy each of at least the following:

- .1 Contract drawings
- .2 Specifications
- .3 Addenda
- .4 Approved work schedule
- .5 Minutes of Meetings
- .6 Information related to work by other contractors
- .7 Supplemental Instructions
- .8 Contemplated Revisions (CRs) and Change Orders (COs) and Cash Allowance Allocations (CAAs)
- .9 Reviewed shop drawings

.10 Applicable Codes and Standards

.11 Permits, Licences, and Certificates, and reports and approvals by authorities having jurisdiction

.12 Field test reports

.13 Manufacturer installation and application instructions

.14 Trade Contractor's Weekly Progress Report

.15 As-Built Drawings

.16 Current WCB Inspection Reports

.17 Ministry of Labour inspection reports, correspondence, notices and orders

.2 Make on-site documents available for inspection by the Consultant and/or ESCo.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 31 00

PART 1 - GENERAL

1.1 Section Includes

.1 Schedule submission, form, content.

1.2 Related Sections

.1 Section 01 11 00 - Summary of Work.

.2 Section 01 31 00 - Construction Management and Coordination.

1.3 Schedules Required

.1 Submit schedules as follows:

.1 Construction Progress Schedule.

.2 Submittal Schedule for Shop Drawings and product data.

.3 Critical Product Delivery Schedule.

.4 Commissioning Schedule.

1.4 Submission

.1 Submit to Construction Manager, in a form acceptable to the ESCo, initial schedules within 10 days after date of Letter of Intent, and provide hardcopies at Pre-Construction Meeting for discussion.

.2 Submit all subsequent schedules in electronic format, by Email attachment in MS Project 2007 as well as 2 hardcopies each, to the Construction Manager based on the outline provided by the ESCo.

.3 The Consultant and the Construction Manager will review the schedule(s) for compliance with the Agreement documents.

.4 Resubmit finalized schedule(s) within 7 days after receipt of directives from the Consultant and the ESCo.

.5 Distribute copies of revised schedule to:

.1 The Construction Manager.

.2 The Consultant

.6 Trade Contractor to instruct recipients of revised Schedule(s) to report to Construction Manager within 5 days, any problems anticipated by timetable shown in schedule.

1.5 Schedule Updates

.1 Provide weekly schedule updates to the Construction Manager using the floor plates included in Appendix F of this document.

.2 Monitor the progress of the work and update schedules monthly in electronic format and submit with progress request to the Construction Manager.

.3 Schedules shall be updated and issued with each request for progress payment. Progress invoices will not be accepted without corresponding updated schedule.

1.6 Construction Schedule Format

.1 The construction schedule(s) shall be in the following form:

.1 Bar Chart Scheduling

.1 Prepare schedule in form of a horizontal bar chart.

.2 Provide a separate bar for each major item of work, trade, or operation; and for work carried out by the other trade contractors.

.3 Subdivide the schedule by phase or sequence in which the work is required to be carried out, and provide a separate schedule for each phase or sequence when required for clarity.

.4 Split horizontally for projected and actual performance.

.5 Provide horizontal time scale identifying work numbered weekly and by date.

.6 Format for listings: chronological order of start of each item of work.

.7 Include complete sequence of construction activities.

.8 Include dates for commencement and completion of each major element of the work (start and completion date of activities) and other trade contractors, of all major activities. Provide details of the critical events and their inter-relationship to demonstrate the work will be performed in conformance with the Agreement Schedule.

.9 Show projected percentage of completion of each item as of first day of month.

.10 Indicate progress of each activity to date of submission schedule.

.11 Indicate all proposed shut down's and service interruptions.

.12 Indicate all coordination requirements by other Trades.

.2 The Construction Manager and Consultant must approve the format of the schedule of the Trade Contractor to revise based on ongoing requests from the Construction Manager or Consultant.

.2 Split horizontally for projected and actual performance.

.3 Provide horizontal time scale identifying work numbered weekly and by date.

.4 Format for listings: chronological order of start of each item of work.

1.7 Monthly Progress Reports

.1 From the date of commencement of the work, Trade Contractor to maintain a detailed and accurate monthly record of the progress of the work.

.2 Monthly Record information to include:

.1 Commencement, progress and completion of various portions of the work;

.2 Meetings and their purpose;

.3 Visits by government authorities, inspectors, utility companies and the like;

.4 WCB visits and/or inspection reports;

.5 Ministry of Labour visits, inspection reports, correspondence, notices and orders;

.6 Safety inspections.

1.8 As-Built Documentation

.1 The Trade Contractor to record all as-built conditions and any changes to the work on an on-going basis as the work progresses but not later than at the end of each day, on a separate set of current drawings specifically set aside for this purpose.

.2 Refer to specification Sections for additional instructions and requirements.

.3 These drawings shall be called As Built Drawings. They are required to be kept on site and in good order and available to the ESCo and Consultant for inspection.

.4 As-built conditions and changes in the work shall be indicated on the As Built Drawings by the use of coloured lines and suitable notations.

.5 Provide updated as-built data in MS Excel to the Construction Manager and consultant on a bi-weekly basis.

1.9 Interference Drawings

.1 The Trade Contractor to provide all interference drawings where new work may require special details.

1.10 Pre-Construction Audit

.1 Perform a pre-construction audit of all areas of the building(s) prior to the work commencing to compare the data provided in **Appendix C**. The review shall identify any discrepancies, or alternate approaches that could be taken to maximize savings while maintaining costs.

.2 The review shall also ensure that the specified or selected retrofit options can be installed in the fixture.

.3 The savings targets are identified in **Appendix C**. In the event that modifications are required that reduce the savings, these must be balanced by other modifications that achieve additional savings.

.4 The results of the audit shall be issued to the Consultant. Should changes be necessary the Consultant shall issue a change order.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 32 00

PART 1 - GENERAL

1.1 Section Includes

.1 Shop drawings and product data.

.2 Samples.

.3 Certificates and transcripts.

1.2 Related Sections

.1 Section 00 30 00 - Bid Form.

.2 Section 00 43 00 - Supplementary Bid Form.

.3 Section 01 29 00 - Payment Procedures.

.4 Section 01 32 00 - Construction Progress Documentation.

.5 Section 01 35 29 - Health & Safety.

.6 Section 01 74 21 - Waste Management & Disposal.

.7 Section 01 78 00 - Closeout Submittals.

.8 Section 01 79 00 - Demonstration and Training.

.9 Section 01 99 00 – Warranties.

.10 Section 02 50 13 - Management of Toxic Waste.

.11 Section 02 81 01 - Hazardous Materials.

1.3 References

.1 Refer to each specification Section for additional submittal requirements.

1.4 General

.1 Submissions by the Trade Contractor are to indicate to the Consultant that the Trade Contractor understands the Agreement and neither the submissions nor review by the Consultant, is an assurance by the Consultant and the ESCo that the Trade Contractor is meeting the requirements of the Agreement.

.2 The Consultant is not obligated to review shop drawings not required by the Agreement.

1.5 Submittals prior to Commencement of Work

.1 Work shall not commence until the ESCo, and the Consultant, have received the following:

.1 A copy of the Certificate of Insurance

.2 Performance Bond and Labour & Material Payment Bond (where required)

.3 WCB: Work shall not commence until evidence of compliance with Workers' Compensation legislation at the Project is provided to both ESCo, and the Consultant

.4 Approved Construction Schedule

1.6 Submittals prior to first Progress Payment

.1 Schedule of values & schedule of anticipated monthly progress payment (cash flow)

.2 Current Construction Schedule

.3 Schedule of Shop Drawings

.4 Trade Contractor's Project Directory

A list of all Subcontractors, suppliers, other contractors, and others related to the work, to include addresses, telephone/fax numbers, Email address, and name of contact person, shall be

maintained current by the Trade Contractor, and copies distributed to the Consultant and the ESCo.

1.7 Shop Drawings and Product Data: Administrative

.1 Submit to Consultant with a copy to the ESCo submittals listed for review in Agreement documents - Specifications. Submit with promptness and in orderly sequence so as to not cause delay in the progress of the work. Failure to submit in ample time is not considered sufficient reason for an extension of Agreement Schedule and no claim for extension by reason of such default will be allowed.

.2 Work affected by submittal shall not proceed until review by the Consultant is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric or Imperial units in conformity with the Agreement Documents.

.4 Review submittals prior to submission to Consultant. This review represents that necessary requirements have been determined and verified and that each submittal has been checked and coordinated with requirements of work and Agreement documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.

.5 Submittals requiring review by testing, inspection, or similar agencies shall be reviewed by such agencies prior to submittal to the Consultant.

.6 Notify Consultant, in writing at time of submission identifying deviations from requirements of the Agreement documents stating reasons for proposed deviations. A JI (Job Instruction) will be issued for deviations found acceptable to the Consultant and the ESCo and notes will be indicated on the Shop Drawings.

.7 Verify field measurements and affected adjacent work is coordinated.

.8 Trade Contractor's responsibility for errors and omissions in submission is not relieved by the Consultant's review of submittals.

.9 Trade Contractor's responsibility for deviations in submission from requirements of Agreement documents is not relieved by Consultant’s review.

.10 Allow minimum ten (10) days for the Consultants review from the Consultant’s receipt of the submission.

.11 All submittals shall be made through to the Consultant with a copy to the ESCo.

.12 The Trade Contractor is to submit copies of shop drawings requiring submittal and to ensure that reviewed shop drawings are returned to all affected parties. Set aside six copies for incorporation into a maintenance manual as part of As-Built data.

.13 In the event a shop drawing is rejected upon review only one copy will be returned to the Trade Contractor for resubmittal.

.14 Accompany submissions with transmittal containing:

- .1 Date
- .2 Project title and number
- .3 Trade Contractor's name and address
- .4 Identification and quantity of each shop drawing, product data and sample
- .5 Other pertinent data

.15 Submissions to include:

- .1 Date and revision dates
- .2 Project title and number
- .3 Name and address of:
  - .1 Subcontractor
  - .2 Supplier

.3 Manufacturer

.4 Trade Contractor's stamp, signed by Trade Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Agreement documents.

.5 Details of appropriate portions of work as applicable:

.1 Fabrication

.2 Layout, showing dimensions, including identified field dimensions, and clearances

.3 Setting or erection details

.4 Capacities

.5 Performance characteristics

.6 Standards

.7 Operating weight

.8 Wiring diagrams

.9 Single line and schematic diagrams

.10 Relationship to adjacent work

1.8 Shop Drawings and Product Data

.1 The term “shop drawings” means drawings, diagrams, illustrations, schedules, performance charts, brochures, environmental source composition MSDS data, and other data which are to be provided by Trade Contractor to illustrate details of a portion of work.

.2 In addition to requirements as noted above, conform to specification requirements of the particular trade Section. Minimum requirements are as follows:

.1 Submit a minimum of six (6) copies of all shop drawings to Consultant.

.2 Shop drawings that are prints shall be foldable into letter or legal-size format.

.3 **A PDF version of the shop drawings shall be submitted on a CD with the hard copies.**

.3 Include six (6) copies of manufacturer's catalogue literature marked to indicate product to be used, maintenance instructions, installation drawings, and warranties as applicable. Four copies shall be returned after the review for inclusion into the maintenance manuals.

.4 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Specification Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.5 Adjustments made on shop drawings by Consultant are not intended to change Agreement price. If adjustments affect value of work, state such in writing to Consultant prior to proceeding with work.

.6 Make changes in shop drawings as Consultant may require, consistent with Agreement documents. When resubmitting, notify Consultant in writing of any revisions other than those requested.

1.9 Samples

.1 Submit for review samples as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Consultant's business address or to site, as directed by the Consultant or ESCo.

.3 Notify Consultant in writing, at time of submission of deviations in samples from requirements of Agreement documents.

.4 Where colour, pattern or texture is criterion, submit full range of samples.

.5 Adjustments made on samples by Consultant are not intended to change Agreement price. If adjustments affect value of work, state such in writing to Consultant prior to proceeding with work.

.6 Make changes in samples which Consultant may require, consistent with Agreement documents.

.7 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

1.10 Operating and Maintenance Manuals

.1 Refer to Section 01 78 00.

.2 A final version of the approved shop drawings shall be included in Operating and Maintenance Manuals.

1.11 Mock-ups

.1 Erect and pay for mock-ups in accordance with Consultant's and ESCo's instructions.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 33 00

PART 1 - GENERAL

1.1 References

.1 Canada Labour Code, Canada Occupational Safety and Health Regulations.

.2 Province of Nova Scotia:

.1 Occupational Health and Safety Act (Nova Scotia) 1996, c. 7, s. 1. as amended.

.2 The Regulations – Applicable Regulations for Construction Projects for province of Work.

.3 ESCo Occupational Health and Safety Program for the HRSB Energy Performance Services Program – This is posted at the MCW Custom Energy Solutions Ltd. Halifax and Moncton offices.

.4 Site Safety Coordinator – Person employed by the ESCo to coordinate health and safety activities for the HRSB Energy Performance Services Program.

1.2 Definitions

.1 Refer to Section 00 20 00.

.2 ACT: Occupational Health and Safety Act (Nova Scotia) 1996, c. 7, s. 1. as amended.

.3 REGS:

.1 Applicable Regulations for Construction Projects as amended for province of Work.

.2 Applicable Regulations for Industrial Establishments as amended for province of Work.

.4 Constructor: (as it pertains to the ACT): The ESCo

.5 All references to the Trade Contractor shall also apply to any and all Subcontractors.

.6 Competent Person: A “competent person” means a person who:

.1 is qualified because of knowledge, training and experience to organize the work and its performance;

.2 is familiar with this Act and the regulations that apply to the work; and

.3 has knowledge of any potential or actual danger to health or safety in the workplace.

.7 Construction: “Construction” includes erection, alteration, repair, dismantling, demolition, structural maintenance, painting, land clearing, earth moving, grading, excavating, trenching, digging, boring, drilling blasting, or concreting, the installation of any machinery or plant, and any work or undertaking in connection with a project but does not include any work or undertaking underground in a mine;

.8 Trade Contractor: A Trade Contractor has “Employer” responsibilities. The Trade Contractor is an external company (to the ESCo) or independent operator hired into a contract:

.1 to perform work or supply services with a the ESCo as constructor; or

.2 to undertake with a constructor (under contract to the Owner) to perform work or supply services.

.9 Employer: “Employer” means a person who employs one or more workers or contracts for the services of one or more workers and includes a Trade Contractor or subcontractor who performs work or supplies services and a Trade Contractor or subcontractor who undertakes with an owner, constructor (the ESCo), Trade Contractor or subcontractor to perform work or supply services.

.10 Supervisor: “Supervisor” means a person who has charge of a workplace or authority over a worker.

.11 Risk Assessment: Risk assessment is a process used to identify hazards and assesses the possibility of injury or illness to a worker who may be exposed to the hazard. Hazards may be ranked based on frequency of exposure, consequence or severity of risk and probability of occurrence.

.12 Project: “Project” means a construction project, whether public or private, including:

.1 the construction of a building, bridge, structure, industrial establishment, mining plant, shaft, tunnel, caisson, trench, excavation, highway, railway, street, runway, parking lot, cofferdam, conduit, sewer, watermain, service connection, telegraph, telephone or electrical cable, pipe line, duct or well, or any combination thereof;

.2 the moving of a building or structure; and

.3 Any work or undertaking, or any lands or appurtenances used in connection with construction ("chantier").

.13 Critical Injuries:

.1 A critical injury means an injury of a serious nature that:

.1 places life in jeopardy;

.2 produces unconsciousness;

.3 results in substantial loss of blood;

.4 involves the fracture of a leg or arm but not a finger or toe;

.5 involves the amputation of a leg, arm, hand or foot but not a finger or toe;

.6 consists of burns to a major portion of the body; or

.7 causes the loss of sight in an eye.

1.3 Roles and Responsibilities

.1 Trade Contractor:

.1 Trade Contractor agrees to comply with the ESCo Occupational Health and Safety Program, as well as requirements by the Owner for Trade Contractors, all job site specific health and safety rules, and the ACT while working on at the Place of the Project.

.2 Some of the requirements for a Trade Contractor as outlined in the Regulations include:

.1 Appoint a supervisor for every project at which [ ] (quantity per the ACT) or more workers will work at the same time. The supervisor shall supervise the work at all times either personally or by assigning a competent person to do so. The Trade Contractor to provide the name(s) of the project supervisor(s) to the Construction Manager prior to starting work;

.2 Provide to the Construction Manager, the Trade Contractor's occupational health and safety policy and its program(s) to implement the policy;

.3 Post an Emergency Response procedure.

.4 Additional requirements and responsibilities include but are not limited to:

.1 Attend the "Pre-construction meeting" and provide similar orientation to workers and sub-contractors in regard to policies, procedures and requirements relating to the project site;

.2 Provide job site risk assessments and project safety plan to the Construction Manager;

.3 Before starting a specific work activity, advise the Construction Manager if such work might create a hazard to any worker or another employer;

.4 Provide the Construction Manager with the name of a qualified person designated to be responsible for the project site health and safety;

.5 Familiarize with and comply with the First Aid Requirements per the REGS. Maintain adequate first aid facilities on the project site as required by REGS. Any Trade Contractor with up to [ ] workers (quantity per the REGS) on any shift must have at least one person at the project site who is the holder of a valid First Aid Certificate as per the REGS;

.6 Be aware of emergency contact telephone numbers and the nearest medical facility (Refer to Section 01 35 30);

.7 Ensure that every worker at the project site has ready access to a functional telephone, 2-ways radio system or other communication system, in the event of an emergency;

.8 Arrange for use of toilet facilities where workers at the project site have reasonable access to these facilities;

.9 Ensure that a reasonable supply of potable drinking water is readily accessible at project site for the use of workers;

.10 Protect the safety and health of others on site;

.11 Plan safety into all work activities;

.12 Ensure a supervisor performs weekly project site inspections;

.13 Discipline and document any worker who fails to follow rules and safe work practices and procedures;

.14 Provide and enforce the use of required personal protective equipment;

.15 Provide to the Construction Manager a Material Safety Data Sheet (MSDS) for any Workplace Hazardous Materials Information System (WHMIS) controlled products prior to its arrival at the project site;

.16 Ensure all workers are trained in the WHMIS Program and continuously comply with WHMIS Regulations; and submit proof of training to the Construction Manager;

.17 Ensure all accident investigations are reviewed and appropriate corrective action is taken;

.18 Review safety records and take the necessary action for improving job safety;

.19 Comply with all legislative requirements relating to construction work and applicable Ministry of Labour requirements and orders;

.20 Ensure the project site is adequately secured with barricades or otherwise cordoned off to prevent unauthorized personnel from entering (and potentially placing themselves at risk);

.21 Ensure that appropriate signage is posted to identify the area as a work zone and that only authorized personnel are permitted to enter;

.22 Ensure a Lock and Tag Procedure or an equivalent level of safety procedure is followed. Trade Contractors must use their own locks and tags. Trade contractors must provide a copy of their lock and tag procedure to the Construction Manager.

.23 Responsibilities detailed in the Sections that follow on “WCB Certificates of Clearance”, “Training”, “Chemical Safety”, “Specific Hazards and Procedures”, and “Accident Reporting and Investigation”.

.24 Trade Contractors and Sub-contractors are also required to carry out these responsibilities and to contribute to the overall safety program at the project site. Sub-contractors are required to be particularly careful that their work activities do not create a hazard for others on site.

1.4 Construction Manager

.1 The Construction Manager is responsible to ensure that Trade Contractors are aware of their health and safety responsibilities and monitors for compliance.

.2 Before work begins on a project, the Construction Manager will receive from the Trade Contractor the following, as required:

.1 Trade Contractor health and safety policy and relevant program(s);

.2 Name of project site supervisor for projects where [ ] or more workers (Quantity of workers per the ACT) work at the same time;

.3 Name of person designated by the Trade Contractor responsible for site health and safety activities;

.4 Site risk assessment and project safety plan;

.5 Material Safety Data Sheet (MSDS) of each hazardous material used in the project; and

.6 Certificates of training (e.g., WHMIS, First Aid, and other job-specific safety training) of all workers.

1.5 Training

.1 The Trade Contractor shall ensure that appropriate instruction and safety training have been provided to its workers before the work begins. Evidence of training (e.g., certificates of completion) shall be made available upon the request of the Construction Manager. The ESCo does not provide instruction and safety training to the Trade Contractor's workers.

.2 WHMIS (Workplace Hazardous Materials Information System) training as defined under the Occupational Health and Safety Act and WHMIS Regulation is required by ESCo for all employees working on the project. Trade Constructors are required to provide written proof of training at the pre-construction meeting.

1.6 Chemical Safety

.1 Under the ACT and related Regulations, specific requirements, procedures, and training must be carried out to ensure that workers work safely with chemicals. The Owner expects that the Trade Contractor, their sub-contractors and their agents will comply with these requirements, procedures and training.

.2 Before a project is started:

.1 The Owner's Representative will inform the Trade Contractor, (via the Construction Manager), in writing of any "designated substance" (refer to the list of substances in at the end of this Section) that may be encountered in the course of work or, in the area where the work takes place. The Trade Contractor shall ensure that when working with or around any hazardous or designated substance, all necessary precautions are followed, including but not limited to, personal protective equipment, signage, restricted entry, additional ventilation, etc.

.2 The Trade Contractor shall inform the Construction Manager in a timely manner, that temporary changes in the location of workers or other precautions or arrangements, may be required. The Construction Manager shall then make arrangements, as appropriate.

.3 The Owner's Representative name and extension number shall be posted at all entrances to the project site.

.4 Under the Workplace Hazardous Materials Information System (WHMIS) Regulation, a Material Safety Data Sheet (MSDS) of each chemical to be used on the Project shall be kept on site and made available to the Construction Manager.

.5 The Construction Manager is required to forward a copy of each MSDS to the HRSB Project Coordinator.

.6 Preventive measures and procedures must be adhered to, for the protection of workers and occupants of buildings. Examples of such measures include personal protective equipment, engineering controls, area signage, and restricted access. Examples of procedures include handling, storing and disposing of waste, and cleaning up spills as outlined in the MSDSs.

.7 All chemical containers must be appropriately labelled in accordance with the WHMIS Regulation. When not in use, chemical containers must be covered and properly stored.

.8 The Owner's Occupational Health and Safety representative may forward to the Owner's Representative, and to the Construction Manager additional requirements, changes in procedures or other recommendations to improve the safety of the project. The Construction Manager will then ensure that the Trade Contractor implements the additional requirements.

.9 Chemical spills released into the environment shall be reported immediately by the Trade Contractor to:

.1 the ESCo Construction Manager; and

.2 the Owner's Project Coordinator; and

.3 appropriate government agencies.

1.7 Specific Hazards and Procedures

.1 The Constructor/Contractor shall identify workplace hazards and conduct project site-specific risk assessments including, but not limited to:

.1 Abrasive blasting for silica;

.2 Asbestos;

.3 Biological hazards (e.g., bacteria and viruses, mould, parasites, pests etc.);

.4 Chemicals (including hazardous materials under WHMIS);

.5 Cold stress;

.6 Confined space;

.7 Electrical safety and Lock and Tag procedure;

.8 Heat stress;

.9 Indoor air quality (e.g., pollutants including dust, gases and vapours);

.10 Machinery;

.11 Musculoskeletal Injury (e.g., material handling including lifting, pushing, pulling, repetitive motion etc.);

.12 Noise;

.13 Radiation Hazards (Nuclear Safety and Control Act);

.14 Vibration;

.15 Working on heights (e.g., activities requiring fall restricting or fall arrest systems, use of ladders etc.).

.2 Appropriate legislative requirements shall be followed and safety procedures developed, for the protection of the workers involved in the project and Owner's employees affected by the project. All documented programs and procedures shall be provided to the Construction Manager.

1.8 Requirements

.1 The ESCo is acting as the Constructor / Construction Manager. Workplace Health and Safety is an important focus for the Project. The Trade Contractor and/or Subcontractor shall ensure that any and all Work performed by your employees and/or the employees of any and all Subcontractors meet the requirements set forth in this section.

.2 The Trade Contractor covenants that all Work and activities shall be performed in accordance with Laws, and regulations including but not limited to:

.1 The Occupational Health and Safety Act as amended;

.2 The applicable Regulations for Construction Projects as amended; and/or

.3 The Regulations for Industrial Establishments, as amended.

.3 Specific duties, as outlined in the Act under Duties for Employers, Supervisors and Workers, shall be strictly observed and adhered to by the Trade Contractor and/or Subcontractor for the duration of their Work on this Project.

.4 The Trade Contractor and/or Subcontractor shall have a sufficient number of personnel trained in Standard Level First Aid and these individuals shall be on site at all times.

.5 The Trade Contractor and/or Subcontractor shall have a Competent Supervisor on site at all times to supervise the work of their employees and any sub-contractors under their control. From time to time, the Trade Contractor and/or Subcontractor may be asked to supervise the project where circumstances require the presence of our supervisor at another location for a short period of time.

.6 The Trade Contractor and/or Subcontractor shall ensure that all workers have the required training in WHMIS, Fall Protection and any other specific training required by the circumstances present, the regulations or the ACT. Proof of training is required to be available on site and may be checked periodically by the ESCo's Site Safety Coordinator.

.7 The Trade Contractor and/or Subcontractor shall be provided the ESCo, and approved prior to working on the project:

.1 A copy of all MSDS information prior to working on the project;

.2 An up to date copy of the Trade Contractor's and all Subcontractors Safety Policies;

.3 Site specific safe work procedures (SWP) for the project;

.4 WCB Experience Rating information;

.5 MOL Registration Form shall also be provided and approved prior to working on the project;

.6 The Trade Contractor and/or Subcontractor will also be asked to acknowledge receipt (or availability upon request by Trade Contractor or Subcontractor), of the ESCo's Health & Safety Policy, which is to be strictly adhered to at all times.

.8 All motorized equipment and power tool equipment shall have all appropriate logbooks, manufacturers' instruction booklet, and a record of training for those qualified to operate the machine or device.

.9 Any and all accidents shall be reported to the ESCo and the Construction Manager immediately and the Trade Contractor accident investigation report shall be completed and submitted to the ESCo within 24 hours of the accident. Failure to do so will result in the Project Safety Coordinator's Health & Safety team being called on to conduct the investigation at the Trade Contractor's and Subcontractor's expense.

.10 Any Trade Contractor or Subcontractor's employees that are in contravention of the ESCo's Site Safety Program on three or more occasions, (or the ACT or the REGS) will be investigated by the Site Safety Coordinator who will report the reasons for these violations to the ESCo's senior management team with all associated costs at the Trade Contractor's and/or Subcontractor's expense.

.11 All critical or fatal injuries shall result in the Site Safety Coordinator assuming responsibility to oversee the investigation process and dealings with MOL and other officials. Any and all expenses associated with this process shall be the responsibility of the Trade Contractor and /or Subcontractor.

.1 Critical Injuries – A critical injury means an injury of a serious nature that:

.1 Places a life in jeopardy;

.2 produces unconsciousness;

.3 results in substantial loss of blood;

.4 involves the fracture of a leg or arm but not a finger or toe;

.5 involves the amputation of a leg, arm, hand or foot but not a finger or toe;

.6 consists of burns to a major portion of the body; or

.7 causes the loss of sight in an eye.

.12 Copies of all written investigation reports and submissions to outside agencies, as they pertain to an accident, shall be submitted via fax or email to the ESCo's Head Office within 24 hours of the accident report.

.13 Copies of the Trade Contractor's and/or Subcontractor's, weekly toolbox talk and their Supervisor's weekly equipment inspection checklist shall be submitted to the Construction Manager weekly.

.14 The Trade Contractor and/or Subcontractor shall take every precaution reasonable to protect all workers and public from injury and illness. Standards of care appropriate for the circumstances of the work shall be developed and communicated as required.

.15 All workers on site must be insured through WCB coverage. Independent Operators are not permitted on the project without the express written permission from the ESCo. Any costs associated with the Trade Contractor and/or Subcontractor violating workers compensation laws shall be at the expense of the Trade Contractor.

.16 All expenses associated with health and safety violations or delays resulting from the activities of the Trade Contractor and/or Subcontractor will be the responsibility of the Trade Contractor.

.17 Trade Contractor's or Subcontractor's and their workers, must comply with any and all rules including relevant stipulations in the ESCo's safety policy and any safe work procedures required. They are required to read and agree to the conditions set forth in the ESCo's Safety Policy with regards to health & safety requirements.

.18 Trade Contractor and/or Subcontractor employees must use and wear the required Personal Protection Equipment (PPE) that is appropriate, or regulated, for the duration of their time on site or at the place of Work and have on their person the required training cards to verify their training.

.19 A current copy of the Trade Contractor's or Subcontractor's safety policy must be on file with the ESCo's office.

.20 All MSDS sheets for any WHMIS related products the Trade Contractor or Subcontractor may use on site must be available and up to date.

.21 WCB Clearance Certificates, along with a letter verifying that all site workers are covered under the Workplace Safety and Insurance Act, must be received at the ESCo's office prior to starting work on any projects.

.22 Any Trade Contractor or Subcontractor worker that arrives without the required Personal Protection Equipment (PPE) or that refuses to comply with OH&S law or safe work procedures will be refused entry to the place of Work (premises) and will be refused all future entry until they receive written authorization from the ESCo. Violation of ZERO TOLERANCE rules, such as fall protection, will result in the worker's permanent removal from the place of Work.

.23 Repeated violations of OH&S law and/or safe work procedures by any Trade Contractor(s) or Subcontractor(s) may result in their removal from the Place of Work. All associated costs for violations of health and safety laws and/or project delays resulting from health and safety violations will be the responsibility of the Trade Contractor and or Subcontractors in violation. Investigations by the Site Safety Coordinator resulting from repeated safety violations by Trade Contractors, Subcontractors or their workers, shall be at the Trade Contractor / Sub Contractor expense.

.24 All Trade Contractors and Subcontractors will verify in writing that all workers to be employed on site will be covered by Workplace Safety & Insurance Board coverage and that no independent operator will be employed at any time without the express written permission of the ESCo. Violations of this requirement will result in an immediate review of your contracts with the ESCo. Any costs associated with rectifying violations, including indirect damages, shall be the responsibility of the Trade Contractor or Subcontractor.

.25 The Trade Contractor will submit in writing details of the safety training and education that the Trade Contractor's employees have or will receive upon request of the ESCo.

.26 All charges levied against the ESCo / Owner in relation to the WCB may be deducted from amounts due to the Trade Contractor hereunder and, in the event collection of such amounts is not made in this manner, the ESCo / Owner may require that the Trade Contractor pay such amounts to the ESCo /Owner. The ESCo / Owner shall not be entitled to any amount in excess of that paid by the ESCo / Owner to the WCB on behalf of the Trade Contractor.

1.9 Accident Reporting and Investigation

.1 Reporting and Documentation

.1 The ESCo requires that all accidents, as described in the ACT, concerning death, critical injuries, explosion or fire causing injury, and others be reported to the Ministry of Labour (MOL) by the employer of the injured worker.

.2 All injuries shall result in the Site Safety Coordinator assuming responsibility to oversee the investigation process and dealings with MOL and other officials. Any and all expenses associated with this process shall be the responsibility of the Trade Contractor and /or Subcontractor.

.2 All such accidents and near miss incidents shall be investigated to determine the root cause by the Trade Contractor. Corrective and preventive measures shall be documented and implemented by the Trade Contractor to prevent similar accidents in the future. The employer of the injured worker is also required to comply with the Workplace Safety and Insurance Act in regard to accident reporting. All reporting shall be coordinated through the ESCo site Safety Coordinator.

.3 A copy of the Trade Contractor's accident investigation report, indicating corrective or preventative measures, shall be provided to the Construction Manager who shall forward a copy to the Owner's Representative for review and to keep on file.

1.10 Accident Scene

.1 Where practicable, the scene of any accident reportable to the MOL shall be left untouched, except for activity necessitated by rescue work or to prevent further failures or injuries, until the accident has been investigated by the MOL officer, or until permission to clear the scene has been granted by the MOL officer.

1.11 Disciplinary Action for Safety Infractions

.1 If the Trade Contractor, their sub-contractor and/or their agent are in breach of any safety requirements, they may be progressively disciplined (e.g., written warning leading to dismissal) or asked to leave HRSB premises. It will be up to the Construction Manager and the ESCo to determine whether the work shall continue. The Trade Contractor, their subcontractor and/or agent may not be permitted to resume work or until such time as they have proven compliance with all safety requirements and legislation. All disciplinary action will be documented by the ESCo.

1.12 Site Requirements

.1 Trade Contractors and Subcontractors shall review the project's scope and accurately assess all hazardous tasks, identifying conditions, materials, or special training required to perform the work. This assessment shall be in consultation with the ESCo. All information shall be communicated to the Site Safety Coordinator by way of the site specific safety plan.

.2 Qualifications: Trade Contractors shall comply with the ESCo's Occupational Health and Safety Program for the HRSB Energy Performance Services Program. Trade Contractors shall be in good standing, and continue to be in good standing, with WCB. Trade Contractors shall ensure that tradesman are provincially qualified to perform the work (trade qualification) and are qualified in necessary safe work procedures.

.3 Monitoring Workplace Activity: Trade Contractors supervisors must inspect and monitor workplace activities to ensure hazards are controlled. The Site Safety Coordinator will regularly monitor all Trade Contractors to ensure they are performing the required monitoring. Trade Contractors must submit biweekly Tool Box talk sheets to the ESCo.

.4 Drug and Alcohol Abuse Policy: Drug and/or alcohol use is forbidden at all times on site. Refer to ESCo's Occupational Health and Safety Program for the HRSB Energy Performance Services Program.

.5 Disciplinary Action: Any unsafe behaviour will be documented by the Site Safety Coordinator. The Trade Contractors supervisor will be notified in writing and expected to take immediate remedial action. Notice will be distributed to the Trade Contractors Head Office, Construction Manager and the Site Safety Coordinator's file for the Trade Contractor.

.6 Accident / Incident Investigations: Trade Contractors shall have procedures in place to cover all aspects of accident investigations and reporting.

1.13 Submittals

.1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit site-specific Project Safety Plan: Within 5 days after date of Letter of Intent and prior to commencement of Work.

.3 As part of the Project Safety Plan the following documents must be submitted:

- .1 Safety and health risk or hazard analysis for site tasks and operation found in work plan;
- .2 Written safe work procedures (SWP). SWP shall be written specifically for the scope of work covered by this specification to address all the necessary precautions and measures;
- .3 Up to date copies if the Trade Contractor Safety Policy;
- .4 Confirmation of worker safety training;
- .5 WCB Requirements:
  - .1 Status Ruling from the WCB – before the start of Work, and prior to the issuance of the project completion certificate;
  - .2 Submit verification of WCB Registration number;
  - .3 Assurance of good standing (WCB Clearance Certificates);
  - .4 Letter of good standing;
  - .5 Rating information.
- .6 MOL Registration form;
- .7 A letter verifying that all site workers are covered under the Workplace Safety and Insurance Act;
- .8 Submit Construction Safety Checklists after completion;
- .9 Submit copies of incident and accident reports (samples);
- .10 Submit to the Consultant and the Construction Manager a copy of all Material Safety Data Sheets (MSDS) and Workplace Hazardous Material Information System (WHMIS) information prior to start of Work;
- .11 Personnel training requirements including as follows:
  - .1 Names of personnel and alternates responsible for site safety and health, hazards present on site, and use of personal protective equipment;
  - .2 Submit in writing details of the safety training and education that the Trade Contractor's employees have or will receive upon request of the ESCo.
- .12 Provide the name of a qualified individual who will be on-site while work is undertaken who will be responsible for health and safety activities. The duties of the qualified individual will include:

.1 informing Trade Contractors and workers of the hazards created; and

.2 ensuring that the hazards are addressed throughout the duration of the work activities;

.3 First Aid Attendant.

.4 Copies of the Trade Contractor's and/or Subcontractor's, weekly toolbox talk and their Supervisor's weekly equipment inspection checklist shall be submitted to the Construction Manager weekly.

1.14 Safety Assessment

.1 Perform site specific safety hazard assessment related to project as follows:

.1 Assessing Workplace Hazards:

.1 The Trade Contractor shall identify all hazards and assess the possibility of injury or illness to a worker who may be exposed to the hazard. If the risk assessment indicates a significant possibility of injury or illness, safe work procedures must be developed and steps taken to instruct and train workers. Documentation shall be provided to the Site Safety Coordinator.

.2 Mandated Risk Assessments:

.1 The Trade Contractor shall continually monitor workplace conditions and develop and update the necessary safe work procedures.

.3 Site Specific Risk Assessment:

.1 The Trade Contractor shall perform a Site Specific Risk Assessment. This assessment shall be completed and copies provided to the Site Safety Coordinator before commencement of work.

.2 The Site Specific Risk Assessment shall include, but not be limited to:

.1 Determination of Asbestos survey and removal is required. The required submissions to the Work Place Safety Insurance Board WCB shall be provided and copies submitted to the Site Safety Coordinator. Asbestos removal shall be performed by qualified professionals. Refer to Section 02 82 00 Asbestos.

.2 Determination of high voltage concerns. Contact the required authorities before commencement of work.

.3 Review the requirement for fall protection, including the methodology and responsibility.

.4 Identify all toxic and/or controlled substances to be used on site. Ensure all M.S.D.S. are posted and available to all workers in accordance with the W.H.M.I.S.

.5 Prepare and/or modify site specific work procedures.

.6 Determine and establish a safe delivery / loading zone.

.7 Provide for site specific emergency procedures for first aid, site evacuation and transportation of injured workers.

.2 The Trade Contractor must notify the Site Safety Coordinator in advance of any undertaking likely to create a hazard for a worker of another employer.

1.15 Project Start Up

.1 Before work commences, the ESCo will conduct a project start up meeting to review the ESCo's safety expectations on the project. In preparation for the project start up meeting, the Trade Contractor will provide all submittals required.

1.16 Meetings

.1 The Trade Contractor shall hold weekly toolbox talks.

1.17 Communication Requirements

.1 Comply with Workers' Compensation Board "WCB".

1.18 Unforeseen Hazards

.1 Should any unforeseen or peculiar safety-related factor, hazard, or condition become evident during performance of Work, immediately stop work and advise the Site Safety Coordinator and the Construction Manager verbally and in writing.

1.19 Construction Safety Checklists

.1 Provide to the Site Safety Coordinator a Construction Safety Checklist.

.2 Review and implement out applicable health and safety checklists in collaboration with Project Safety Coordinator.

1.20 Correction of Non-Compliance

.1 Immediately address health and safety non-compliance issues identified by the Construction Manager or Site Safety Coordinator.

.2 Provide Construction Manager or Site Safety Coordinator with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Construction Manager or Site Safety Coordinator may stop Work if non-compliance of health and safety regulations is not corrected.

1.21 Regulations made under the Occupational Health and Safety Act as amended

.1 Safety Regulations
- .1 Construction Projects
- .2 Industrial Establishments
- .3 Mines and Mining Plants
- .4 Window Cleaning
- .5 Critical Injury Defined
- .6 Training Requirements for Certain Skill Sets and Trades
- .7 Diving Operations
- .8 Firefighters-Protective Equipment
- .9 Health Care and Residential Facilities
- .10 Oil and Gas-Offshore
- .11 Roll-Over Protective Structures

.2 Designated Substances
- .1 Acrylonitrile
- .2 Arsenic
- .3 Asbestos
- .4 Asbestos on Construction Projects and in Buildings and Repair Operations
- .5 Benzene
- .6 Coke Oven Emissions
- .7 Ethylene Oxide

.8 Isocyanates
.9 Lead
.10 Mercury
.11 Silica
.12 Vinyl Chloride

.3 General
.1 Biological or Chemical Agents, Control of Exposure to
.2 Hazardous Materials Inventories
.3 Workplace Hazardous Materials Information System

.4 Hazardous Physical Agents
.1 X-Ray Safety

.5 Regulations that Directly Affect/Impact the Act
.1 Training Programs
.2 Unilateral Work Stoppage
.3 Inventory of Agents or Combinations of Agents
.4 Joint Health & Safety Committees - Exemption from Requirements

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 35 29

PART 1 - GENERAL EMERGENCY INFORMATION

1.1 Emergency Numbers

.1	Fire, Police, Ambulance	**9 1 1**
.2	MCW Custom Energy Solutions Ltd.	1-902-876-3182 or 1-800-716-2716
.3	Heritage Gas	1-866-313-3030
.4	Poison Control	1-800-565-8161
.5	Occupational Health & Safety (Ministry of Labour)	1-800-952-2687
.6	Forest Fire (Forestry)	1-800-565-2224
.7	Public Safety & Environmental Emergencies	1-800-565-1633

1.2 Non-Emergency Numbers

.1	Nova Scotia Construction Safety Association	1-800-971-3888
.2	Nova Scotia Power Inc.	1-800-428-6230
.3	Aliant Phone Company	1-866-425-4268
.4	Halifax Regional Water / Sewer	1-902-490-6940 490-4000

1.3 9 1 1 Emergencies

.1 For situations where people or property are at immediate risk, (e.g., medical emergency, fire, crime in progress) contact 9 1 1 directly.

.2 Specify whether you need Police, Ambulance, Fire or Hazardous Material Spill.

.3 Have the following information available:

- .1 Building Name
- .2 Building Address
- .3 Room and/or Room Number

.4 If possible meet emergency service requested at the building entrance.

.5 In the emergency involves an injured/unconscious person:

- .1 Ensure there is no danger to yourself or the victim;
- .2 Do not move victim unless their life is endangered;
- .3 Remain with victim until help arrives.

.6 Inform your supervisor

1.4 Emergency Procedures (HRSB Projects)

.1 Fire/Explosion:

- .1 Pull Fire Alarm if in a building
- .2 If possible, control fire with a fire extinguisher
- .3 Call 9 1 1.
- .4 Wait for Fire Dept. at main entrance to building or main entrance to construction site.

.2 Bomb Threats

.1 Remain calm, listen carefully to what the caller is saying and write it down. Keep the caller talking & obtain the following information:

.1 Where is the bomb?

.2 When will it explode?

.3 What does it look like?

.4 What kind of bomb is it?

.5 What will cause it to explode?

.6 Did you place the bomb?

.7 What is your name?

.8 Where are you calling from?

.2 Record details such as time of call, caller is male or female, accent, speech characteristics, background noise.

.3 When caller hangs up,

.1 Call Police

.2 Be prepared to give your name, phone number, exact location and details of the threat.

.3 Inform your supervisor.

.4 Stay where you are at until police and security arrive.

.3 Chemical / Radiation / Biohazard Emergencies

.1 Close door behind spill or fire;

.2 Call Hazardous Material Response – Call 9 1 1.

.3 Have information on:

.1 type of chemical or hazard;

.2 amount spilled;

.3 exact location.

.4 Do not hang up until released by operator.

PART 2 - GENERAL

2.1 MCW Policy Statement on Safety

.1 Site Rules: Any Trade Contractor who breaks the following rules may be subject to a breach of contract:

.1 You must comply with all Federal, Provincial and safety laws, rules and regulations while working on the HRSB site(s).

.2 No work of any kind can begin until the proper authorization and/or work permits have been obtained.

.3 If your work requires the use of self-contained breathing apparatus, or work in areas where self-contained apparatus may be required for emergency escape, you are required to have taken training in the use of such apparatus.

.4 No beards or long hair allowed for workers that may be required to work in an environment where the use of self contained breathing apparatus may be required.

.5 NO SMOKING in HRSB buildings, HRSB grounds and adjacent sidewalks and pathways.

.6 No firearms, illegal drugs, alcohol, fighting, stealing or wilful damage are permitted anywhere on the HRSB grounds.

.7 All Trade Contractor or Subcontractor equipment brought on site must be maintained in safe operating condition. To comply with Provincial electrical regulations, all electrical equipment must be CSA approved. The Owner reserves the right to remove or ban faulty and unsafe equipment, or equipment not complying with the necessary approval requirements.

.8 All cranes and hoisting equipment brought on Owner property shall be operated only by authorized persons. Operators shall inspect the hoisting equipment at the beginning of each shift and shall test limit-switches, brakes, circuit-breakers and other control devices. Any defects reported that affect the safe operations of the equipment require the equipment to be tagged out and not operated until such defects are remedied.

.9 Do not establish lay-down areas, storage or parking areas until authorized to do so by the Construction Manager and the Owner's Representative.

.10 Barricades and Hoarding must be provided around all excavations and other construction activities located in or adjacent to streets, roads, pedestrian walkways etc. (Refer to Section on Hoarding). Compliance with the WCB, WHMIS, and related legislation is the minimum standard acceptable. All students and members of faculty and staff are encouraged to strive to exceed the minimum legal standards and to eliminate unnecessary risks.

.11 Under no circumstances shall any work occur on energized circuits, nor shall the Trade Contractor access energized electrical equipment or panels.

2.2 Personal Protective Equipment

.1 The use of safety apparel and equipment is an important factor in the prevention of injuries and accidents. All Consultants, Trade Contractors and Subcontractors must provide their own protective clothing and equipment when required for access to any restricted location on the Owner's property.

.2 The use of hand tools, power tools, equipment and certain activities may also require the worker to use specialized personal protective equipment. Included but not limited to are such items as hard hats, safety glasses with side shields, safety boots, goggles, gloves, respirators and protective coveralls.

2.3 Occupational Health and Safety

.1 The Trade Contractor shall comply with "The Occupational Health and Safety Act", as amended, from time to time, and the Regulations made pursuant thereto and, without limiting the generality of the foregoing, the duties and obligations of "constructor", "employer", and "owner" as those terms are defined in the above noted Act and Regulations. The Trade Contractor agrees to indemnify and save harmless the Owner and ESCo from against any and all actions, causes of action, claims and demands arising under or with reference to the above-noted Act and Regulations and any interest, fees, judgement, award, fines or penalties relating thereto and any costs or expenses incurred in relation thereto.

.2 It is the responsibility of the Trade Contractor to ensure that the workers have been properly trained in accordance with:

- .1 Occupational Health and Safety Act and WHIMIS regulations
- .2 Occupational Health and Safety Act and Regulations for Construction Projects
- .3 Occupational Health and Safety Act and Regulations for Industrial Establishments
- .4 Regulation Respecting Designated Substances on Construction projects and in building and repair operations
- .5 Environmental Protection Act

.3 If the Owner undertakes all or part of the construction project by itself, or by more than one Employer, it requires that each of the general contractors and sub-contractors demonstrate adherence to the Occupational Health & Safety Act.

.4 Contractors bidding on construction projects shall include detailed information concerning their safety records' performance ratings, and those of their sub-contractors, and to include representations and warranties concerning the accuracy of that information.

.5 Trade Contractors shall include in the contract documents their proposed safety and compliance program, and to implement the program.

.6 For separate project designations, the Owner shall, where it retains an additional contractor to perform work separate from that of the general contractor, apply for designation of the other contractor's portion of the project as a separate project. The general contractor and other contractor shall apply for the Notice of the Project under the Act. Under this arrangement, the general contractor and the other contractor are normally considered to be the Constructors under their separate projects and the Owner's liability is restricted to that of Owner.

.7 If the Owner performs part of the work with its own forces, it shall apply to get the part of the work which it will perform designated as a separate project. Its exposure as a Contractor would then be limited to the part of the work that its own workers perform.

.8 The Owner shall ensure that there are no Designated Substances present at the construction project. If there are designated substances, the Owner shall prepare a report to include a list and location of such substances that are present at the site. The report shall be provided to constructors, contractors and sub-contractors at the tendering stage, and shall be included in the contract documents.

.9 Trade Contractors shall acknowledge receipt of report and inquire into investigation that the Owner has made. Should designated substances be found which were not included in the report, those designated substances will be considered to be ones that the Owner could not reasonably be expected to have known about.

.10 It is recommended that parties to the construction projects have an endorsement added to the Comprehensive General Liability Insurance policy, to pay for legal costs and expenses incurred in defending an Occupational Health & Safety Act prosecution.

.11 It is a requirement of award, that the successful contractor(s) submit a copy of their company's Health and Safety Policy and a list of programs in support of their Policy to the ESCo.

2.4 Workplace Hazardous Materials Information System (WHMIS)

.1 WHMIS legislation requires that all products covered under the legislation arrive at their place of use with a specific supplier label attached. WHMIS supplier labels contain the materials identifier or product name, trade name or chemical name, appropriate risk phrases to describe the nature of the hazard, precautionary measures, first aid measures, the supplier's name and address, a reference to the MSDS (Material Safety Data Sheet) and hazard symbol or symbols. Every WHMIS controlled product that comes onto the Owner's site must have a supplier label attached to the container. The next page depicts a sample of a WHIMIS label.

2.5 Workplace Labels

.1 When you take a hazardous material out of its original (supplier) container and put it into another container, a workplace label, must be attached to the new container.

.2 Workplace labels are also placed on containers used to store hazardous materials made at the workplace. A workplace label must contain the following information:

- .1 Identifiers;
- .2 Risk phrases;
- .3 Precautionary measures;
- .4 Reference to the availability of an MSDS an example of a WHMIS workplace label.

2.6 Material Safety Data Sheets

.1 Material Safety Data Sheets (MSDSs) must be provided by all suppliers for all chemicals coming onto the Owner's site. There are nine different types of information required on the MSDSs as outlined in the Workplace Hazardous Materials Information System Regulations. These are:

.1 Product Information;
.2 Hazardous Ingredients;
.3 Physical Data;
.4 Fire or Explosion Data;
.5 Reactivity Data;
.6 Toxicological Properties;
.7 Preventive Measures;
.8 First Aid Measures;
.9 Preparation Information on MSDSs.

2.7 Hazard Symbols

.1 Workplace Labels and supplier labels use one or more of eight different hazard symbols designed to tell you at a glance the kind of hazard that exists with a particular chemical.

2.8 Overhead Power Lines

.1 Work that is conducted in close proximity to overhead power lines must be carried out only after Trade Contractor gives the ESCo a written report that the power line is de-energized, guarded or displaced. Coordinate the Shutdown of the line with Owner Representative and the Construction Manager.

2.9 Confined Space Entry

.1 Trade Contractors and Consultants must conform to the WCB regulations with respect to entering confined places.

.2 A confined space may be defined as an enclosed or partially enclosed space having restricted access and egress and which, due to it's design, construction, location, atmosphere, the materials or substances in it or other conditions, is or may become hazardous to a worker entering it or does not have an easy means of escape for or rescue of a worker entering it.

2.10 Hoarding & Protection at Excavations

.1 All barricades and barriers on construction sites shall conform to all safety practices required by regulations and good practices. Barriers for work outside the construction site must be visible both day and night.

2.11 Construction in Laboratories

.1 Under no circumstances will a Trade Contractor handle chemicals, radioisotopes or equipment in laboratories. Approval to enter these restricted areas will be the responsibility of the Construction Manager Working with the Owner's Representative.

.2 The Owner will arrange for the safe removal or storage of hazardous chemicals or radiation hazards in laboratories prior to the start of work where applicable.

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 35 30

PART 1 - GENERAL

1.1 Fires

.1 Fires and burning of rubbish on Owner land and the work site are not permitted.

1.2 Disposal of Wastes

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.3 Drainage

.1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

.2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.4 Plant Protection

.1 Protect trees and plants on site and adjacent properties where indicated.

.2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m or as directed by ESCo.

.3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.4 Minimize stripping of topsoil and vegetation.

1.5 Work Adjacent to Waterways

.1 Do not operate construction equipment in waterways.

.2 Do not dump excavated fill, waste material or debris in waterways.

.3 Design and construct temporary crossings to minimize erosion to waterways.

1.6 Pollution Control

.1 Maintain temporary erosion and pollution control features installed under this contract.

.2 Control emissions from equipment and plant to local authorities' emission requirements.

.3 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.

.4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 35 43

PART 1 - GENERAL

1.1 Section Includes

.1 References and Codes.

.2 Products on site.

1.2 Related Sections

.1 Refer to each specification Section for additional applicable Codes and standards.

1.3 References and Codes

.1 Perform work in accordance with the Nova Scotia Building Code including all amendments and other codes of local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Agreement documents.

.2 Specified standards, codes and referenced documents.

1.4 Building Codes & Other Regulations

.1 Codes, standards and regulations shall be current with latest issue date.

.2 In the event of conflict between standard and codes, observe the following decreasing priority of precedence for standards and codes to be considered "current":

.1 Standard and codes of later date.

.2 The Building Code applicable to the place of work and codes and standards therein.

.3 Standards and codes listed in the National Building Code.

.4 All other standards and codes specified.

.3 The work shall conform to all applicable standard, codes and permits.

.4 The Trade Contractor to comply with the following Instructions, Acts, Regulations and Codes including all amendments and if the requirements of one Act, Regulation or Code are more stringent than similar requirements under another Act, Regulation or Code, then the most stringent requirements will apply:

.1 Electrical Safety Act

.2 Gas Safety Act

.3 Occupational Environment Regulations

.4 Health Act

.5 Fire Services Act

.6 National Fire Code of Canada

.7 Elevating Devices Safety Act

.8 Waste Management Act

1.5 Building Permits and Trade Permits

.1 All required Building Permits and Trade Permits must be obtained by the Trade Contractor before any work is started.

.2 The Trade Contractor shall obtain and pay for all permits – excavation, plumbing electrical, gas, steam and other Provincial or City licences, or certificates – necessary for the performance of the Work which were in force or at the closing time of bids or have come into force during construction.

.3 Other trade permits required by statute must be obtained from the applicable Provincial authority. When requested, copies of these permits must be submitted to the ESCo.

1.6 Fire Prevention Equipment Impairments

.1 In accordance with the National Fire Code of Canada, The Owner (HRSB) requires that 'notifications of shutdowns' of fire protective equipment including, automatic fire alarm, fire sprinkler, fire pump, fire house standpipe, fire hydrant, fire protection water main and other special fire extinguishing systems, must be approved in advance.

.2 Fire prevention equipment impairments are to be arranged through the Construction Manager and the HRSB Project Coordinator. Before a sprinkler system or any fire protection equipment can be taken out of service, the Trade Contractor must provide a Safe Work Procedure and required monitoring services.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 41 00

PART 1 - GENERAL

1.1 Section Includes

.1 Temporary utilities.

1.2 Related Sections

.1 Section 01 52 00 - Construction Facilities.

.2 Section 01 56 00 - Temporary Barriers and Enclosures.

1.3 Installation and Removal

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Provide all temporary lighting or other such utilities.

.3 Remove from site all such work after use.

1.4 Electrical Supply

.1 The owner will supply electricity for construction purposes at no cost to the Trade Contractor.

1.5 Welding

.1 Trade Contractor to provide power for all welding operations (permanent or temporary). All costs for providing temporary power shall be included in Bid Price.

.2 Where welding power connections are not available and a portable generator welder is required all costs shall be included in Bid Price.

.3 As part of the site walk thru the Trade Contractor to determine their requirements.

1.6 Utility Connections

.1 Trade Contractor to provide all temporary power supplies for work under this agreement.

.2 Where indicated, provide permanent or temporary utility connections for performance of the work.

1.7 Water Supply

.1 Owner will supply potable water for construction use at no cost to the Trade Contractor.

.2 The Trade Contractor to provide at his own expense necessary piping, connections, valves, hoses and all such items to enable the Trade Contractor to provide a temporary service connection and make same available to all trades throughout the project. The Trade Contractor to arrange for connection with the Owner to disconnect and remove temporary service when no longer required and pay for all.

1.8 Temporary Heating & Cooling

.1 Provide temporary heating or cooling required during construction period, including attendance, maintenance and fuel.

.2 Provide temporary heat or cooling (if required) and ventilation in enclosed areas as required to:

- .1 Facilitate progress of work.
- .2 Protect work and products against dampness and cold.
- .3 Prevent moisture condensation on surfaces.
- .4 Provide ambient temperatures and humidity levels for work, storage, installation and curing of materials.

.5 Provide adequate ventilation to meet health regulations for safe working environment (welding).

.6 Be responsible for damage to work due to failure in providing adequate heat or cooling and protection during construction.

1.9 Temporary Ventilation

.1 Ventilating:

.1 Prevent accumulations of dust, fumes, welding fumes, mists, vapours or gases in areas occupied during construction.

.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas, service areas, etc. during welding or other operations.

.3 Provide local exhaust or smoke eaters to limit and/or eliminate fumes due to welding, soldering, hot work, or any other processes involved to carry out the work.

.4 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.

.5 Ventilate storage spaces containing hazardous or volatile materials.

.6 Ventilate temporary sanitary facilities.

.7 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.

1.10 Fire Protection

.1 Provide and maintain temporary fire protection equipment during performance of work.

.2 Burning rubbish and construction waste materials is not permitted on site.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 51 00

PART 1 - GENERAL

1.1 Section Includes

.1 Construction Access.

.2 Elevators.

.3 Site Storage.

.4 Construction Office.

1.2 Related Sections

.1 Section 01 14 00 - Work Restrictions.

.2 Section 01 51 00 - Temporary Utilities.

.3 Section 01 56 00 - Temporary Barriers and Enclosures.

1.3 Installation and Removal

.1 Provide construction facilities in order to execute work expeditiously.

1.4 Scaffolding

.1 Provide and maintain scaffolding, ramps, ladders, work platforms, swing staging, platforms, temporary stairs, all other temporary services required to execute the work.

1.5 Hoisting

.1 Provide all cranes required for moving materials and equipment.

.2 Hoisting equipment to be operated by qualified operators.

1.6 Elevators

.1 Elevators in existing buildings may be used, with prior written permission from the Construction Manager, for access and moving of construction materials and equipment. The use of elevators in existing buildings shall be coordinated with the Construction Manager who will co-ordinate this with the HRSB. In most cases the Trade Contractor's use of the elevator will be restricted to specified hours throughout the day. The Trade Contractor is responsible for the safe use of the elevator and protecting all finishes.

.2 Provide protective coverings for finish surfaces of cars and entrances.

.3 Interior of elevators shall be lined with plywood to act as protection against damage and shall remain in place for the duration of the project. Trade Contractor to remove plywood cladding once all renovations are complete.

1.7 Site Storage / Loading

.1 Confine work and operations of employees to areas within the Agreement documents. Do not unreasonably encumber premises with products.

.2 As there is limited storage area in the area of work, provide just in time delivery of materials.

.3 Do not load or permit to load any part of work with a weight or force that will endanger the work.

.4 As necessary, the Trade Contractor shall provide their own storage and means of securing the storage facilities, and shall carry all necessary insurances for any storage facility used as well as the contents stored in the trailer and on the grounds.

1.8 Parking

.1 Refer to Section 01 14 00.

1.9 Equipment, Tool and Materials Storage

.1 Provide and maintain, in a clean and orderly condition, lockable weatherproof storage of tools, equipment and materials.

1.10 Sanitary Facilities

.1 For work in existing buildings an existing washroom will be available for use by the Trade Contractor and workers. The ESCo will designate the washroom to be used. This facility must be kept clean by the Trade Contractor at all times. The washing of paint brushes, mixing of grout and other non personal hygiene activities in the washroom is strictly prohibited. Such non personal hygiene operations shall be carried out in a janitor's room designated by the ESCo.

1.11 First Aid

.1 Provide such equipment as required by the Occupational Health and Safety Act, to supply first aid service to anyone who may be injured on the work site. In case of serious injury or death, report the accident immediately to the proper authorities and to the ESCo and the Owner.

.2 Trade Contractor assigned Supervisor (site representative) to provide First Aid training certificate to the ESCo Construction Manager.

1.12 Construction Access and Traffic Maintenance

.1 Construction access to the work areas within existing building for workmen and delivery of materials will be designated by the ESCo. No other existing exits or entrances shall be used by workers for access or for delivery of materials.

.2 The Trade Contractor to conduct construction operations with minimum interference to adjacent roadways, sidewalks and access facilities in general and shall keep such areas free from materials, debris and equipment at all times.

.3 The Trade Contractor shall not close or obstruct existing roadways, sidewalks, parking areas or delivery points and to not place or store materials or park cars on same.

.4 The Trade Contractor shall obtain approval of his proposed haul routes from the ESCo.

.5 Haul routes to be kept clean and free of dust.

.6 The Trade Contractor shall cooperate in all ways with the ESCo in all matters concerning necessary interference with normal operation of the Owner’s facilities. Minimizing disruption of normal building operation and vehicular movements around city properties is an essential requirement of the in undertaking the work.

.7 It is the requirement of the Trade Contractor to provide items such as but not limited to signage, traffic barriers, personnel barriers, to fully notify building occupants of all construction activities.

1.13 Construction Parking

.1 Parking will be permitted on site provided it does not disrupt performance of Work.

.2 Provide and maintain adequate access to Owner’s facility.

.3 Coordinate and cooperate with Owner to determine suitable parking areas.

.4 Clean access areas where used by Contractor's equipment.

.5 Repair and bring back to pre-existing conditions areas used for parking.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 52 00

PART 1 - GENERAL

1.1 Section Includes

.1 Barriers.

.2 Environmental Controls.

.3 Traffic Controls.

.4 Fire Routes.

1.2 Related Sections

.1 Section 01 51 00 - Temporary Utilities.

.2 Section 01 52 00 - Construction Facilities.

1.3 References

.1 Canadian Standards Association (CSA).

1.4 Installation and Removal

.1 Provide temporary controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.5 Guard Rails and Barricades

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.

.2 Provide barricades to isolate work areas from public areas.

.3 Provide as required by governing authorities, or the ESCo, as indicated.

1.6 Floor Barricades and Signage (when working in public areas) – Lighting Work and Otherwise

.1 Provide a 24” x 32” Metal “A” frame sign with red graphics.

.2 Two signs shall be located at each Work area and in public spaces (both ends – e.g. hallways) or one sign at the entrance to a room where work is ongoing.

.3 Red/Yellow caution tape shall be applied from sign to walls to cordon off Work area from the public. Comply with requirements of the site safety manual.

.4 Trade Contractor shall have a pair of signs for each work crew.

.5 Where work is occurring in a room, the work signs shall be located at the entrance to the room.

1.7 Dust Tight Screens

.1 Provide dust tight screens or partitions to localize dust generating activities, and for protection of workers, finished areas of Work and public.

.2 Maintain and relocate protection until such work is complete.

1.8 Access to Site

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for Owner’s personnel access to facilities and Trade Contractor’s access to Work.

1.9 Public Traffic Flow

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.10 Fire Routes

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.11 Protection for Off-Site and Public Property

.1 Protect surrounding private and public property from damage during performance of work.

.2 Be responsible for damage incurred.

1.12 Protection of Building Finishes

.1 Provide protection for finished and partially finished building finishes and equipment during performance of work.

.2 Provide necessary screens, covers, and hoardings.

.3 Be responsible for damage incurred due to lack of or improper protection.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 56 00

PART 1 - GENERAL

1.1 Section Includes

.1 Product quality, availability, storage, handling, protection, and transportation.

.2 Manufacturer's instructions.

.3 Quality of work, coordination and fastenings.

.4 Existing facilities.

1.2 Related Sections

.1 None.

1.3 Reference Standards

.1 Conform to these standards, in whole or in part as specifically requested in specifications.

.2 If there is question as to whether any product or system is in conformance with applicable standards, Consultant reserves right to have such products or systems tested to prove or disprove conformance.

.3 The cost for such testing will be born by the Trade Contractor.

.4 Conform to latest date of issue of referenced standards.

1.4 Quality

.1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of Products provided.

.2 Defective products, whenever identified prior to completion of work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Trade Contractor to remove and replace defective products at its own expense and be responsible for delays and expenses caused.

.3 Should any dispute arise as to quality or fitness of products, final decision rests strictly with the Consultant.

.4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item.

.5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.5 Availability

.1 Immediately upon signing the Agreement the Trade Contractor shall, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, the Trade Contractor shall notify the Consultant and ESCo of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of work.

.2 In event of failure to notify the Consultant at commencement of work of any such product delivery delays and should it subsequently appear that work may be delayed for such reason, the Consultant and the ESCo reserves right to substitute more readily available products of similar character, at no increase in Agreement price or change in schedule.

1.6 Storage, Handling and Protection

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.5 Trade Contractor shall remove and replace damaged products at its own expense to the satisfaction of Consultant and ESCo.

.6 Trade Contractor shall touch-up damaged factory finished surfaces to the Consultant's and ESCo's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.7 Transportation

.1 Pay costs of transportation of products required in performance of work.

.2 Transportation cost of products supplied by the ESCo will be paid for by the ESCo. Unload, handle and store such products as if they were purchased by the Trade Contractor.

1.8 Manufacturer's Instructions

.1 Unless otherwise indicated in specifications install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

.2 The Trade Contractor shall notify the Consultant and the ESCo in writing, of conflicts between specifications and manufacturer's instructions, so that the Consultant may establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Consultant to require removal and re-installation at no increase in Agreement price or change in Agreement Schedule.

1.9 Quality of Work

.1 Ensure quality of work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Trade Contractor shall immediately notify Consultant and ESCo if required work makes it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Consultant and ESCo reserve the right at their absolute discretion to require the Trade Contractors to dismiss from site workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of quality of work in cases of dispute rest solely with the Consultant, whose decision is final.

1.10 Co-ordination

.1 Ensure cooperation of workers in laying out work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.11 Concealment

.1 In finished areas, conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation of any item, inform Consultant and ESCo if there is interference. Install as directed by Consultant.

1.12 Remedial Work

.1 Perform remedial work required to repair or replace parts or portions of work identified by the Consultant or ESCo as defective or unacceptable. Coordinate adjacent affected work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of work.

1.13 Location of Fixtures

.1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.

.2 Inform Consultant and ESCo of conflicting installation(s). Install as directed by the Consultant or ESCo.

1.14 Fastenings

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.15 Fastenings - Equipment

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.16 Protection of Work in Progress

.1 Prevent overloading of any part of building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Consultant.

1.17 Existing Utilities

.1 When breaking into or connecting to existing services or utilities, execute as detailed in Section 01 14 00.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 1 - GENERAL

1.1 Section Includes

.1 Requirements and limitations for cutting and patching the work.

.2 Make-Good work.

1.2 Related Sections

.1 Section 01 11 00 - Summary of Work.

.2 Individual product Sections: cutting and patching incidental to work of section. Advance notification to other sections required.

1.3 Submittals

.1 Trade Contractor shall submit written request to the ESCo in advance of cutting or alteration which affects:

- .1 Structural integrity of any element of the work.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Efficiency, maintenance, or safety of any operational element.
- .4 Visual qualities of sight-exposed elements.
- .5 Work of other trade contractors.

.2 Include in request:

- .1 Identification of work.
- .2 Location and description of affected work.
- .3 Statement on necessity for cutting or alteration.
- .4 Description of proposed work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on work on other trade contractor(s).
- .7 Written permission of affected other trade contractor.
- .8 Date and time proposed work will be executed.

1.4 Protections

.1 The Trade Contractor shall protect existing exterior finishes, including but not limited to windows, doors, at all times from damage from hoists, chutes, materials handling equipment, or new construction.

1.5 Preparation

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of the work from damage.

1.6 Make Good Work

.1 The Trade Contractor shall repair, replace at the ESCo's option and make good, at no additional cost any damage or disruption caused to the building and its contents and to the adjoining

property, utilities and services. All corrective work shall only be carried out after consultation with the ESCo, and authorities having jurisdiction.

.2 Corrective work shall match existing including finishes and existing conditions to damaged work areas such as but not limited to items as damaged floors, walls, ceilings, roofs, roads, parking areas, soft landscaping, hard and soft landscaping and above and below ground services.

.3 Make Good shall mean taking corrective action as approved by the ESCo to restore affective work areas to at least the original condition in terms of strength, safety, workmanship and appearance.

PART 2 - PRODUCTS

2.1 General

.1 Provide products and equipment specific for intended purpose and Consultant review.

2.2 Materials

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

PART 3 - EXECUTION

3.1 Responsibility

.1 All adjustments, repairs, Make Good and replacement work shall be carried out by the Trade Contractor responsible for that portion of the work.

.2 Additional specialist trade contractors that may be required for such work shall not proceed without the ESCo's Approval.

3.2 Execution

.1 Execute cutting, fitting, and patching to complete work.

.2 Fit several parts together, to integrate with other work.

.3 Uncover work to install ill-timed work.

.4 Remove and replace defective and non-conforming work.

.5 Provide openings in non-structural elements of work for penetrations of mechanical and electrical work.

.6 Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.

.7 Employ original installer whenever possible to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval by the ESCo.

.9 Restore work with new products in accordance with requirements of Agreement documents.

.10 Fit work to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

.11 At penetration of fire rated wall, ceiling, or floor construction, completely seal voids with fire stopping material, to manufacturer's standard full thickness of building element.

.12 Refinish surfaces to match adjacent finishes. Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

.13 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise, by the Consultant.

END OF SECTION 01 73 00

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 61 00

PART 1 - GENERAL

1.1 Section Includes

.1 Daily cleaning.

.2 Final cleaning.

1.2 Related Sections

.1 Section 01 14 00 - Work Restrictions.

.2 Section 01 74 21 - Waste Management and Disposal.

.3 Section 01 77 00 - Closeout Procedures.

1.3 Work Performed by this Section

.1 Conduct cleaning and disposal operations to comply with local ordinances and anti pollution laws.

.2 Store volatile and toxic wastes in covered metal containers and remove from premises daily.

.3 Prevent accumulations of wastes which create hazardous conditions.

.4 Provide adequate ventilation during use of volatile or noxious substances.

.5 Upon completion of work of each trade, thoroughly clean work and leave in a condition acceptable to the ESCo.

1.4 Project Cleanliness

.1 Maintain work in tidy condition, free from accumulation of waste products and debris, remove and dispose of waste materials from site regularly.

.2 Provide on-site dump containers for collection of waste materials and debris at location designated by the ESCo.

.3 Provide and use clearly marked separate bins for recycling. Refer to Section 01 74 21 - Waste Management and Disposal.

.4 Remove waste material and debris from site and deposit in waste container at end of each working day.

.5 Dispose of waste materials and debris off site.

.6 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.7 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.8 Provide adequate ventilation during welding of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.10 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.5 Final Cleaning

.1 Remove surplus products, tools, construction machinery and equipment.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy and use.

.3 For work by this Trade Contractor, examine and clean all fixtures to produce intended appearance and use.

.4 For work affected by this Trade Contractor, brush off, dust and polish all ledges and stairs.

.5 For work affected by this Trade Contractor, remove stains, spots, marks and dirt from electrical and mechanical fixtures, walls, floors, ledges and stairs.

.6 For work affected by this Trade Contractor, clean lighting reflectors, lenses, and other lighting surfaces if they have been soiled due to construction.

.7 For work affected by this Trade Contractor, vacuum clean and dust building interiors, behind grilles, louvres and screens as required to clean areas dirtied by construction.

.8 For work affected by this Trade Contractor, broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds if they have been affected by the construction.

.9 For work affected by this Trade Contractor, remove dirt and other disfiguration from exterior surfaces.

.10 For work affected by this Trade Contractor, sweep and wash clean paved areas if they have been affected by the construction.

.11 For work affected by this Trade Contractor, clean equipment and fixtures to a sanitary condition; clean or replace filters of mechanical equipment if they have been affected by the construction.

.12 For work affected by this Trade Contractor, replace damaged grass and landscaping if they have been affected by the construction.

.13 For work affected by this Trade Contractor, clean roofs, downspouts, and drainage systems.

.14 For work affected by this Trade Contractor, remove debris and surplus materials from crawl areas and other accessible concealed spaces.

1.6 Inspection

.1 Trade Contractor shall conduct an inspection of each area of work and notify the ESCo that final cleaning has been performed prior to each of the following dates:

.1 Certificate of Completion or Substantial Completion of the Agreement (whichever comes first).

.2 Final completion of work under the Agreement.

PART 2 - PRODUCTS

2.1 Cleaning Materials

.1 Give preference to products which minimize environmental impact, including indoor air quality.

.2 Avoid VOC's (Volatile Organic Compounds) or give preference to Low VOCs whenever possible

PART 3 - EXECUTION

3.1 Janitorial Service

.1 Execute final cleaning employing only skilled workers. The preference would be to preferably employ a licensed janitorial service.

END OF SECTION 01 74 11

PART 1 - GENERAL

1.1 Section Includes

.1 General description of Work.

1.2 Use of Site and Facilities

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Maintain security measures established by existing facility.

1.3 Materials Source Separation Program

.1 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and/or recyclable materials, including containers to deposit reusable and/or recyclable materials.

.2 Locate containers in locations acceptable to the ESCo, to facilitate deposit of materials without hindering daily operations.

.3 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition. Transport to Government-approved and authorized recycling facility in accordance with applicable guidelines and codes.

1.4 Disposal of Wastes

.1 Burying of rubbish and waste materials is prohibited.

.2 Burning of waste materials is prohibited.

.3 Disposal of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers is prohibited.

1.5 Scheduling

.1 Coordinate work with other activities at site to ensure timely and orderly progress of the work.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Application

.1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate Government regulations and codes.

3.2 Cleaning

.1 Remove tools and waste materials on completion of work, and leave work area in clean and orderly condition.

.2 Clean up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

END OF SECTION 01 74 21

PART 1 - GENERAL

1.1 Section Includes

.1 Administrative procedures preceding preliminary and final inspections of Work.

1.2 Related Sections

.1 Section 01 78 00 - Closeout Submittals.

.2 Section 01 79 00 - Demonstration and Training.

.3 Section 01 91 13 - Commissioning.

1.3 References

.1 The Agreement.

1.4 Inspection and Declaration

.1 Trade Contractor's Inspection: Trade Contractor and all Subcontractors shall conduct an inspection of work, identify deficiencies and defects, and repair as required to conform to Agreement documents.

.1 Notify Consultant and ESCo in writing of satisfactory completion of Trade Contractor's inspection and that corrections have been made.

.2 Request ESCo's and Consultant's final inspection.

.2 ESCO's and Consultant's Inspection: ESCo and Consultant and the Trade Contractor will perform inspection of work to identify obvious defects or deficiencies. Trade Contractor shall correct work accordingly.

.3 Completion: The Trade Contractor shall submit in writing that following has been performed:

.1 Work has been completed and inspected for compliance with Agreement documents.

.2 Defects have been corrected and deficiencies have been completed.

.3 Equipment and systems have been tested, adjusted and balanced and are fully operational.

.4 Certificates required by Utility companies, TSSA, and authorities having jurisdiction have been submitted.

.5 Operation of systems have been demonstrated to Owner's personnel.

.6 Work is complete and ready for final Inspection.

.4 Final Inspection: when items noted above are completed the Trade Contractor, request final inspection of work by Consultant and the ESCo. If work is deemed incomplete by Consultant and the ESCo, the Trade Contractor shall complete outstanding items and request re-inspection.

1.5 Inspection and Declaration – For Projects that Follow Substantial Performance Requirements:

.1 Declaration of Substantial Performance: When Owner and Consultant consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance.

.2 Commencement of Lien and Warranty Periods: date of ESCO and Owner's acceptance of submitted declaration of Substantial Performance shall be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

.3 Final Payment: when Owner and Consultant consider final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, make application

for final payment. If Work is deemed incomplete by Owner and Consultant, complete outstanding items and request re-inspection. Re-inspection costs of Consultant to be borne by Trade Contractor.

.4 Payment of Holdback: after issuance of certificate of Substantial Performance of Work, submit an application for payment of holdback amount.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 77 00

PART 1 - GENERAL

1.1 Section Includes

.1 As-built, samples, and specifications.
.2 Equipment and systems.
.3 Product data, materials and finishes, and related information.
.4 Operation and maintenance data.
.5 Spare parts, special tools and maintenance materials.
.6 Warranties and bonds.
.7 Final site survey.

1.2 Related Sections

.1 Section 01 33 00 - Submittal Procedures.
.2 Section 01 77 00 - Closeout Procedures.
.3 Section 01 79 00 - Demonstration and Training.
.4 Section 01 91 13 - Commissioning.
.5 Section 01 99 00 - Warranties.

1.3 Submission

.1 Prior to the issuance of the Certificate of Substantial Completion (or Measure Completion Certificate), submit to the ESCo the required number of copies of the Operating and Maintenance Manuals.
  .1 Prepare instructions and data by personnel experienced in maintenance and operation of described products.
  .2 Copies will be returned after final inspection, with Consultant's and ESCo's comments.
  .3 Revise content of documents as required prior to final submittal.
.2 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in work.
.3 If requested, furnish evidence as to type, source and quality of products provided.
.4 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
.5 Pay costs of transportation.

1.4 Format: Operating and Maintenance Manuals

.1 Hard Copy (Binders) – 4 copies
  .1 Submit required quantity of documents.
  .2 Organize data in the form of an instructional manual.
  .3 Binders: vinyl, hard covered, 3 'D' ring, loose leaf [219 x 279] mm with spine and face pockets.
  .4 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
  .5 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents, work and buildings.
  .6 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.7 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.8 Text: Manufacturer's printed data, or typewritten data.

.9 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

.2 Electronic Copy (PDF Format)

.1 Provide four copies in Acrobat Portable Document Format (PDF) of the complete operations and maintenance manual on CD-ROM.

.2 Organize the data in an identical format complete with hyperlinks and tabs as the hard copy binder format.

.3 Arrange content by systems, under Section numbers and sequence of Table of Contents.

.4 Including all relevant information including but not limited to drawings, manufacturers' data, operational and maintenance procedures. Where documents are not available in electronic format, they should be scanned into PDF format.

.5 The PDF document shall be self-contained, and include all necessary software required to access the product data sheets. It shall be combined in PDF formation as on searchable document. A logically organized table of contents shall provide dynamic links to view and print all product data sheets. Viewer software shall provide the ability to display, zoom, and search all documents. Individual files will not be accepted.

.3 As-built Drawings – Electronic

.1 Provide scaled drawing files on CDs identifying As-Built conditions in the formats as follows:

.1 AutoCAD 2006 DWG format

.2 PDF format

.2 Bind in any cross-references (X-Refs) in AutoCAD format drawings.

1.5 Contents - Each Volume (Hard Copy & Electronic)

.1 Table of Contents: provide title of project;

.1 Date of submission;

.2 Names, addresses, and telephone numbers of ESCO, Consultant and Trade Contractor with name of responsible parties;

.3 Schedule of products and systems, indexed to content of volume.

.2 For each product or system (shall include all items supplied by the Trade Contractor or ESCo):

.1 List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information. Product data shall be for both ESCo and Trade Contractor supplied materials.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Word Processed Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

.6 Training: Refer to Section 01 79 00 - Demonstration and Training.

.7 Provide all information as called for in the technical sections of this document. Refer to Section 26 05 00.

1.6 As-Built Drawings

.1 As required by these documents maintain at the site for the ESCo and Consultant one record copy of:

- .1 Agreement Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed shop drawings, product data, and samples for both ESCo and Trade Contractor supplied materials.
- .5 Field test records.
- .6 Inspection certificates.
- .7 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks and secure storage as necessary.

.3 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.4 Keep record documents and samples available for inspection by the ESCo and Consultant.

1.7 Recording Site Conditions

.1 Record information on set of black line opaque drawings provided by the Consultant.

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal work until required information is recorded.

.4 Agreement drawings and shop drawings: legibly mark each item to record actual construction, including:

- .1 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
- .2 Field changes of dimension and detail.
- .3 Changes made by change orders.
- .4 Details not on original Agreement drawings.
- .5 References to related shop drawings and modifications.

.5 Specifications: legibly mark each item to record actual construction, including:

- .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

.7 Transfer all of this information to the electronic record set of drawings.

1.8 Equipment and Systems (to be included in Operations and Maintenance Manuals)

.1 Each item of equipment and each system: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.

.2 Operating procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

.3 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.4 Provide servicing and lubrication schedule, and list of lubricants required.

.5 Include manufacturer's printed operation and maintenance instructions.

.6 Include sequence of operation by controls manufacturer.

.7 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.8 Provide installed control diagrams by controls manufacturer.

.9 Provide Trade Contractor's coordination drawings, with installed colour coded piping diagrams.

.10 Provide colour coded wiring diagrams.

.11 Panel board circuit directories: Include panel board circuit directories and provide electrical service characteristics, controls, and communications.

.12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams, for any systems installed in the course of the work.

.13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

.14 Include test and balancing reports as specified in Specifications.

.15 Additional requirements: As specified in individual specification sections.

1.9 Materials and Finishes

.1 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.2 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

.3 Additional Requirements: as specified in individual specifications sections.

1.10 Spare Parts

.1 Provide spare parts, in quantities specified in individual specification sections.

.2 Provide items of same manufacture and quality as items in work.

.3 Deliver to site location as directed; place and store.

.4 Receive and catalogue all items. Submit inventory listing to Consultant and ESCo. Include approved listings in Maintenance Manual.

1.11 Special Tools

.1 Provide special tools, in quantities specified in individual specification section.

.2 Provide items with tags identifying their associated function and equipment.

.3 Deliver to site location as directed; place and store.

.4 Receive and catalogue all items. Submit inventory listing to Consultant and ESCo. Include approved listings in Maintenance Manual.

1.12 Storage, Handling and Protection

.1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.

.2 Store in original and undamaged condition with manufacturer's seal and labels intact.

.3 Store components subject to damage from weather in weatherproof enclosures.

.4 Remove and replace damaged products at own expense and to satisfaction of Consultant.

1.13 Warranties (to be included in Operations and Maintenance Manuals)

.1 Assemble approved information in binder and submit upon acceptance of work.

.2 Separate each Warranty and guarantee from Subcontractors index tab sheets keyed to Table of Contents listing.

.3 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.4 Obtain warranties executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.

.5 Warranty periods are as set out in Section 01 99 00.

.6 Verify that warranty documents are in proper form, contain full information

.7 Verify that warranty documents are signed and notarized under seal.

.8 Co-execute submittals when required.

.9 Retain warranties until time specified for submittal.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 78 00

PART 1 - GENERAL

1.1 Section Includes

.1 Includes general requirements for commissioning facilities and facility systems.

1.2 Related Sections

.1 Section 26 05 01.

1.3 Quality Assurance

.1 Provide testing services as required by the ESCo for Monitoring and Verification (M&V) purposes.

1.4 Spot Verification (M&V)

.1 Allow for up to twenty (20) spot test readings per floor for fixture types and groups as selected by the ESCo.

.2 Spot test readings shall be performed before the lighting retrofit occurs as well as after the retrofit.

.3 Spot test readings shall be recorded as follows:

- .1 Circuit/panel location;
- .2 Detailed type of fixture as well as number of fixtures;
- .3 Presence of any burnouts;
- .4 Date and time of reading;
- .5 Voltage, amp, power factor, total W or kW.

.4 A digital photo shall be taken of:

- .1 The area;
- .2 The type of existing as well as retrofitted fixture;
- .3 The readings (all) on the power meter (i.e. voltage, amps, power factor, kW);
- .4 All pictures shall be pre- and post-retrofit as well as digitally date stamped.

.5 Pre- and post-retrofit building readings shall also be performed using the building sub-meter. This shall be done at the same time before and after the retrofit. This shall be coordinated by the ESCo and performed by the Trade Contractor on a building-by-building basis.

1.5 Final Reports

.1 Trade Contractor shall be responsible for all reports.

.2 Ensure each form bears signature of recorder, and that of supervisor of reporting organization.

.3 Identify each instrument used, and latest date of calibration of each.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Execution

.1 Test all mechanical/electrical systems related to the specific measure.

.2 The ESCo and/or Consultant shall be in attendance during all commissioning procedures to witness the continuous operation of each system or piece of equipment.

END OF SECTION 01 78 01

PART 1 - GENERAL

1.1 Section Includes

.1 Procedures for demonstration and instruction of equipment and systems to Owner's personnel.

1.2 Related Sections

.1 Section 01 78 00 - Closeout Submittals.

.2 Section 01 91 13 - Commissioning.

1.3 Description

.1 Demonstrate scheduled and/or standard operation and maintenance of equipment and systems to Owner's personnel minimum of one (1) week and as soon as practical prior to turn-over date / Substantial Completion date.

.2 The ESCo in coordination with the Owner will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon times.

1.4 Quality Control

.1 When specified in individual Sections, require manufacturer to provide authorized representative to demonstrate operation of equipment and systems, instruct Owner's personnel

.2 Provide completed sign-in sheet of personnel in attendance at the training.

.3 Provide written report that demonstration and instructions have been completed to be submitted to the ESCo.

.4 A copy of the written report to be included in the close-out documentation.

1.5 Submittals

.1 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Consultant's review and ESCo's approval.

.2 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.

.3 Give time and date of each demonstration, with list of persons present.

.4 Provide completed sign-in sheet of personnel in attendance at the training.

1.6 Conditions for Demonstrations

.1 Equipment has been inspected and put into operation.

.2 Commissioning has been performed and equipment and systems are fully operational.

.3 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

1.7 Preparation

.1 Verify that conditions for demonstration and instructions comply with requirements.

.2 Verify that designated personnel are present.

1.8 DEMONSTRATION AND INSTRUCTIONS

.1 Demonstrate start-up, operation, control, adjustment, trouble shooting, servicing, and maintenance of each item of equipment at agreed upon times, at the equipment or designated location as appropriate.

.2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.

.3 Review contents of manual in detail to explain aspects of operation and maintenance.

.4 Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instructions.

1.9 VIDEO-BASED TRAINING

.1 Manufacturer's videotapes to be used as training tool with Owner's review and written approval one (1) month prior to commencement of scheduled training.

.2 On-Site training videos:

.1 Videotape training sessions for use during future training.

.2 To be performed after systems are fully commissioned.

.3 Organize into several short modules to permit incorporation of changes.

.4 Production methods to be high quality.

1.10 TIME ALLOCATED FOR INSTRUCTIONS

.1 Ensure amount of time required for instruction of each item of equipment or system as follows:

.1 Boiler Plant:

.1 Two hours of instruction at each school.

.2 Four hours of instruction for Owner's centralized maintenance personnel.

.2 Ventilation System:

.1 Two hours of instruction at each school.

.2 Four hours of instruction for Owner's centralized maintenance personnel.

.3 Control System:

.1 Two hours of instruction at each school.

.2 Refer to Section on Controls for specifics.

.4 Plumbing System:

.1 One hours of instruction at each school.

.2 Two hours of instruction for Owner's centralized maintenance personnel.

.5 Building Envelope System:

.1 One hours of instruction at each school.

.2 Two hours of instruction for Owner's centralized maintenance personnel.

.6 Lighting Retrofit:

.1 Two hours of instruction at each school.

.2 Four hours of instruction for Owner's centralized maintenance personnel.

.7 Electrical System:

.1 Two hours of instruction at each school.

.2 Four hours of instruction for Owner's centralized maintenance personnel.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 01 79 00

PART 1 - GENERAL

1.1 Section Includes

.1 Includes general requirements for commissioning facilities and facility systems.

1.2 Related Sections

.1 Section 26 05 01.

1.3 Quality Assurance

.1 Provide testing organization services under provisions specified in the Sections of these specifications.

.2 Commissioning organization: current member in good standing of a commissioning organization certified to perform specified services.

.3 Comply with applicable procedures and standards of the certification sponsoring association.

.4 Perform services under direction of supervisor qualified under certification requirements of sponsoring association.

1.4 References

.1 Associated Air Balance Council (AABC): National Standards For Field Measurements and Instrumentation, Total Systems Balance, Air Distribution-Hydronics Systems.

.2 AHSRAE.

.3 ARI.

.4 ASME.

1.5 Submittals

.1 Prior to start of work, submit name of organization or subcontractor proposed to perform services. Designate who has managerial responsibilities for coordination of all commissioning procedures.

.2 Submit documentation to confirm organization or commissioning procedures company complies with quality assurance provision.

.3 Submit reports of commissioning postponed due to seasonal, climatic, occupancy, or other reasons beyond Contractor's control, promptly after execution of those services.

1.6 Procedures – General

.1 Comply with procedural standards of certifying association under whose standard services will be performed.

.2 Notify Consultant and ESCo [3] days prior to beginning of operations.

.3 Accurately record data for each step.

.4 Report to Consultant and ESCo any deficiencies or defects noted during performance of services.

1.7 Final Reports

.1 Organization having managerial responsibility shall make reports.

.2 Ensure each form bears signature of recorder, and that of supervisor of reporting organization.

.3 Identify each instrument used, and latest date of calibration of each.

1.8 Trade Contractor Responsibilities

.1 Prepare each system for commissioning.

.2 Cooperate with commissioning organization and provide access to equipment and systems.

.3 Provide personnel and operate systems at designated times, and under conditions required for proper commissioning.

.4 Notify commissioning organization [7] days prior to time project will be ready for commissioning.

1.9 Preparation

.1 Provide instruments required for testing commissioning operations.

.2 Make instruments available to Consultant to facilitate spot checks during commissioning.

.3 Retain possession of instruments and remove at completion of services.

.4 Verify systems installation is complete and in continuous operation.

.5 Verify lighting is turned on when lighting is included in cooling load.

.6 Verify equipment such as computers, laboratory and electronic equipment are in full operation.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Execution

.1 Commission all mechanical/electrical systems related to the specific measure.

.2 Commission hydronic systems and air systems and record fluid flow at each piece of equipment.

.3 The ESCo and/or Consultant shall be in attendance during all commissioning procedures to witness the continuous operation of each system or piece of equipment.

END OF SECTION 01 91 13

PART 1 – GENERAL

1.1 General

Comply with Agreement.

1.2 Schedule of Warranties

.1 Provide manufacturers' warranties as outlined as well as detailed instructions to the Owner on how to process any extended warranty claims.

Contractor is responsible for assuming warranty of material purchased as well as material provided by Owner/ESCo.

As a minimum the following manufacturers' warranty periods shall apply:

.1 The Trade Contractor shall obtain for the Owner and ESCo, fluorescent ballast manufacturer guarantees of performance and replacement at no cost for a period of five (5) years in the event of a malfunction during this period. Replacement unit shall be accompanied by a minimum $10 credit toward the cost of installation.

.2 The Trade Contractor shall obtain for the Owner and ESCo, linear fluorescent lamp manufacturer guarantees of performance and replacement at no cost for a period of two (2) years in the event of a malfunction during this period.

.3 The Trade Contractor shall obtain for the Owner and ESCo, compact fluorescent lamp manufacturer guarantees of performance and replacement at no cost for a period of two (2) years in the event of a malfunction during this period.

.4 The Trade Contractor shall obtain for the Owner and ESCo, reflector manufacturer guarantees of performance and replacement at no cost for a period of ten (10) years in the event of a malfunction during this period.

.5 The Trade Contractor shall obtain for the Owner and ESCO, HID ballast manufacturer guarantees of performance and replacement at no cost for a period of two (2) years in the event of a malfunction during this period. Replacement unit shall be accompanied by a minimum $50 credit toward the cost of installation.

.6 The Trade Contractor shall obtain for the Owner and ESCo, HID lamp manufacturer guarantees of performance and replacement at no cost for a period of two (2) years in the event of a malfunction during this period.

.7 The Trade Contractor shall obtain for the Owner and ESCo, ceiling tile manufacturer guarantees of performance and replacement at no cost for a period of ten (10) year in the event of a malfunction during this period.

.8 The Trade Contractor shall provide a two (2) year warranty, commencing at the time of substantial completion, for the labour required to replace any defective equipment or materials installed as part of this contract.

.9 The Trade Contractor shall obtain for the Owner and ESCo, LED screw in lamp manufacturer guarantees of performance and replacement at no cost for a period of three (3) year in the event of a malfunction during this period.

.10 The Trade Contractor shall obtain for the Owner and ESCo, LED fixture replacement manufacturer guarantees of performance and replacement at no cost for a period of five (5) years in the event of a malfunction during this period.

Specific warranty periods for materials not explicitly noted in Item 1.2.1 must be indicated in Appendix A of the Bid Submission.

PART 2 - PRODUCTS

2.1 None

PART 3 - EXECUTION

3.1 None

END OF SECTION 01 99 00

DIVISION 2
EXISTING CONDITIONS

PART 1 - GENERAL

1.1 Related Sections

.1 Section 01 33 00 - Submittal Procedures.

1.2 References

.1 Canadian Environmental Protection Act, 1999 (CEPA 1999).

.2 National Fire Code of Canada [1995].

.3 Transportation of Dangerous Goods Act (TDG Act) [1992], c.34/SOR/86-332, SOR/90-153.

.4 Transportation of Dangerous Goods Act [RBC 1996] Chapter 458.

.5 Storage of PCB Material Regulations, SOR/92-507.

.6 PCB Waste Export Regulations, 1996, SOR/97-109.

.7 Ozone-Depleting Substances Regulations, SOR/95-576.

.8 Environmental Code of Practice on Halons. July 1996.

.9 Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems. March 1996.

.10 Environmental Protection Act, 1999 & Associated Regulations.

1.3 Definitions

.1 Toxic: For the purposes of this specification, a substance is considered toxic if it is listed on the Toxic Substances List found in Schedule 1 of CEPA.

.2 List of Toxic Substances: found in Schedule 1 of CEPA, lists all substances that have been assessed as toxic. The federal government can make regulations with respect to a substance specified on the List of Toxic Substances. Column II of this List identifies the type of regulation applicable to each substance.

.3 PCBs: includes any chlorobiphenyls referred to in Column I of item 1 of the List of Toxic Substances in Schedule I of the Canadian Environmental Protection Act.

1.4 Submittals

.1 Product Data

.1 Submit photocopy of shipping documents and waste manifests and export notices to Consultant and Construction Manager when shipping toxic wastes off site.

.2 Maintain [1] copy of product data in readily accessible file on site.

.2 Submission Requirements

.1 Submit product data to Consultant in accordance with Section 01 33 00 - Submittal Procedures.

.2 Sheet size: 21.5 cm x 28 cm.

.3 Express all weights and volumes in SI Metric units.

.4 Accompany submissions with transmittal letter, containing:

.1 Date

.2 Project title and number

.3 Trade Contractor's name and address

.4 Identification and quantity of attached product data

.5 Other pertinent data

1.5 Environmental Laws

.1 The Trade Contractor shall perform its covenants and obligations hereunder in accordance with Environmental Laws.

.2 The Trade Contractor shall ensure that all Work shall comply with all Environmental Laws.

.3 The Trade Contractor shall review existing relevant environmental site assessment reports for the Facilities to determine potential problem areas that may impact the Work and provide identification and description of any Hazardous Substances, in, under or around the Facilities which may impact on the Work or the Measures.

.4 The Trade Contractor shall assess and inform the ESCo the cost/risk of proceeding with the work for the building(s) in question in light of the potential environmental hazards or risks identified pursuant to clause 1.5.3.

.5 For any potential environmental hazard or risk identified pursuant to 1.5.3 develop an outline of an environmental management plan and methodology for handling, removal and disposal of such Hazardous Substances.

.6 Prepare a financial and technical proposal which shall include sufficient environmental information about Hazardous Substances present, in, under or around the Facilities to permit the ESCo to clearly understand the implications of proceeding with the Work.

.7 In the event that the ESCo and the Owner agree to proceed with the work in respect of which it is necessary to deal with Hazardous Substances as set out in clauses 1.5.3 through 1.5.6 above, through, The Trade Contractor shall handle and remove such Hazardous Substances or remedy such hazardous conditions (all in accordance with Environmental Law) as necessary for the successful completion of the work.

.8 The Trade contractor shall ensure that its employees, Subcontractors, consortium members or apprentices and the like apply in the conduct of the Work all approved environmental guidelines, checklists or other protocols in place for the proper handling, management and disposal of Hazardous Substances that may be discovered during the course of the Work.

.9 The Trade Contractor to ensure that any Subcontractors, contractors, consortium members or apprentices to be used under this Agreement to deal with environmental issues have the necessary environmental qualifications, expertise and experience to address the Hazardous Substances that may be discovered.

.10 The Trade Contractor to ensure that the environmental requirements contained herein are included in any contracts with Subcontractors, contractors, apprentices or other persons engaged by the Trade Contractor in accordance with this Agreement.

.11 The Trade Contractor to obtain and maintain throughout the term of this Agreement such insurance protection for environmental risks and hazards as is commonly available in the market for the Work to be performed and ensure that any Subcontractors, retained for the Work obtain and maintain the same. The Trade Contractor shall provide evidence of all such insurance to the Owner.

.12 If it is discovered during construction that Hazardous Substances exist in any of the Facilities which are not previously known to the Owner or the ESCo, then the Trade Contractor shall cease work at the location where such Hazardous Substances are found until the Owner and ESCo reach its decision for the removal of such substance (or some other action, if any, required to bring the Owner into compliance with any Environmental Laws dealing with such Hazardous Substances).

1.6 Storage and Handling

.1 Store and handle toxic wastes in accordance with applicable Federal and Provincial Laws, Regulations, Codes, and Guidelines.

.2 Store and handle flammable and combustible wastes in accordance with current Ontario and National Fire Code of Canada requirements.

.3 Coordinate storage of toxic wastes with ESCo and Site Safety Co-ordinator. Abide by requirements for labelling and storage of wastes.

.4 Observe smoking regulations at all times. Smoking is prohibited in any area where toxic wastes are stored, used, or handled.

.5 Only certified persons who have successfully completed the Environment Canada Environmental Awareness Course for the Environmentally Safe Handling of Refrigerants are permitted to work on refrigeration and air conditioning systems.

.6 Report spills or accidents involving toxic wastes immediately to Consultant and ESCo and to appropriate regulatory authorities. Take all reasonable measures to contain the release while ensuring health and safety is protected.

.7 Transport toxic wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.8 Use only an authorized/licensed carrier to transport toxic waste.

.9 Coordinate transportation and disposal of toxic wastes with Consultant, ESCo and Site Safety Coordinator.

.10 Notify appropriate regulatory authorities and obtain all required permits and approvals prior to exporting a toxic waste.

1.7 Waste Management and Disposal

.1 Dispose of toxic wastes generated on site in accordance with applicable Federal and Provincial Acts, Regulations, and Guidelines.

.2 Ensure toxic waste is shipped to an authorized/licensed treatment or disposal facility and that all liability insurance requirements are met.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

.1 Not Used

END OF SECTION 02 50 13

PART 1 - GENERAL

1.1 Related Sections

.1 Section 01 33 00 - Submittal Procedures.

1.2 References

.1 Export and Import of Hazardous Waste Regulations (EIHW Regulations), SOR/92-637.

.2 National Fire Code of Canada.

.3 Transportation of Dangerous Goods Act (TDG Act) 1992 c.34 (SOR/86-332, SOR/90-153).

.4 Transportation of Dangerous Goods Act (RBC), Chapter 458.

1.3 Definitions

.1 Dangerous Goods: Product, substance, or organism that is specifically listed or meets the hazard criteria established in Transportation of Dangerous Goods Regulations.

.2 Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.

.3 Hazardous Waste: Any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment or disposal.

.4 Workplace Hazardous Materials Information System (WHMIS): A Canada-wide system designed to give employers and workers information about hazardous materials used in the workplace. Under WHMIS, information on hazardous materials is to be provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by a combination of federal and provincial laws.

1.4 Submittals

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to Consultant current Material Safety Data Sheet (MSDS) for each hazardous material required prior to bringing hazardous material on site and prior to the start of work.

.3 Submit hazardous materials management plan to the Construction Manager that identifies all hazardous materials, their use, their location, personal protective equipment requirements, and disposal arrangements. The plan shall be submitted prior to the start of work.

1.5 Storage and Handling

.1 Coordinate storage of hazardous materials with the Construction Manager and Site Safety Coordinator and abide by requirements for labelling and storage of materials and wastes.

.2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.

.3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.

.4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use. Store all flammable and combustible liquids in approved safety cans bearing the Underwriter's Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Consultant or ESCo.

.5 Transfer of flammable and combustible liquids is prohibited within buildings.

.6 Transfer of flammable and combustible liquids will not be carried out in the vicinity of open flames or any type of heat-producing devices.

.7 Flammable liquids having a flash point below 38°C, such as naphtha or gasoline, will not be used as solvents or cleaning agents.

.8 Store flammable and combustible waste liquids for disposal in approved containers located in a safe, ventilated area. Keep quantities to a minimum.

.9 Observe smoking regulations at all times. Smoking is prohibited in any area where hazardous materials are stored, used, or handled.

.10 Abide by the following storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:

.1 Store hazardous materials and wastes in closed and sealed containers which are in good condition.

.2 Label containers of hazardous materials and wastes in accordance with WHMIS.

.3 Store hazardous materials and wastes in containers compatible with that material or waste.

.4 Segregate incompatible materials and wastes.

.5 Ensure that different hazardous materials or hazardous wastes are not mixed.

.6 Store hazardous materials and wastes in a secure storage area with controlled access.

.7 Maintain a clear egress from storage area.

.8 Store hazardous materials and wastes in a manner and location which will prevent them from spilling into the environment.

.9 Have appropriate emergency spill response equipment available near the storage area, including personal protective equipment.

.10 Maintain an inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.

.11 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.

.12 Report spills or accidents immediately to Consultant and ESCo. Submit a written spill report to Consultant and Construction Manager within 24 hours of incident.

1.6 Transportation

.1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.2 If hazardous waste is generated on site:

.1 Coordinate transportation and disposal with Consultant and ESCo.

.2 Ensure compliance with applicable Provincial Laws and Regulations for generators of hazardous waste.

.3 Use only a licensed carrier authorized by provincial authorities to accept subject material.

.4 Prior to shipping material, obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept this material.

.5 Label container[s] with legible, visible safety marks as prescribed by federal and provincial regulations.

.6 Ensure that only trained personnel handle, offer for transport, or transport dangerous goods.

.7 Provide a photocopy of all shipping documents and waste manifests to Consultant and ESCo.

.8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Consultant and ESCo.

.9 Report any discharge, emission, or escape of hazardous materials immediately to Consultant and ESCo and appropriate Provincial Authority. Take reasonable measures to control release.

PART 2 - PRODUCTS

2.1 Materials

.1 Only bring on site the quantity of hazardous materials required to perform work.

.2 Maintain MSDSs in proximity to where the materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

PART 3 - EXECUTION

3.1 Disposal

.1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.

.2 Recycle hazardous wastes for which there is an approved, cost effective recycling process available.

.3 Send hazardous wastes only to authorized hazardous waste disposal or treatment facilities.

.4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.

.5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

.6 Dispose of hazardous wastes in a timely fashion in accordance with applicable Provincial Regulations.

END OF SECTION 02 81 01

PART 1 - GENERAL

1.1 Section Includes

.1 The disturbance or removal or disposal of asbestos-containing materials from buildings within the scope of this Bid.

.2 The disturbance, or removal and disposal of hazardous materials will be performed in strict compliance with applicable regulatory requirements.

.3 The Trade Contractor to file a Notice of Project for Abatement as required when working in close proximity to asbestos containing materials. (The Trade Contractor may elect to hire an Asbestos Contractor to file the appropriate WCB documentation).

1.2 Definitions

.1 Asbestos Contractor: Is the Subcontractor retained by the Trade Contractor who is licensed by the Governing Authorities to conduct the removal and/or disposal of asbestos containing materials.

1.3 Documentation

.1 The Asbestos Contractor will maintain the following documentation on site.

.1 N.S. Regulation for Asbestos.

.2 Workers' Compensation Board “Notice of Project for Abatement” (NOPA) and attached to the NOPA the site specific asbestos abatement work procedures intended for use.

.3 The Asbestos Contractor’s Corporate Occupational Health & Safety Program.

.4 The Asbestos Contractor’s Exposure Control Plan.

.5 Material Safety Data Sheets (MSDS) for regulated products used on the project.

.6 Canadian Standards Association CSA Z-190 “Selection, Care and Use of Respirators”.

1.4 Work

.1 Where Type 1 asbestos control measures are required, they shall be followed and the costs of such shall be included as part of the work.

.2 Type 2 asbestos abatement shall be performed by the Trade Contractors, follow all appropriate type 2 asbestos protocols and all work shall be included as part of the work.

.3 Type 3 asbestos abatement shall be performed by the Trade Contractor or specialist Subonctractor, follow all appropriate type 3 asbestos protocols and all work shall be included as part of the work.

.4 For Type 2 and Type 3 work performed, indicate the Asbestos Contractor in Section 00 43 00 of the Tender Submission.

1.5 Existing Conditions

.1 A current copy of all of the Building Asbestos Reports has been included as part in this specification enclosed for the relevant buildings and areas of work.

1.6 Procedures and Requirements

.1 The disturbance or handling of asbestos materials must be conducted following Type 1, Type 2 or Type 3 operation in accordance with procedures as defined by the Workers’ Compensation Board of Nova Scotia as well as Nova Scotia Regulations and Statutes and Owner guidelines.

.2 The ESCo and the Consultant must be notified prior to any disturbance, removal, handling and disposal of asbestos containing materials in addition to those materials.

.3 A copy of the site specific work procedures intended for use on this Project must also be submitted to the Project Safety Representative and the ESCo, with the NOPA. The schedule anticipated for asbestos work must be included with the Bid.

.4 Asbestos containing materials may have to be disturbed to facilitate the installation of new components or the modification of existing components as outlined within these specifications and drawings. Where available, existing asbestos condition audit reports have been provided in this specification section. These reports describe the type of asbestos containing material within a building including its known location and the risk level appropriate for the nature of the disturbance.

.5 The ESCo and the Consultant, must be notified prior to any disturbance, removal, handling and disposal of asbestos containing materials including ceilings with asbestos texture cost, asbestos acoustic tiles and walls with asbestos drywall compound (confirmed, suspected or unknown) in addition to those materials.

PART 2 - DESCRIPTION OF WORK

2.1 General

.1 The work specified herein shall be the disturbance, removal, handling and disposal of known asbestos-containing materials by competent persons trained, knowledgeable and qualified in Type 1, 2 & 3 work procedures. Asbestos Contactor is responsible to train its workers to meet qualification requirements when working with the Type 1, 2 & 3 situations.

.2 Any worker deemed by the Owner, Consultant or ESCo in their absolute discretion to be inadequately trained or unfit to perform their duties will be removed from the project.

.3 All platforms used to access the asbestos materials will be constructed or used in accordance with the requirements of Regulations and the applicable CSA Standard.

.4 All necessary documentation will be the responsibility of the Asbestos Contractor.

.5 The health and safety of all tradesmen in the areas affected during asbestos work will be the sole responsibility of the Trade Contractor, and should the Asbestos Contractor require the assistance of any other trade during the removal, he will provide all necessary equipment and training required to these trades.

.6 The Asbestos Contractor will assume total responsibility for the erection and maintenance of all signs and the integrity of all enclosures and barriers related to the asbestos work.

.7 The Asbestos Contractor will provide all necessary labour, materials, insurance, permits and equipment necessary to carry out the work in accordance with all applicable regulations and this documentation.

.8 The Asbestos Contractor will provide all necessary labour to secure the required utilities for all asbestos work.

.9 If any asbestos containing materials not mentioned herein are to be impacted by the scheduled work, the Trade Contractor is to receive direction from the ESCo.

.10 In order to perform Asbestos abatements all contractors must have their documentation on Site and available at all times for review by the Consultant, ESCo and Site Safety coordinator. All documents must be received at least 24 hours prior to work commencing. Special consideration may only be given to emergency abatement actions.

.11 All air monitoring and inspections will be conducted by a qualified Occupational Health & Safety (O H & S) consultant (where required).

.12 The Occupational Health and Safety (O H & S) consultant will be commissioned by the Construction Manager and paid by the Asbestos Contractor.

.13 The O H & S consultant will have full access to all documentation.

.14 The Asbestos Contractor will not demobilize from an area of removal until the O H & S consultant has inspected the completed area.

.15 The Asbestos Contractor will not begin work in a new area without informing the O H & S consultant in writing.

.16 All HEPA vacuums and negative-air units to be used on the Project are to be D.O.P. (dioctyl phthalate) tested at the beginning of the work, and at the discretion of the O H & S consultant.

PART 3 - WASTE HANDLING AND DISPOSAL

3.1 General

.1 Disposal of all asbestos waste will be performed in accordance with Nova Scotia Regulations.

.2 The Owner will provide a waste generator number that must appear on all waste transfer manifests, if required.

END OF SECTION 02 82 00

TECHNICAL SPECIFICATIONS

PART 1 GENERAL

1.1 References

.1 Comply with the Bidding Instructions and all documents referred to therein.

.2 Comply with Division 1.

.3 Comply with Warranty Section 01 99 00.

1.2 Application

.1 This Section applies to and is a part of all Sections of Division 26.

1.3 Definitions

.2 Wherever the term "install" (and tenses of "install") is used it means install and connect complete.

.3 Wherever the term "supply" is used it means supply only.

.4 Wherever the term "Provide" is used in relationship to equipment, lamps, retrofit kits etc., in this Division, it means "Supply, Install and Connect"

.5 Whenever "Drawings and Specifications" are referred to herein, it means "the Agreement Documents".

.6 Wherever the terms "Authorities" or "Authorities having jurisdiction" are used in this Division, they shall mean any and all current laws and/or by-laws of any federal, provincial or local authorised agencies having jurisdiction over the sum total or parts of the work including, but not restricted to the Municipal Planning and Building Department, Municipal Fire Department, The Construction Safety Act, Municipal Public Works Department, Federal and/or Provincial Fire Marshall, the Canadian Electrical Code with Quebec Supplement with the Quebec Building Code.

.7 Wherever the term "Work" is used in this Division it means all equipment, permits, materials and labour to provide a complete electrical installation as required and detailed in the Drawings and Specifications.

1.4 Work Included

.1 Sections of Division 26 are not intended to delegate functions nor to delegate work and supply to any specific trade and the Work shall include all labour, materials, equipment and tools required for a complete and working installation as described, but not necessarily limited to items in the following Sections:

Section 26 05 00	Electrical General Requirements
Section 26 05 01	Electrical Basic Materials and Methods
Section 26 09 25	Occupancy Sensors
Section 26 50 00	Lighting

.2 The Work of Division 26 is summarised as follows:

.3 Lighting Retrofit: Perform all electrical work associated with the conversion of existing lighting systems to energy efficient technologies:

.4 Generally, the retrofit will comprise the removal of existing lamps and ballasts and replacement with electronic ballasts and T8 lamps. In some instances, new fixtures will be installed.

.5 White reflectors and re-centring kits will be required as part of some retrofits.

.6 Incandescent fixtures will be retrofitted with new LED fixtures or screw in LED replacement lamps.

.7 Existing incandescent exit signs will be retrofit to LED sources.

.8 Installation of occupancy sensors as required.

.9 Replacement of gymnasium or auditorium high intensity discharge lighting with new fixtures using either T5HO or T8 lighting

.10 Replacement pole mounted exterior lighting with LED. Existing poles to be utilized with new fixture head.

.11 Supply of Material

.12 Most major material supplied by Owner / ESCo. Coordinate pick-up of materials available through the ESCo. Refer to Appendix D for quantities of product supplied by Owner/ESCo and for those requiring supply by Trade Contractor.

1. Material stored at Focus Logistics by Guillevin International Inc.
2. Allow for one (1) delivery only of Owner / ESCo supplied material. Contractor is responsible for arranging one (1) complete pick up from Guillevin International in its entirety.
3. Provide on-site storage (e.g. trailer, sea-container etc.) to house all purchased and provided material.
4. Upon receipt of material, assume all warranty responsibilities for material purchased and supplied by Owner/ESCo.
5. Trade Contractor to examine the material available and provide additional material to provide complete work.
6. Trade Contractor to thoroughly examine material and assume responsibility of material picked up from Guillevin International. Once material is received, Contractor is responsible for replacing any broken or damaged product.

.13 The Trade Contractor shall clean the interior surfaces of all fixtures as per item 1.13.

.14 The Trade Contractor is responsible for removing all tar residue found in the ballast covers of any fixtures to be retrofitted. At the Trade Contractor's discretion the ballast cover may be replaced at the Trade Contractor's cost with a new unit of equivalent construction in lieu of cleaning.

.15 The Trade Contractor shall, when performing fixture retrofits in which the number of lamps are being reduced, re-centre remaining lamp sockets using a Consultant approved kit. Where knockouts in the existing fixture housing allow for the symmetrical mounting of lamps, this method of re-centering will be deemed acceptable. In low traffic areas, where leaving lamp sockets in existing positions will not adversely affect the appearance of the space, the Trade Contractor may appeal to the Consultant to relieve the Trade Contractor of the requirement to re-centre fixtures in this area only.

.16 The Trade Contractor shall be responsible for replacing any cracked or broken lamp sockets with new sockets during the course of the retrofit.

.17 The Trade Contractor shall visit each building prior to ordering materials to assess the individual requirement of all areas.

.18 The Trade Contractor shall be responsible for identifying and safely storing any replaced ballasts containing PCBs. Storage shall be performed in accordance with the practices outlined in Item 1.19 of this Section. Trade Contractor must have written procedures on site for handling PCB ballasts and communicate these procedures to all employees and Sub-Contractors that will be handling PCB ballasts. (Refer to Section 00 43 00 Separate Price 1.9.1 for per ballast pricing).

.19 The Trade Contractor shall be responsible for the removal of all garbage from site associated with their work. Trade Contractor responsible for removal of lamps and non PCB Ballasts. Fluorescent lamps shall be packaged and made ready in accordance with the practices outlined in Item 1.20 of this Section.

.20 Trade Contractor shall be responsible for transporting all lamps and old fixtures to a central location for Recycling pickup. Trade Contractor to recycle all lamps and provide certificate of recycling to ESCo.

.21 The areas of work as well as the redesigned areas have been detailed in the Appendices.

.22 Comply with grounding requirements outlined in Division 26.

.23 Submit on a weekly basis an updated as-built record in an electronic format (Excel or Access) of the Lighting retrofitted to date, compared to the specification documents. The as-built record shall be submitted on Monday and be up-to-date to the previous Friday.

.24 The provision of a full-time Site Supervisor who shall attend meetings, coordinate access to spaces and other duties as outlined in Section 01 31 00 and Section 01 11 00. The Site Supervisor shall also have qualifications as outlined in Section 01 35 29.

.25 Perform M&V related spot testing as outlined in Section 01 78 01.

.26 Preconstruction audit as outlined in Section 01 32 00.

.27 Where a retrofit is performed in an existing luminaire, a special instruction by a recognized inspection body shall be supplied. The special inspection shall be in conformance with the Nova Scotia Labour and Advanced Education electrical bulletin 2011-05 Revision 2, January 2012.

1.5 Examination Of Site And Documentation

.1 Prior to submitting tender, review in general the buildings as to their location and the work planned as outlined in the contract documents.

.2 Ensure that materials and equipment are delivered to the site at the proper time and in such assemblies and sizes so as to enter into the building and to be moved into the spaces where they are to be located without difficulty.

.3 Review the documents that list the existing ceiling elevations as well as any areas that have been noted during the initial site review during the tender period.

.4 Visit and inspect the site of the work to verify location and elevation of existing services which may affect the Tender and Work of this Division (electrical, equipment, ductwork, piping, structure, etc.)

.5 A conducted site tour of the facilities will be scheduled by the Consultant. Refer to Section 00 20 00.

1.6 Shop Drawings

.1 Refer to Section 01 33 00 for Shop Drawing Requirements.

.2 Submit shop drawings for items and equipment specified in sections of Division 26.

.3 Present a schedule of shop drawings not later than two weeks after the award of the Contract, indicating drawing submission and equipment delivery dates.

.4 In addition to project identification, data, etc. the form of stamp used in drawing review will contain the following:

Drawing:	Reviewed	( )
	Reviewed as modified	( )
	Revise and Resubmit	( )
	Not reviewed	( )

This stamp will be applied by the Consultant to each and every shop drawing.

.5 This review by the Consultant is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that the Consultant approved the detail design inherent in the shop drawings, responsibility for which shall remain with the Trade Contractor submitting same, and such review shall not relieve the Trade Contractor of their responsibility for errors or omissions in the shop drawings or of their responsibility for meeting all requirements of the contract documents. The Trade Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of the work of all sub-trades as well as compliance with codes and inspection authorities such as CSA and/or ULC

.6 For equipment Trade Contractor shall provide performance, physical and operating data as described in the specifications and listed in equipment schedules.

.7 Identify the equipment by system name and number used in the Retrofit Summary Table e.g. "use the code 1421 and not the 1'x4' with 2 T12 lamps and electromagnetic ballast."

.8 Bind one complete set of checked shop drawings in each operating and maintenance instruction manual.

1.7 Product Standards And Alternatives

.1 Refer to Section 01 20 00.

1.8 Patents

.1 Pay all royalties and licence fees, and defend all suits or claims for infringement of any patent rights, and save the Owner, ESCo and Consultant harmless of loss or annoyance on account of

suit, or claims of any kind for violation or infringement of any letters, patent or patent rights, by this Trade Contractor or anyone directly or indirectly employed by him or by reason of the use by him or them of any part, machine, manufacture or composition of matter on the work, in violation or infringement or such letters, patent or rights.

1.9 Expediting

.1 Continuously check and expedite delivery of equipment and materials. If necessary, inspect at the source of manufacture.

.2 Continuously check and expedite the flow of necessary information to and from all parties involved.

.3 Immediately inform the ESCo or Consultant in case information is required from them.

.4 Provide delivery records updated monthly.

1.10 Work In Existing Buildings

.1 Refer to Section 01 14 00 for access to facilities.

.2 Where existing services such as electrical power, mechanical systems, life safety, fire alarm system, television system and security are required to be disrupted and/or shut-down, Supervisor to co-ordinate the shut-downs with the Construction Manager and HRSB Project Coordinator and carry out the work at a time and in a manner acceptable to them. Carefully schedule all disruption and/or shut-downs and ensure that the duration of same is kept to the absolute minimum. Submit for approval a written, concise schedule of each disruption at least 48 hours in advance of performing work and obtain the Construction Manager's and HRSB Project Coordinator's written consent prior to implementing.

.3 Where disruptions of life safety systems are required, provide continuous monitoring during shut-down period and ensure all systems are reactivated prior to leaving the site at the end of each working day.

.4 Should any temporary connections be required to maintain services during work in the existing building, supply and install all necessary material and equipment and provide all labour at no extra cost. Should any existing system be damaged, make full repairs without extra cost, and to the satisfaction of the Consultant and the ESCo.

1.11 Superintendence

.1 Trade Contractor to designate a prime contact to be resident on the job site during the term of construction.

.2 The supervising personnel and their qualifications are subject to the approval of the Construction Manager.

.3 Maintain at the job site, at all times, qualified personnel and supporting staff, with proven experience in erecting, supervising, testing and adjusting projects of comparable nature and complexity.

.4 Refer to Section 01 11 00 and 01 31 00.

.5 Supervisor to be attendant at the place of work between the hours of 7:30 a.m. to 5:00 p.m. Monday-Friday as a minimum.

1.12 Trial Usage And Tests

.1 The Construction Manager and Owner have the privilege of the trial usage of electrical systems or parts thereof for the purpose of testing and learning the operational procedures.

.2 Assist in trial usage over a length of time as deemed reasonable by the ESCO and Consultant at no extra cost and do not waive any responsibility because of trial usage.

.3 Trial usage shall not be construed as Acceptance or Substantial Completion of the Work.

.4 Provide and pay for all testing required on the system components where, in the opinion of the Consultant, manufacturer's ratings or specified performance is not being achieved.

1.13 Cleaning

.1 Refer to Section 01 74 11 for cleaning requirements during and at the completion of the Work.

.2 The Trade Contractor shall clean the interior surfaces of all fixtures being retrofitted using a

damp cloth, and clean the diffuser/lens of such fixtures to remove dust, residue and finger prints.

1.14 Completion

.1 Leave electrical work in specified working order.

1.15 Warranties

.1 Provide warranty certificates, wherever given or required, as specified in Section 01 99 00 showing the name of the firm giving the warranty, dated and acknowledged, on specific equipment and systems.

1.16 Instruction To Owner

.1 Instruct the Owner's representatives in all aspects of the operation of systems and equipment.

.2 Submit to the Consultant at the time of final inspection a complete list of systems stating for each system:

.1 Date instructions were given to the Owner's staff.

.2 Duration of instruction.

.3 Name of persons instructed.

.4 Other parties present (manufacturer's representative, consultants, etc.).

.5 Signature of the Owner's staff stating that they properly understood the system installation, operation and maintenance requirements.

1.17 Documentation And Systems Acceptance

.1 Refer to Section 01 77 00 and 01 78 00for close out documentation.

.2 Assemble four copies and four electronic copies of operating and instruction manuals in three ring binders with index tabs each containing this Trade Contractor's, Subcontractors and suppliers names and telephone numbers.

.3 Each manual shall contain the following data:

.1 Letters of Project Managers Instructions (Refer to Section 1.16);

.2 Final Inspection Authority Certificate;

.3 A copy of each "reviewed" shop drawing;

.4 Complete explanation of operation principles and sequences;

.5 Complete part lists with numbers;

.6 Recommended maintenance practices and precautions;

.7 Complete wiring and connections diagrams;

.8 Certificate of warranty.

.9 Recycling and disposal certificate

.4 Ensure that operating and maintenance instructions are specific and apply to the models and types of equipment provided.

.5 Provide As-Built Records during the course of the retrofit according to the Sample Form provided in Appendix E. Trade Contractor to use such to accurately record all deviations, including but not limited to changes in location, quantity, and fixture types, from original Room by Room Lighting Retrofit Summary - Appendix C. Identify all lighting fixtures and burnouts in As-Built Records according to nomenclature used in Appendix C.

.1 On a bi-weekly basis provide an electronic database in either Microsoft Office Excel or Microsoft Office Access with the information listed in Appendix C, for review.

.2 Warranty dates shall also be listed in this database.

1.18 PCB Ballast Removal & Disposal

.1 Trade Contractor to co-ordinate removal, sorting and labelling of PCBs with Site Safety Representative as arranged by the ESCo and Construction Manager. The cost per ballast indicated in Section 00 43 00 shall be for the addition or deletion of ballasts. (Refer to Section 00 43 00 Itemized Price 1.10.2 for more information).

.2 Identify and sort all ballasts removed during the work which contain PCB contaminants.

.3 Disconnect and remove ballasts containing PCBs as herein after specified and detailed.

.4 Clip and store the PCB ballasts on site in a location within the building.

1.19 Removal Of Lamps

.1 Trade Contractor to package lamps containing mercury which are removed as part of the lighting retrofit in suitable cartons.

.2 Removed lamps should be packaged and stored in a central location approved by the ESCO and Owner until shipping to the on recycling company can be facilitated. Cartons must be closed with no exposed lamp ends. There must be no tape or adhesive used to hold the lamps together (inside the cartons). Cartons shall be placed on pallets in a criss-cross pattern.

.3 For the purpose of the tender, assume all lamps to be removed and recycled off site. The total quantity of lamps is 5,264 equivalent 4' lamps.

.4 Trade Contractor to provide certificate of recycling upon completion.

1.20 Co-Ordination And Co-Operation

.1 The Trade Contractor shall co-ordinate the work. Under no circumstances will any claim for extra cost be allowed due to the failure to co-ordinate work.

1.21 Examination

.1 No claim for extra work or expense will be considered due to failure to examine existing surfaces and conditions and previous work, performed either under this Contract or other separate contracts, and conditions upon which any work depends for satisfactory execution.

1.22 Workmanship

.1 Carry out all portions of the Work by skilled and experienced tradespersons employed by a firm having a record of satisfactory completion of similar work.

.2 Workmanship shall be of highest quality in accordance with best standard practice for type of work specified.

1.23 Protection Of Existing Utilities And Services

.1 Where work involves breaking into or connecting to existing utilities and services, carry out work as detailed in section 01 14 00.

1.24 Employee Control

.1 Workers to confine themselves to areas only where their work is carried out.

1.25 Fastenings

.1 Provide all fastenings, anchors and accessories and adhesives required for fabrication and erection of the Work in accordance with installation instructions and to good practice.

.2 Anchoring and fastening devices or adhesive to be of appropriate type and be used in sufficient quantity and manner to provide safe, positive and permanent anchorage.

.3 Provide exposed metal fastenings and accessories in aesthetically sensitive areas to acceptance of Consultant.

.4 Metal fastenings to be of the same materials as the metal component they are anchoring or of a metal which will not set up an electrolytic action. In general, anchors occurring on or in concrete and masonry to be non corroding.

.5 Provide neoprene or nylon washers between fasteners and fastened metal components unless fasteners and components are of the same material.

.6 Keep exposed fastenings to a minimum, evenly spaced and neatly laid out.

.7 Supply adequate instructions and templates and supervise installation where fastenings or accessories are required to be built into work of other trades.

.8 Fastenings to be of permanent type. Wood plugs not permitted.

.9 Fastening which cause spalling or cracking are not permitted.

.10 Except where specified, do not use powder actuated fastening devices on any part of this work without written acceptance of Consultant. Take particularly stringent safety precautions when permitted to use powder actuated fastenings.

1.26 Storage Of Materials And Equipment

.1 Refer to Section 01 52 00.

1.27 Electrical List Of Manufacturers, Subtrades And Prices

.1 As indicated with the Bid Submission according to Sections 00 43 00.

1.28 Cutting, Patching & Remedial Work

.1 Be responsible for any cutting and patching involved in getting assemblies into place.

.2 Refer to Section 01 73 00.

.3 Provide finishes to the satisfaction of the Consultant.

.4 Provide new ceiling tiles where called for, or to replace any that may be broken or damaged as part of the Work. New ceiling tiles to be Armstrong – Georgian 763. Refer to Appendix A.

.5 Where ceiling tile can not be matched within a room, the Trade Contractor to replace all the ceiling tiles within an enclosed area (office, storage room, etc.) and use these harvested ceiling tiles to replace tiles damaged in the general areas.

1.29 Grounding

.1 New Ground wire is required to replace the mechanical bond when;

.1 The existing mechanical bond or ground wire is in poor condition,

.2 Installing a new light fixture,

.3 When installing an occupancy sensor or a new switch, the grounding wire shall run from the junction box to the switch or relay pack for the occupancy sensor if the junction box is reasonably accessible. Should the junction box not be accessible and the existing mechanical ground is in good condition, a new conductor is not required.

.4 In all cases, detailed above (1-3), should the junction box be inaccessible the existing mechanical bonding will be accepted.

.2 A new Grounding Conductor is not required to be installed from the junction box to the fixture when;

.1 Retrofitting a fixture with a lamp and ballast change.

.2 Retrofitting a fixture with a re-centering kit and reflector.

.3 Sharing a ballast between two fixtures that are located end to end.

.3 Grounding Conductor in a fixture is required;

.1 When retrofitting fixtures that are connected end to end. A new ground wire must be installed between the two fixtures and a chase nipple (grommet) installed.

1.30 Lense Replacement

.1 Replace lenses from as directed by the Construction Manager or the Consultant.

.2 New lenses shall match existing lenses.

1.31 Pre-Construction Audit

.1 Refer to Section 01 32 00.

End of Section 26 05 00

PART 1 – GENERAL

1.1 Work Included

.1 Comply with the Bidding Instructions and all documents referred to therein.

.2 Comply with requirements of Section 26 05 00 Electrical General Requirements.

.3 Supply all labour, tools, services and equipment and provide all the materials required to complete this section of the work.

.4 All new installations and retrofits must comply with all codes and standards described in Division 1 including but not limited to fixture installation and fixture labelling.

1.2 Quality Assurance

.1 All components shall be CSA and/or ULC approved listed and labelled.

.2 All new fixture installations and fixture retrofits must be as per manufacturer's recommended installation procedures and specifications.

PART 2 – PRODUCTS

2.1 Conduit

.1 EMT (Thinwall), to CSA C22.2 No. 83, complete with factory made bends where site bending is not possible and joints and terminations made with set screw type connectors, concrete tight where required, maximum allowable size shall be 50 mm diameter.

.2 Galvanised steel flexible metallic conduit to CSA C22.2 No. 56, complete with suitable type connectors at terminations.

.3 Conduit racks shall be Unistrut Ltd., Electrovert Ltd., "Cantruss", Burndy Ltd., "Flexible" or equivalent.

2.2 Branch Circuit Conductors

.1 "TWH" single conductor to CSA C22.2 No. 75, colour coded, 90C rated, with approved manufactured connectors at joints.

.2 Flexible armoured cable, CSA type "AC 90" to CSA C22.2 No. 51, complete with proper squeeze type connectors and plastic anti short bushings at terminations.

.1 Conductors: Copper with low temperature Exelene insulation.

.2 Type: AC90 assembly under armour.

.3 Armour: Interlocking type fabricated from aluminum strip.

.4 Minimum size of conductors shall be #12.

.3 Branch circuit conductors up to and including #12 AWG shall be solid. Branch circuit conductors in sizes larger than #12 AWG shall be stranded. All branch circuit conductors shall be constructed of 98% conductive copper, unless otherwise noted, and shall be approved for 600 volts.

.4 Minimum size of branch circuit conductors shall be #12 AWG.

.5 Branch circuit conductors supplying HID fixtures with higher rated insulation value shall match the rated circuit conductors to the fixtures.

PART 3 – EXECUTION

3.1 Workmanship

.1 Install equipment and cables in a workmanlike manner to present a neat appearance and to function properly to the satisfaction of the Consultant. Install runs parallel and perpendicular above ceilings, where such concealment is possible. In areas where systems are to be exposed install neatly and group to present a tidy appearance.

.2 Install equipment and apparatus requiring maintenance, adjustment or eventual replacement with due allowance therefore.

.3 Include in the work all requirements of manufacturers shown on the shop drawings or manufacturers installation instructions.

.4 Replace work unsatisfactory to the Consultant without extra cost.

.5 Protect from damage all equipment delivered to the site and during installation. Any damage or marking of finished surfaces shall be made good to the satisfaction of the Consultant.

.6 Where new fixtures are cable mounted through the tbar ceiling, contractor to install a grommet or escutcheon around the perforation where the aircraft cable penetrates the acoustic ceiling tile

3.2 General Conduit and Conductor Installation Requirements

.1 Install conduit and conductors concealed in all finished areas, and concealed to the degree made possible by finishes in partially finished and unfinished areas. Conduit may be exposed in unfinished areas such as Electrical Rooms and Mechanical Rooms, unless otherwise noted on the drawings or specified herein. Refer to and examine the architectural drawings and room finish schedules to determine finished, partially finished and unfinished areas of the building.

.2 Where conduit and/or conductors are exposed, arrange same to avoid interference with other work and parallel to the building lines. Where horizontal conduits and/or conductors are exposed, install as high as possible. Do not install conduit and/or conductors within 150 mm of "hot" pipes or equipment unless the conduit and/or conductors are associated with the equipment.

3.3 Installation of Conduit

.1 Provide conduit for all exposed electric service distribution and branch circuit conductors, where required, except in applications where armoured cable is provided.

.2 Provide a separate ground conductor in all plastic and EMT conduit.

.3 Support and secure surface mounted and suspended single or double runs of metal conduit at support spacing in accordance with "Canadian Electrical Code" requirements by means of galvanised pipe straps, conduit clips, ring bolt type hangers, or by other manufactured devices. Support multiple mixed size metal conduit runs with conduit racks spaced to suit spacing requirements of the smallest conduit in the group.

.4 Install conduit parallel or perpendicular to building lines.

.5 Conduit shall be sized in accordance with the latest edition of the Canadian Electrical Code. Note that the sizes of branch circuit conductors scheduled and/or specified on the drawings are minimum sizes and must be increased as required to suit length of run and voltage drop in accordance with the Canadian Electrical Code. Where conductor sizes are increased to suit voltage drop requirements, increase the scheduled or specified conduit size to suit.

.6 Conduit fittings shall be, unless otherwise noted, constructed of the same material as the conduit and suitable in all respects for the application.

.7 Provide proper adapters for joining conduits of different materials.

.8 Ends of all site cut conduit must be square and properly reamed.

.9 Electrical conductors supplying all equipment connected to a source of emergency supply shall be installed in service spaces that do not contain other combustible material or shall be protected against exposure to fire as allowed by the Building Code.

3.4 Installation of Branch Circuit Conductors

.1 Provide all required branch circuit conductors.

.2 Conductors for branch circuit work inside the building and above ground, except as noted below, shall be as specified in Article #2.02 Item .1 above.

.3 Conductors for branch circuit lighting work (fixture tails) in accessible ceiling spaces, maximum length 1500 mm, and branch circuit work in cavity wall construction from wiring devices to ceiling spaces, maximum length 6m, shall be as specified in Article #2.02, Item .3 above.

.1 Install flexible armoured cable between fixtures where required. However, armoured cable should only be installed in drops and should not be used for general distribution. Armoured cable will be allowed between tandem wired fixtures, but in no case should it rest on suspended ceiling tiles.

.2 Install flexible armoured cables from ballast boxes to light fixtures where required.

.3 Install flexible armoured cables neatly and true to building lines.

.4 Branch circuit conductor sizes are scheduled and/or specified on the drawings. Such sizes are minimum requirements and must be increased, where required, to suit the length of run and voltage drop.

.5 Do not use conductors smaller than #12 AWG in systems over 30 volts, unless otherwise noted.

.6 Use lubricant when pulling wires into conduit. Ensure that wires are kept straight and are not twisted or abraded.

.7 Neatly secure exposed wire in apparatus enclosures with approved supports or ties.

.8 Splicing of all conductors shall be done with Ideal Wing nut #450 Series for conductors from #14 AWG to #8 AWG.

.9 For all conductors larger than #8 AWG. splicing shall be done with Burndy Serut connectors wrapped with 3 m #33 Scotch tape.

.10 Joints in all conductors shall be kept to a minimum and all conductors shall be installed in continuous unbroken runs.

End of Section 26 05 01

PART 1 - GENERAL

1.1 References

.1 Comply with the Bidding Instructions and all documents referred to therein.

.2 Comply with requirements of Section 26 05 00 Electrical General Requirements and Section 26 05 01 Basic Materials and Methods and all other documents referred to therein.

1.2 Work Included

.1 Supply and install occupancy sensors, power pack and all ancillary equipment and devices for a complete installation, as required by the contract documents (See Appendix D).

PART 2 - PRODUCTS

2.1 Occupancy Sensors and Power Packs

.1 Occupancy Sensors

.1 Occupancy lighting controls from the following manufactures are acceptable. The listing of any manufacturer as "acceptable" does not imply automatic approval. It is the sole responsibility of the contractor to ensure that any price quotations received and submittals made are for sensors which meet or exceed the specifications included herein

.1 Wattstopper
.2 Sensor Switch
.3 Hubbell
.4 Levition
.5 Lutron

.1 Dual technology sensors shall

.1 Be either corner mounted or ceiling mounted in such a way as to minimize coverage in unwanted areas.

.2 Use passive infrared and ultrasonic technologies for occupancy detection. Products that react to noise or ambient sound shall not be considered

.3 The contractor shall install one or more sensors with PIR coverage areas that cover the entire space and all entrance points. Exact placement and quantity required shall be per manufacturer's best practice recommendations.

.4 Ceiling and wall-mounted, dual technology sensors shall utilize a digital PIR detector (dual element pyro-electric detector) component, so as to provide a high degree of RF immunity.

.5 Sensors shall interconnect with other sensors and power/relay packs with class 2, three-conductor wire.

.6 Sensors shall operate on 12 to 24 VAC or VDC.

.7 Upon initial power up, sensors must immediately turn on. Power packs may be wired on the line or load side of local switching and must not exhibit any delays when switch is energized.

.8 Sensors shall have test mode that temporarily shortens/disable all time delays (e.g., minimum on, occupancy, photocell transition, dimming rates) such that an installer can quickly test operation of sensor. Test mode shall time out and return sensor to normal operation should the installer forget to disable test mode after installation.

.9 Power packs shall accept and switch 120 or 347 VAC, be plenum rated, and provide class 2 power for sensors.

.10 Power pack shall securely mount to junction box location through a threaded 16 mm chase nipple. Plastic clips into junction box shall not be accepted. All class 1 wiring shall pass through chase nipple into adjacent junction box without any exposure of wire leads.

.11 Power pack shall incorporate a Class 1 relay and an AC electronic switching device. The AC electronic switching device shall make and break the load, while the relay shall carry the current in the on condition. This system shall provide full 20 Amp switching of all load types, and be rated for 400,000 cycles.

.12 Power packs shall be single circuit, or two circuits. Slave packs may be used to control additional circuits. When two circuit power packs, or slave packs are used, the power packs must be wired directly to circuit breaker. Otherwise, power packs may be wired on the line or load side of the local switch.

.13 Where an occupancy sensor is to be installed in a room with exterior windows or skylights, sensor shall include a photocell. Contractor to verify using drawings provided in Appendix F and line by line detail in Appendix C..

PART 3 - EXECUTION

3.1 Installation

.1 It shall be the Trade Contractor's responsibility to locate and aim sensory in the correct location required for complete and proper volumetric coverage within the range of coverage(s) of controlled areas per the manufacturer's recommendations. Room shall have ninety (90) to one hundred (100) percent coverage to completely cover the controlled area to accommodate all occupancy habits of single or multiple occupants at any location within the room(s). The locations and quantities of sensors shown on the drawings are diagrammatic and indicate only the rooms which are to be provided with sensors. The Trade Contractor shall provide additional sensors if required to properly and completely cover the respective room.

.2 It is the Trade Contractor's responsibility to arrange a pre-installation meeting with the manufacturer's factory authorized representative, at the owner's facility, to verify placement of sensors and installation criteria. A signed letter from the manufacturer representative, stating a pre-installation site visit was completed, must accompany all shop drawings.

.3 Proper judgement must be exercised in executing the installation so as to ensure the best possible installation in the available space and to overcome local difficulties due to space limitations or interference of structural components. The Trade Contractor shall also provide, at the owner's facility, the training necessary to familiarize the owner's personnel with the operation, use, adjustment and problem solving diagnosis of the occupancy sensing devices and systems.

.4 Mount I/O Module to electrical box via ½ inch knockout. Module is inserted from the outside. Secure retainer nut before wiring unit.

.5 Sensor should be mounted through ceiling tile to electrical junction box through appropriately sized knockout.

.6 One (1) I/O Module shall be installed per each sensor included in the system. Parallel wiring of sensors is not permitted.

.7 I/O Module wiring to sensors:

i. I/O Module black wire leads are not used in this application and should be properly isolated.

ii. I/O Module purple, grey and orange wires (Class II, low voltage) to be connected to sensor "+","common/-", and "signal" wires, respectively. Verify with sensor manufacturer specification prior to connection.

.8 Refer to sensor manufacturer's specification for product specific information.

.9 Sensors installed in finished areas shall be mounted to finished ceiling, feed sensor through finished ceiling to an outlet box supported from structural system.

.10 Sensors installed in open ceiling areas such as gymnasiums and utility rooms shall be mounted

to a junction box mounted to a new construct which shall be secured to the underside of structural members.

.11 Wire existing switches in series with sensors, all existing switches shall be powered from the secondary side of the power pack. Switch must control the lighting load not the power pack.

.12 Contractor to utilize the light level function on the sensor in areas where ambient light is present.

.13 Wall mounted sensors shall be fastened to wall with manufacturers recommended bracket. Mount sensor 8" from ceiling unless noted otherwise.

.14 Mount switch sensor in existing switch box. Remove existing switch and reuse existing wiring wherever possible. Ensure sensor is compatible to existing voltage for a full and complete working system.

.15 Extend hot wire as required for sensors power packs, wiring to match existing. Extend hot wire to sensors with built in power packs.

.16 Provide power pack quantities as required to meet manufacturers recommendations.

.17 Ceiling mounted ultrasonic sensors shall not be installed within 1.2m of an air supply diffuser.

3.2 Factory Commissioning

.1 **Upon completion of the installation, the system shall be completely commissioned by the manufacturer's factory authorized technician** who will verify all adjustments and sensor placement to ensure a trouble-free occupancy-based lighting control system.

.2 The Trade Contractor shall provide both the manufacturer and the Consultant with ten working days written notice of the scheduled commissioning date. Upon completion of the system fine tuning the factory authorized technician shall provide the proper training to the owner's personnel in the adjustment and maintenance of the sensors.

.3 A signed letter from the factory authorized technician must be provided, stating the date of the training, and the names of the personnel who were present and received training.

.4 Refer to Section 01 91 13 for Commissioning.

END OF SECTION 26 09 25

PART 1 - GENERAL

1.1 Work Included

.1 Comply with the Bidding Instructions and all documents referred to therein.

.2 Comply with requirements of Section 26 05 00 Electrical General Requirements and Section 26 05 01 Basic Materials and Methods.

.3 Supply all labour, tools, services and equipment and provide all the materials required to complete this section of the work.

.4 Refer to Appendices for Scope of Work.

1.2 Submittals

.1 Submit shop drawings for the following:

- .1 LED Exit Signs
- .2 Linear Fluorescent Fixtures, Lamps, and Ballasts
- .3 Compact Fluorescent Fixtures, Lamps, and Ballasts
- .4 HID Fixtures, Lamps and Ballasts
- .5 Reflectors
- .6 LED Fixtures and lamps

1.3 Quality Assurance

.1 All components shall be CSA and/or ULC approved/listed and labelled.

.2 Warranties:

- .1 See Section 01 99 00 for all warranty information.

1.4 Safety

.1 Under NO circumstances shall work occur on energized circuits.

PART 2 - PRODUCTS

2.1 Ballasts

.1 All fixtures shall be provided with ballasts suitable for the fixture type and application. All ballasts shall comply with CSA standard C22.2 No. 74. Ballasts shall be suitable for use with T8 lamps on 120 volt or 347 volt application as required. The Trade Contractor shall be responsible to ensure that suitable ballasts for the intended retrofit are ordered to site.

.2 All ballasts must have a local means of disconnect such as the Sta-Kon Luminaire Disconnect by Thomas & Betts, or approved equal.

- .1 Premium Linear Electronic Fluorescent Ballasts
  - .1 Frequency of operation shall be 42 kHz or greater. The ballast shall operate without visible flicker
  - .2 Ballasts shall have an A sound rating.
  - .3 Ballasts shall be CSA approved and ULC listed.
  - .4 Ballasts shall comply with NEMA limits governing electromagnetic and radio frequency interference and shall not interfere with operation of other normal electrical equipment.
  - .5 Ballasts shall meet ANSI Spec C62.41 and IEEE standards regarding all applicable transient protection.
  - .6 Total harmonic distortion will be less than 10%.

.7 Minimum ballast factor will be 0.88 for normal light output ballasts. Minimum ballast factor will be 0.78 for reduced light output ballasts. Minimum ballast factor will be 1.20 for high light output ballasts.

.8 Lamp current crest factor shall average 1.4 and shall not exceed 1.7.

.9 Ballasts shall have a power factor of 98% or above.

.10 Ballasts shall be instant start type unless otherwise specified.

.11 Approved Ballast Manufacturer Instant Start

-Osram Quicktronic – QHE

- Advance Ballast – GOP and IOP

- GE Ultramax

2.2 Fluorescent Lamps

.3 Fluorescent lamps shall be F32T8 (28W Energy Savings Lamp) with a minimum CRI of 85 and CCT of 4100K, average life to be 24,000 hours with a maintained lumen output of 2560 lumens. Lamps from the following manufacturers are acceptable:

.1 Osram Sylvania

.2 Philips

.3 GE Lighting

2.3 LED Lamps

.1 LED lamps shall be in of the wattages indicated in Appendix C and have colour temperature as noted in Appendix A. Lamps to have a minimum life of 25,000 hours. Lamps from the following manufacturers are acceptable.

.1 Osram Sylvania

.2 Philips Lighting

.3 G.E. Lighting

.2 LED lamps shall contain integrated drivers.

.3 All LED lamps must be Energy Star Rated.

.4 Refer to Appendix A for additional specifications on LED lamps

2.4 White Reflectors

.1 Material shall be powder coated white on aluminium.

.2 Minimum total reflectivity shall be 90%.

.3 In the case where retrofitted fixture will have greater than 1 T8 lamp; reflectors shall be of a three piece type construction to allow for access to the fixture ballast without having to remove lamps or more than one reflector section.

.4 Trade Contractor must furnish the following information, certified by reflector manufacturer:

.1 Proof that each reflector is custom designed for each given style of fixture.

.2 Formal lighting audit of facility lighting system, to insure that all fixture types, counts, and installation are covered.

.3 "Tool-less" installation, such that reflectors can be removed and reinstalled without any tools.

.5 Prototype reflector installation inspection and approval prior to the execution of the Agreement.

2.5 Fixture Cable

.1 Fixture cable shall be GTF 125°C, 600 volt stranded soft bare copper conductors, thermoplastic insulation, braid of glass of polyester fibres. All cables shall comply with CSA standard- C22.2

#127-1981

2.6 New LED Exit Sign

.1 LED sign exit shall be universal mount, steel case, with universal chevron, CSA-C860 certified, high efficient LED's, red letters.

.2 Exit signs will have self contained battery packs for emergency purposes where necessary (no backup power currently available).

.3 Approved exit sign manufacturers:

.1 Emergi-lite

.2 Lumacell

.3 Beghelli

.4 Stanpro

.4 Trade Contractor to specify manufacturer, warranty, catalogue number referenced in Appendix A.

2.7 New Fixtures

.1 Refer to Appendix A for specification on all new fixture types.

.2 Trade Contractor as part of the Bid Submission to submit Appendix A detailing manufacturer catalogue numbers etc. of fixtures proposed for this project.

.3 All new fixtures to have a means of disconnect at each fixture.

.4 All new wall-mounted exterior fixtures are to be supplied complete with vandal guard.

2.8 Attic Stock

.1 Trade Contractor shall provide Attic Stock, in quantities specified:

Product Description	Attic Stock Quantity
4' T8 Lamps Supplied by Owner	Contractor to deliver one case of Owner supplied lamps from the Owner/ESCo warehouse to each school
Ballasts supplied by Owner/Esco. 1 Lamp, 2 lamp and 4 lamp 120V and 347V Ballasts as applicable per school	Contractor to deliver applicable ballasts of Owner supplied ballasts from the Owner/ESCo warehouse to HRSB's operations facility at the Dartmouth Teachers Centre, 35B Major Street, Dartmouth, NS B2X 1A7 Quantity to be delivered to be calculated as follows: 1% of Total of EACH TYPE (Low Ballast factor/Normal/High Ballast factor)
Ballasts supplied by Contractor. 1 Lamp, 2 lamp and 4 lamp 120V and 347V Ballasts as applicable per school	Contractor to deliver applicable ballasts of Contractor supplied ballasts to HRSB's operations facility at the Dartmouth Teachers Centre, 35B Major Street, Dartmouth, NS B2X 1A7 Quantity to be delivered to be calculated as follows: 1% of Total of EACH TYPE (Low Ballast factor/Normal/High Ballast factor)

.2 Provide Attic Stock of same manufacture and quality as items in work.

.3 Deliver to the site location as indicated by the Construction Manager at the completion of each Building the attic stock. Attic stock shall be sorted per Building, quantified, and details listed in a standard form acceptance sheet, for signoff by the ESCo and Owner. Attic stock may be utilized by Owner's staff as warranty product during warranty period. Trade Contractor to replenish Attic Stock to quantities specified in 2.9.1 immediately following expiration of warranty period.

.4 Receive and catalogue all items. Submit inventory listing to Construction Manager and

Consultant.

PART 3 - EXECUTION

3.1 Description Of Work

.1 Required Materials

.1 All materials required for the intended retrofit will be provided and installed by the Trade Contractor.

.2 The Trade Contractor will be responsible for co-ordinating the delivery of materials to site, unloading the materials at site, and arranging for storage and insurance of such materials upon arrival. It is the responsibility of the Trade Contractor to ensure that all required materials for performing the intended retrofit are delivered to site such that work can be completed expeditiously, and according to the schedule provided by the Trade Contractor.

.3 The Trade Contractor shall warranty the retrofit of materials as specified in Section 01 99 00.

.4 Where a retrofit is performed in an existing luminaire, a special instruction by a recognized inspection body shall be supplied. The special inspection shall be in conformance with the Nova Scotia Labour and Advanced Education electrical bulletin 2011-05 Revision 2, January 2012.

.2 General Lighting Retrofit

.1 The retrofit of lighting fixtures will vary with each room and fixture type.

.2 Generally the work will comprise the removal of fluorescent lamps and the removal of the ballasts within the light fixtures. Replace the ballasts with new electronic ballasts and interconnect the wiring in the light fixture. Clean the interior surfaces of fixture and diffusers/lens as detailed in the specifications. Provide new lamps to the fixture and leave in working order.

.3 The primary intended retrofit includes the use of a four lamp ballast inter-wired between fixtures when fixtures are located end to end. The Trade Contractor shall endeavour to perform this retrofit where specified in Appendix C or where otherwise possible thus maximising the number of four lamp ballasts, minimising the total number of ballasts used on the job, and minimising energy consumption of lighting systems. In circumstances where a four-lamp ballast can not be used, the Trade Contractor will endeavour to use a three lamp ballast, a two lamp ballast and then a single lamp ballast, in this order.

.4 When ballasts are used to regulate lamps in multiple fixtures, fixtures shall be marked as described in Section 3.3.1.4.

.5 In circumstances where the proposed retrofit cannot be performed exactly as specified, the Trade Contractor shall immediately make this known to the Consultant and Construction Manager such that an alternative retrofit can be selected.

.6 In some instances the design calls for white reflectors to be installed in the fixtures to provide increased illumination.

.7 Appendix C lists each room with the corresponding type and number of fixtures to be retrofitted. It also notes the ceiling heights of each room in order for the Trade Contractor to decide what areas are deemed high ceiling.

.8 The description of fixture retrofits, Section 3.3, details the work for each particular fixture.

.9 Improperly grounded electrical wiring encountered during the progress of this Agreement are to be brought to the attention of the ESCo and the Consultant.

.10 In no cases shall reflectors be omitted and additional lamps used in fixtures to “simplify” the installation.

.11 Contractor to verify the compatibility of existing dimmer to ensure the new lamp or luminaire will be in working condition upon completion of lamp or luminaire installation. Verification shall be completed prior to tender close. Should existing dimmer be incompatible, contractor to price and propose replacement with Bid submission.

.12 Contractor to ensure gymnasium floors are protected from damage or markings from the use of a lift. Contractor to lay down plywood or other protective covering to prevent damage.

.13 At MacLeod and St. Agnes, where floating floors are present in the gymnasium, Contractor to build staging to retrofit and replace gymnasium lighting.

3.2 Lighting Spreadsheets

.1 The Room by Room Interior Lighting Retrofit Summary – Appendix C contains counts of the existing fixtures and proposed retrofits. The spreadsheets also contain the ceiling heights of every room.

.2 For the convenience of the bidders, a summary of retrofit quantities is provided in Appendix D – Summary of Total Retrofit Counts. These sheets may be used by the Trade Contractor as a convenience to help in preparing the Bid Price but should not be submitted with the Bid Form and should be verified by the Bidder.

.3 The Room by Room Interior Lighting Retrofit Summary describes the location of fixture retrofits according to the areas shown in Building Floor Plans – Appendix F.

.4 The Trade Contractor shall be responsible for his own material and equipment estimates to suit site conditions.

3.3 Scope and General Guide to the Work

This following description is intended to be a general guide of the work that comprises each retrofit. The exact retrofit must be compatible with each specific fixture type. Instructions apply to retrofits listed in Appendix C.

.1 Perform the Pre Construction Audit as outlined in Section 01 32 00.

.2 Work Included for Retrofit of Fluorescent Fixtures:

.1 Remove the lens and cover plate exposing the ballast interior of the fixture. Remove the existing ballast and check if the ballast is suspect to containing PCBs.

.2 If PCBs are present treat materials in accordance with the guidelines of Section 26 05 00.

.3 Provide and install electronic ballasts as detailed in retrofit fixture descriptions.

.4 When a single ballast is used to regulate lamps in multiple fixtures, the Trade Contractor shall indicate the fixture containing the ballast with a sticker indicating a designation of “Ballasted Fixture”. The Trade Contractor shall also indicate fixtures which do not contain a ballast with a sticker indicating a designation of “Non-Ballasted Fixture”. Stickers shall be approximately ½" x ½" in size, of durable construction, with a self adhesive backing. Trade Contractor to supply samples to the ESCo prior to installation.

.5 Shunt all lamp sockets where instant start ballasts are used.

.6 Supply and install new lamp sockets and connectors where existing are damaged or where required to facilitate the retrofit.

.7 Parallel lamp operation on 2,3,4 lamp fixtures.

.8 Replace cover to the ballast housing. Ballast cover must, at the Trade Contractor’s option, be completely cleaned of any existing tar residue or replaced with a new unit of the same construction to be provided at no extra cost.

.9 Where specified in Appendix C, supply and install a new white reflector to improve the photometric properties of the fixture.

.10 Where specified in Appendix C, supply and install new ceiling tiles to match existing where fixtures are removed as part of the redesign measure.

.11 Clean the interior surfaces of fixtures using a damp cloth, and clean the diffuser/lens to remove dust and residue.

.12 Replace cover and lens.

.13 Provide T8 fluorescent lamps as detailed in each retrofit fixture description.

.14 Test the fixture to ensure proper working order.

.3 Work Included for Installation of New Fluorescent Fixtures:

.1 New fluorescent fixtures will be installed in certain areas to improve appearance, maintenance, and light levels.

.2 Decommission and remove existing fixtures associated with measure as noted in Appendix C.

.3 Removal of existing fixtures shall be performed such as to minimise impact on existing space.

.4 Repair, patch, and repaint surfaces exposed by the removal of fixtures, associated wiring, junction boxes. Paints and finishes to match existing space. Refer to Section 01 35 30.

.5 Provide or modify existing wiring and fixture mounting equipment to accommodate intended installation. Intended mounting for new fixtures is noted in Appendix C.

.6 Provide and install new fixtures complete with lamps, ballasts, reflectors, lenses according to Part 2 of Section 26 50 00.

.7 Provide power to fixtures. Reuse existing circuits where possible. Provide lighting control to permit optimum switching capability as per instructions from Consultant and ESCo.

.8 Clean the fixture and lens as required to remove dirt and dust acquired during installation.

.9 Test the fixture to ensure proper working order.

.4 Work Included for Installation of New Exit Signs:

.1 New exit signs will be installed in certain areas to improve appearance, maintenance, or improve fixture efficiency where existing fixtures are deemed unfit for retrofit.

.2 Decommission and remove existing fixtures associated with measure as noted in Appendix C.

.3 Removal of existing fixtures shall be performed such as to minimise impact on existing space.

.4 Repair, patch, and repaint surfaces exposed by the removal of fixtures, associated wiring, junction boxes. Paints and finishes to match existing space. See Section 01 73 00 – Execution.

.5 Provide or modify existing wiring and fixture mounting equipment to accommodate intended installation. Intended mounting for new fixtures is noted in Appendix C.

.6 Provide and install new fixtures complete with lamps, ballasts, lenses etc. according to specifications of Part 2 of this Section.

.7 Provide power to fixtures. Reuse existing emergency circuits. Install new emergency power packs if no emergency circuits available.

.8 Clean the fixture and lens as required to remove dirt and dust acquired during installation.

.9 Test the fixture to ensure proper working order.

.5 Work Included for Installation of New Interior LED Fixtures:

.1 New LED fixtures will be installed in certain areas to improve appearance, maintenance, and light levels.

.2 Decommission and remove existing fixtures associated with measure as noted in Appendix C.

.3 Removal of existing fixtures shall be performed such as to minimise impact on existing space.

.4 Repair, patch, and repaint surfaces exposed by the removal of fixtures, associated wiring, junction boxes. Where new fixtures are to be installed, adjust opening as required. Paints and finishes to match existing space.

.5 Provide or modify existing wiring and fixture mounting equipment to accommodate intended installation. Intended mounting for new fixtures is noted in Appendix C.

.6 Provide and install new fixtures c/w lamps, ballasts, reflectors, lenses, wire guards etc.

according to specifications of Part 2 of this Section.

.7 Provide power to fixtures. Reuse existing circuits where possible. Provide lighting control to permit optimum switching capability as per instructions from Consultant.

.8 Clean the fixture and lens as required to remove dirt and dust acquired during installation.

.9 Test the fixture to ensure proper working order.

.6 Work Included for Installation of New Exterior LED Fixtures:

.10 New exterior LED fixtures will be installed in certain areas to improve appearance, maintenance, and light levels.

.11 Decommission and remove existing fixtures associated with measure as noted in Appendix C.

.12 Where fixtures are mounted on a pole, existing pole shall be utilized.

.13 Removal of existing fixtures shall be performed such as to minimise impact on existing space.

.14 Repair, patch, and repaint surfaces exposed by the removal of fixtures, associated wiring, junction boxes. Where new fixtures are to be installed, adjust opening as required. Paints and finishes to match existing space.

.15 Provide or modify existing wiring and fixture mounting equipment to accommodate intended installation. Intended mounting for new fixtures is noted in Appendix C.

.16 Provide and install new fixtures c/w lamps, ballasts, reflectors, lenses, wire guards etc. according to specifications of Part 2 of this Section.

.17 Provide power to fixtures. Reuse existing circuits where possible. Provide lighting control to permit optimum switching capability as per instructions from Consultant.

.18 Clean the fixture and lens as required to remove dirt and dust acquired during installation.

.19 Test the fixture to ensure proper working order.

PART 4 - FIXTURE CODES

4.1 Fixture Codes

The following is a description of fixture codes utilised in Appendix C. The codes apply to both existing and retrofit codes. Codes all consist of a "base code" which gives primary information about the fixture (including dimensions, number of lamps and ballasts). Codes may also utilise an "extension code" which gives supplementary information about the fixture or intended retrofit. The Trade Contractor shall obtain clarification from the Consultant immediately upon discovery of any codes or retrofits which are unclear in their intent.

.1 Fluorescent Technology

.20 .Fluorescent fixture base codes are composed of a four digit number.

.21 The first two digits indicate the dimensions of the fixture in feet.

e.g. 1411 denotes a 1'x4' fixture
2442 denotes a 2'x4' fixture

.22 The third digit indicates the number of lamps in each fixture.

e.g. 1411 denotes a fixture with 1 lamp
2442 denotes a fixture with 4 lamps

.23 The fourth digit indicates the number of ballasts required.

e.g. 1411 denotes a fixture with 1 ballast
2442 denotes a fixture with 2 ballasts

.24 All existing fluorescent lamps are F40T12 unless otherwise specified.

.25 The fixture code may be followed by the letters "SD", "ST", or "SQ" to indicated a tandem

wired "double", "triple", or "quadruple" ballast respectively.

Note: Each fixture in the shared group receives the "S" code even though the ballast will only be located in one of the fixtures.

.26 .Fluorescent 8' fixtures may include "T" to designate 4' lamps in tandem.

e.g. 1842T denotes a 1'x8' fixture with 4xF40T12 lamps

.27 All retrofits to contain normal ballast factor ballasts unless otherwise noted.

.28 The following extension codes may appear in conjunction with the base code. Extension codes are preceded or followed by a hyphen.

-28W	use of F32T8-28W lamps
-34	use of F40T12 34W lamps
-60	use of F96T12 60W lamps
-96	use of F96T12 lamps
-CAG	industrial strip fixture with wire guard (used with "N" code)
-CHAND	chandelier type fixture
-CUB	wall mounted cube fixture (used with "N" code)
-D/I	direct/indirect fixture (used with "N" code)
-DIM	use of dimmable ballasts
-HBF	use of a high ballast factor electronic ballast
-HI	use of high ballast factor ballast
-HIC	high ceiling
-IND	industrial hood fixture (used with "N" code)
-KIT	use of re-centering kit for lamps
-K12	K12 acrylic lens fixture (used with "N" code)
-LBF	use of a low ballast factor electronic ballast
-MET	use of metric lamps
-PHT	use of phantom tube
-PA1/2	use of deep cell parabolic louver (1 by 2)
-PL3	use of deep cell parabolic louvre
-RAL	use of an aluminium specular reflector
-RWH	use of a white reflector
-STR	industrial strip fixture (used with "N" code)
-T8	use of F32T8 lamps
-U	use of U shaped lamps
-VAP	vapour proof wrap fixture (used with "N" code)
-WRA	wrap lens fixture (used with "N" code)
N-	use of a NEW fixture

.2 Compact Fluorescent Technology

.1 Compact fluorescent fixtures begin with the letters "CF" followed by 2 digits indicating the lamp wattage.

e.g. CF13 denotes a 13W compact fluorescent

.2 A number within parentheses indicates the number of lamps within one fixture.

e.g. CF13(2) denotes a fixture with two 13W lamps.

.3 Any codes which follow are industry standards describing the housing type

e.g. CF13PAR38 denotes a PAR38 shape housing.

.3 Incandescent Technology

.1 Incandescent fixtures codes begin with the letter "I" followed by 2 or 3 digits which indicate the lamp wattage.

e.g. I100PAR38 denotes a 100W lamp.

.2 Any codes which follow are industry standards describing the lamp type.

e.g. I100PAR38 denotes a PAR38 shape lamp.

.3 A number within parentheses indicates the number of lamps within one fixture.

e.g. I100PAR38(2) denotes a fixture with two PAR38 lamps.

.4 The following extension codes may appear in conjunction with the base code. Extension codes are preceded or followed by a hyphen.

-130 use of 130V lamps

-HAL use of halogen type lamps

.4 HID Technology

.1 HID fixture codes begin with the letters "HID".

e.g. HID-MV400 denotes an HID fixture

.2 One of the codes "MH", "MV", or "HPS" follows indicating "metal halide", "mercury vapour" or "high pressure sodium" respectively.

e.g. HID-MV400 denotes a mercury vapour fixture

.3 Any digits which follow indicate the lamp wattage.

e.g. HID-MV400 denotes a 400W lamp.

.4 The following extension codes may appear in conjunction with the base code. Extension codes are preceded or followed by a hyphen.

-HIG use of a highbay fixture

-LBY use of a low bay fixture

-PARKparking type fixture (used with "N" code).

N- use of NEW fixture.

.5 Number 1 in front of the fixture code indicates 120V, Number 3 indicates 347V

e.g 3-1411-T8- LBF

.5 Exit Signs

.1 Exit signs begin with the letters "EX" followed by either 2 digits indicating the lamp wattage, or "LED" designating an LED lamp.

e.g. EX15(2) denotes an exit sign with 15W lamps.

.2 A number within parentheses indicates the number of lamps within one fixture.

e.g. EX15(2) denotes an exit sign with two 15W lamps.

.3 The following extension codes may appear in conjunction with the base code. Extension codes are preceded or followed by a hyphen.

-2X double width fixture.

N- use of a NEW fixture.

.6 Miscellaneous Codes

.1	"DEC"	decommissioning of fixture.
.2	"DEL"	deletion of fixture.
.3	“DEL-TILE”	deletion of fixture and install new tile
.4	"N/C"	no change to existing fixture.
.5	"NONE"	no existing fixture.
.6	“N/A”	no access to area

.7 .Description Use

ARN	Arena
AUD	Auditorium
AUS	Auditorium Stage
AUX	Auxiliary Room (music, art)
BLE	Bleachers
CAF	Cafeteria
CAN	Canteen
CHA	Change Room
CLA	Classroom
COM	Computer Room
CON	Conference Room
COP	Copy Room
COR	Corridor
CRL	Crawl Space
DIS	Display Case
ELE	Electrical Room
EXI	Exit Sign
EXT	Exterior
FIL	File Room
GAR	Garage
GOF	General Office
GRB	Garbage Room
GRN	Greenhouse
GYM	Gymnasium
GYS	Gymnasium Stage
HEA	Health Room
JCL	Janitor's Closet
KIT	Kitchen
LAB	Laborarory
LAU	Laundry Room
LOB	Lobby
LOU	Lounge
MAL	Mail Room
MEC	Mechanical Room
MNT	Maintenance Room
MPR	Multi-purpose Room
OFF	Office
PAR	Parkade
POL	Swimming Pool
QUA	Living Quarters
RCP	Reception
RCV	Receiving
SAU	Sauna
SHO	Shower

SRV	Server
STA	Stairwell
STO	Storage Room
TAS	Task Light
TEL	Telephone Booth
TUN	Tunnel
VES	Vestibule
WA1	Multi Stall Washroom
WA2	Single Stall Washroom
WOR	Workshop

.8 Mounting

CHA	Chain
REC	Recessed
STE	Stem
SUR	Surface
TRA	Track Lighting
VAL	Valence
WAL	Wall

.9 Lenses

CAG	Cage
CUB	Cube
EGG	Egg Crate
EXR	Exit Sign Red Acrylic Lettering
GLA	Glass
GLO	Globe
HIG	High Bay
IDR	Indirect Fixture
IND	Industrial Hood
INP	Punched Louvre
INS	Institutional Louvre
KEY	Keyless Socket
K12	K12 Acrylic Lens
LBY	Low Bay
NON	No Lense
OPA	Opal White Lens
PAR	Parabolic Lens
P03	3” Open Pot
P06	6” Open Pot
P08	8” Open Pot
P10	10” Open Pot
P12	12” Open Pot
PA1/2	Parabolic Lens (1x2)
PLN	Pot Acrylic Lens
SCO	Wall Sconce

STR	Industrial Strip
VAP	Vapour Proof
WRA	Wrap
8x8	Square Lens

.10 Ceiling Types

ACO	Acoustic Tile
BRI	Brick
CEM	Cement
DRY	Drywall
FIB	Fibre Board
GLA	Glass
GYP	Gypsum
LUM	Lumidome
PLA	Stucco Plaster
STC	Steel Channel
STL	Open Steel Structure
TIL	Tile
TBA	T-Bar
WOD	Wood

END OF SECTION 26 50 00

APPENDICES

APPENDIX A

Specifications and Manufacturers for Approved Materials

Note to bidder: Submit one completed Section 00 30 00, Section 00 43 00, and Appendix A with the Tender Submission.

1.1 Bidder

Legal Name of Bidder
Street, number and postal box number if applicable
Town or city, province, postal code
Telephone Fax Email

1.2 Subcontractors

.1 The following conditions apply to the List of Subcontractors

.1 Parties named, including Bidder's own forces, to be used to perform the work for which they are named and not be changed without the ESCo's written consent.

.2 All of the Subcontractors shall be carried as part of the Bid Price.

1.3 Appendix A Instructions

.1 This section (Appendix A), forms a part of the Bid Documents and shall be submitted with Section 00 30 00 and Section 00 43 00.

.2 The following instructions apply to the Completion of this Section:

.1 List the names of manufacturers (one per item) carried.

.2 If this Bidder neglects to list the specified or acceptable manufacturers or lists more than one manufacturer per item, or lists manufacturers not specified, the Consultant and ESCo will have the option of making the selection of the manufacturer.

.3 There will be no substitution of listed manufacturers or subtrades except as accepted by the Consultant or ESCo.

.4 The model number and manufacturer shall meet the specified or acceptable manufacturers.

.5 All conditions listed in Section 00 30 00 and Section 00 43 00 shall also apply to Appendix A.

.3 List of Manufacturers and Suppliers

.1 The following equipment manufacturers and/or suppliers shall be used in the completion of this project.

.2 Example Is shown on the following page.

Item: C.1

Item Description:	1,2,3,4 lamp instant start electronic ballast, normal b.f., 347V
Manufacturer:	(Trade Contractor to Indicate)
Catalogue No.:	(Trade Contractor to Indicate)
Warranty:	(See Section 01900 for Requirements)

(state any conditions or restrictions)

Item: 1

Item Description: 1,2,3,4 lamp instant start electronic ballast, normal b.f., 120V and 347V

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 2

Item Description: 1,2,3,4 lamp instant start electronic ballast, 0.77 b.f., 120V and 347V

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

3

Item Description: T8 fluorescent lamps, 85 C.R.I., 4100K F32T8 28 W Lamp, F25T8, F17T8

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 4

Item Description: New 1 lamp fluorescent cage 4'(Visioneering COM1 48 T8 32 N 120 W1 or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 5

Item Description: New 1 lamp fluorescent strip 4'(Visioneering COM1 48 T8 32 N 120 or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 6

Item Description: New 1 lamp fluorescent 4' wrap fixture (NED148-T832NUNV-B01 or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 7

Item Description: New 2 lamp fluorescent 4' wrap fixture (NED248-T832NUNV-B01) or approved equivalent

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 8

Item Description: New 2 lamp fluorescent 8' wrap fixture (NED148/2-T832NUNV-B01) or approved equivalent

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

9

Item Description: New 4 lamp fluorescent strip 8'(Visioneering COM248/2 T8 32 N 120 or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 10

Item Description: New 4 lamp gymnasium Fixture (LITHONIA #FGB24-4-32-N1-X20-A12125-MVOLT-1/4-GEB410ISH-LP841-WG or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 11

Item Description: New 2 lamp fluorescent K12'(Visioneering MRCTB2x4 2L T8 N 120 VF1 or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 12

Item Description: New LED Exit Sign (Beghelli SL-E-L-R-U-M or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 13

Item Description: Ceiling Mounted Occupancy Sensor (Sensor Switch CM PDT 9 or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 14

Item Description: 1'x4' White reflector (>90% total reflectivity) (BJ Take or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 15

Item Description: New Lay In Ceiling Tiles (Armstrong - Georgian 763)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 16

Item Description: New 4 lamp fluorescent 8' cage fixture (COM248/2-T832NUNV-B01 WG) or approved equivalent

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 17

Item Description: New 2 lamp fluorescent 8' cage fixture (COM148/2-T832NUNV-B01 WG) or approved equivalent

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 18

Item Description: New 16W "round cakepan" style, ceiling mounted LED (Lithonia#FMLRL-11-14840 or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 19

Item Description: New 16W "square cakepan" style, ceiling mounted LED fixture (Lithonia#FMLSL-11-14840 or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 20

Item Description: New LED 2'x2' Panel - 1-NLED-2x2- (Lithonia #2GTL2-31L-120-LP840 or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 21

Item Description: New 20W Canopy - (1-NLED20W-CAN- NEW STAR#AGV11-OP-120-30 or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 22

Item Description: New 19W LED wall pack - (1-NLED19W-WAL- LITHONIA#TWHLED-10C-1000-40K-T3M-120-PE-VG-DDBXDor approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 23

Item Description: New 20W LED wall pack - (New 20W LED wall pack - Lithonia TWS LED-1-50K-120-PE) or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 24

Item Description: New 27W LED wall pack - (1-NLED27W-WAL- LITHONIA#TWPLED-10C-700-40K-T3M-120-PE-VG-DDBXD or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 25

Item Description: New LED Pack - 1-NLED72W-PAK- (LITHONIA#TWHLED-10C-1000-40K-T3M-120-WG-DDBXD (39 WATTS)approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 26

Item Description: New LED Flood - 1-NLED58W-FLO – (LITHONIA#DSXF2LED-3-A530/50K-FL-120-PE-VG-DDBXD ("D-SERIES" 58WATTS) or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 27

Item Description: New LED Flood - 1-NLED74W-POL– (LITHONIA #CSX1-LED1-30B/700/40K-SR3-120-SPA-VG-BS-P/C-DBXD or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 28

Item Description: New 80W LED wall - 1-NLED80W-WAL (LITHONIA#DSXF2-LED3-A530/40K-FL-120-PE-FV-VG-DDBXD or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 29

Item Description: 1-NLED80W-FLO – (LITHONIA#DSXF2LED-4-A530/50K-FL-120-PE-VG-DDBXD ("D-SERIES" 79 WATTS)or approved equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 30

Item Description: New 12W A19 style screw in LED lamp (GE LED 11DA 19V/827 or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 31

Item Description: New 20W A21 style screw in LED lamp (OSRAM#LED20A21/DIM/0/827 or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 32

Item Description: New 17W PAR38 style screw in LED lamp (GE LED17P38S830/25 or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 33

Item Description: New 15W PAR30 style screw in LED lamp (Osram PARATHOM PAR30 100 30° ADV 13 W/827 or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 34

Item Description: New Wall Switch Sensor (Sensor Switch WSX SA WH or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

Item: 35

Item Description: New Wall Mount Sensor (Sensor Switch WV 16 or equivalent)

Manufacturer:

Catalogue No.:

Warranty:

(state any conditions or restrictions)

END OF APPENDIX A

APPENDIX B

Building List

HALIFAX REGIONAL SCHOOL BOARD	
BUILDING	**ADDRESS**
Harold T. Barrett Junior High	862 Beaver Bank Rd, Beaver Bank, NS B4G 1A9
Chebucto Heights Elementary	230 Cowie Hill Rd., Halifax, NS B3P 2M3
J. L. Ilsley High	38 Sylvia Ave., Halifax, NS B3R 1J9
Halifax Central Junior High	1787 Preston St., Halifax, NS B3H 3V7
Harbour View Elementary	25 Alfred St., Dartmouth, NS B3A 4E8
Ian Forsyth Elementary	22 Glencoe Dr., Dartmouth, NS B2X 1J1

APPENDIX C

Lighting Retrofit & Redesign – Line-by-Line

Appendix C.1 Separate Price Re-lamping - HRSB Package 7 Lighting Line by Line

Room Information						Existing Fixture Information								Retrofit Fixture Information							Occupancy Sensor				Notes
BldgNo	BldgName	Room No	Type	Ceil Type	Ceil Height (ft)	Occ. Days/Year	Code	Description	Load	Mnt	Lens	Qty	Out	Hrs/Day	Running Hrs	R Code	R Description	Load	R Mnt	R Lens	R Qty	R Meas No	O Code	O Qty	O Time Saved	O MeasNo	Notes
051	Harbour View Elementary (103)	001	MEC	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	CHA	NON	3	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	CHA	NON	3	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	002	MEC	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	16	3	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	16	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	003	OFF	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	5	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	5	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	003A	STO	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	007	GYM	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	008	COR	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	5.00	1,087	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	009	AUX	TBA	-	217.41	1-2441-T8	2' x 4' fl. 4xF32T8 electronic bal	108	REC	K12	11	-	5.00	1,087	1-2441-T8-RELAMP	4x28W T8 Relamp Only	108	REC	K12	11	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	103	COR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	5	-	17.00	3,696	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	5	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	106	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	107	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	107A	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	113	WA1	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	114	COR	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	117	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	122	STO	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	123	VES	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	4	-	23.98	5,214	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	4	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	124	COR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	3	-	17.00	3,696	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	3	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	127	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	NON	9	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	NON	9	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	128	COR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	5	-	23.00	5,000	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	5	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	129	COR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	20	-	17.00	3,696	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	20	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	136	COR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	40	-	17.00	3,696	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	40	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	142	SHO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	VAP	1	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	VAP	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	150	GYM	TIL	-	217.41	1-1421-T8	1' x 4' fl., 2xF32T8 elec. bal	59	SUR	CAG	70	4	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	59	SUR	CAG	70	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	150	GYM	TIL	-	217.41	1-1421-T8	1' x 4' fl., 2xF32T8 elec. bal	59	SUR	CAG	5	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	59	SUR	CAG	5	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	154	COR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	12	-	17.00	3,696	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	12	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	155	COR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	7	1	17.00	3,696	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	7	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	156	JCL	STL	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	1	-	8.00	1,739	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	156	JCL	STL	-	217.41	1-1821T-T8-28W	1' x 8' fl., 2xF28T8 elec. Bal	52	SUR	WRA	1	-	8.00	1,739	1-1821T-28W-LAMP	2x28W T8 Lamp Relamp Only	52	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	159	LIB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	159	LIB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	46	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	46	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	160	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	167	COR	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	5	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	5	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	168	COR	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	169	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	169A	VES	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	1	-	1.00	217	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	170	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	170A	VES	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	1	-	1.00	217	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	171	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	173	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	176	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	178	OFF	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	STE	WRA	2	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	STE	WRA	2	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	200	COR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	61	-	15.00	3,261	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	61	A01	N/A	-	-	A01	High ceiling area. Move one fixture 2 feet from stairs as per drawing
051	Harbour View Elementary (103)	201	COR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	15	-	15.00	3,261	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	15	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	202A	COR	STL	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	4	-	13.00	2,826	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	4	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	202B	COR	STL	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	5	3	17.00	3,696	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	5	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	212	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	ST.2	STA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	ST.2	STA	TBA	-	217.41	1-2441-T8-28W	2' x 4' fl., 4xF28T8 elec. Bal	95	SUR	WRA	4	-	23.98	5,214	1-2441-T8-RELAMP	4x28W T8 Relamp Only	95	SUR	WRA	4	A01	N/A	-	-	A01	Display case
051	Harbour View Elementary (103)	ST.3	STA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	6	-	15.00	3,261	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	6	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	ST.4	STA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	6	-	23.98	5,214	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	6	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	ST.5	STA	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	CHA	WRA	6	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	CHA	WRA	6	A01	N/A	-	-	A01	
051	Harbour View Elementary (103)	ST.6	STA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	6	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	6	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	100	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	Vestibule
078	J. L. Ilsley High (250)	101	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	101A	COP	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	101B	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	Vestibule
078	J. L. Ilsley High (250)	101C	DAY	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	102	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	103	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	104	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	105	AUX	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	105A	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	105B	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	106	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	107A	COP	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	107B	KIT	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	107D	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	107E	CON	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	109	GOF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	6	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	6	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	109A	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	109B	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	109C	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	110	WA1	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	112	JCL	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	113	STO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	114	WA1	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	115	CHA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	6	-	14.00	3,044	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	6	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	115A	CHA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	115B	SHO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	VAP	2	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	VAP	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	116	LAB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	26	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	26	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	116F	LAU	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	117	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	118	AUX	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	13	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	13	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	119A	CHA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	Suspend 3M A.F.F.

Appendix C.1 Separate Price Re-lamping - HRSB Package 7 Lighting Line by Line

Room Information						Existing Fixture Information									Retrofit Fixture Information						Occupancy Sensor				Notes
BldgNo	BldgName	Room No	Type	Ceil Type	Ceil Height (ft)	Occ. Days/Year	Code	Description	Load	Mnt	Lens	Qty	Out	Hrs/Day	Running Hrs	R Code	R Description	Load	R Mnt	R Lens	R Qty	R Meas No	O Code	O Qty	O Time Saved	O MeasNo	Notes
078	J. L. Ilsley High (250)	119B	GYS	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	7	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	7	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	119C	CHA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	WAL	CUB	4	-	2.00	435	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	WAL	CUB	4	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	119C	CHA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	New fixture to be mounted on ceiling
078	J. L. Ilsley High (250)	119E	MPR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	120	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	121	CHA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	10.00	2,174	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	121A	CHA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	VAP	2	-	10.00	2,174	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	VAP	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	121B/C	SHO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	VAP	2	-	10.00	2,174	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	VAP	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	122	WRK	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	144	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	144	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	123	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	125	CAF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	26	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	26	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	125A	KIT	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	9	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	9	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	125B	STO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	127	OFF	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	128	WRK	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	129A	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	130	WRK	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	131	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	10.00	2,174	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	132	WRK	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	133	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	10.00	2,174	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	134	ELE	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	135	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	136	AUX	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	2	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	136	AUX	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	29	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	29	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	137	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	139	MEC	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	5	1	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	5	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	139	MEC	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	WRA	4	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	WRA	4	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	139A	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	143	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	5	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	5	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	145	WRK	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	21	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	21	A01	N/A	-	-	A01	DSXF2 LED3-A530/40K-WFR-120-VG-PE-DDBXD
078	J. L. Ilsley High (250)	147	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	6	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	6	A01	N/A	-	-	A01	DSXF2-LED-3-A530/40K-FL-120-PE-DDBXD
078	J. L. Ilsley High (250)	147	CLA	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	WRA	1	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	WRA	1	A01	N/A	-	-	A01	TWS LED-1-50K-120-PE
078	J. L. Ilsley High (250)	149	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	Newstar AGV11-OP-120-30
078	J. L. Ilsley High (250)	150	VES	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	3.00	652	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	150A	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	3.00	652	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	150B	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	150C	STO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	153	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	200	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	201	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	202	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	203	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	204	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	205	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	206	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	207	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	209	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	210	WA1	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	211	JCL	STC	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	213	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	21	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	21	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	214	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	215	AUX	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	216	LAB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	15	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	15	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	216A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	217	AUX	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	218	LAB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	15	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	15	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	218A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	0.50	109	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	219	LIB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	28	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	28	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	219A	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	220	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	221	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	222	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	223	LIB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	224	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	225	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	226	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	227	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	228	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	229	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	230	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	231	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	232	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	233	LOU	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	5.00	1,087	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	To be suspended flush with the underside of duct work and piping.
078	J. L. Ilsley High (250)	233B	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	3.00	652	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	233D	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	234	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	235	LOU	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	235A	STO	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	236	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	236A	STO	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	237	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	238A	WA1	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	239	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	239A	STA	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	STE	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	STE	WRA	1	A01	N/A	-	-	A01	

Appendix C.1 Separate Price Re-lamping - HRSB Package 7 Lighting Line by Line

Room Information						Existing Fixture Information									Retrofit Fixture Information						Occupancy Sensor				Notes
BldgNo	BldgName	Room No	Type	Ceil Type	Ceil Height (ft)	Occ. Days/Year	Code	Description	Load	Mnt	Lens	Qty	Out	Hrs/Day	Running Hrs	R Code	R Description	Load	R Mnt	R Lens	R Qty	R Meas No	O Code	O Qty	O Time Saved	O MeasNo	Notes
078	J. L. Ilsley High (250)	241	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	14	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	14	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	241A	STO	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	300	MPR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	301	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	302	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	303	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	304	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	305	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	306	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	307	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	309	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	309A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	310	WA1	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	311	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	314	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	316	LAB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	15	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	15	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	316A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	317	LOU	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	317B	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	12.00	2,609	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	TWP LED-10C-700-40K-T3M-120-VG-FS-PE-DDBXD
078	J. L. Ilsley High (250)	317D	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	DSXF2 LED4-A530/40K-WFR-120-VG-PE-DDBXD
078	J. L. Ilsley High (250)	318	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	15	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	15	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	318A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	319	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	320	JCL	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	321	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	322	LOU	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	322A	STO	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	323	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	324	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	325	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	325A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	326	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	327	COM	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	327A	STO	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	328	COM	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	13	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	13	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	329	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	14	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	14	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	329A	STO	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	330	COM	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	14	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	14	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	330A	STO	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C105	DIS	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C106	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C106	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	CAG	1	-	10.00	2,174	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	CAG	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C107	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C108	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	7	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	7	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C108A	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C109	LOB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C110	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C111	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C201	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C203	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C204	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	7	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	7	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C204A	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C205	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	13	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	13	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C300	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	7	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	7	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C300A	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C300B	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	13	2	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	13	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	C302	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.1	STA	STC	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.1A	STA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	WAL	CUB	2	1	18.00	3,913	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	WAL	CUB	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.1A	STA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	18.00	3,913	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.2	STA	STC	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.2A	STA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.3	STA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.3A	STA	STC	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.4	STA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	2	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.4	STA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.4A	STA	STC	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
078	J. L. Ilsley High (250)	ST.7	STA	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	WRA	2	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	WRA	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	100	VES	WOD	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	101	MPR	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	STE	NON	4	4	8.00	1,739	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	101	MPR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	3	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	102	CLA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	STE	NON	4	-	4.00	870	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	102	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	22	2	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	22	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	102A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	0.50	109	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	103	CLA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	STE	NON	4	-	4.00	870	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	103	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	2	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	104	CLA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	STE	NON	4	-	3.00	652	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	104	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	3.00	652	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	104A	ELE	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	104B	STO	DRY	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	VAP	6	-	1.00	217	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	VAP	6	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	105	CLA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	STE	NON	4	-	4.00	870	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	STE	NON	4	A01	N/A	-	-	A01	Newstar AGV11-OP-120-30
091	Harold T. Barrett Junior High (195)	105	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	2	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	TWP LED-10C-700-40K-T3M-120-VG-FS-PE-DDBXD
091	Harold T. Barrett Junior High (195)	105A	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	DSXF2-LED3-A530/40K-FL-120-PE-VG-DDBXD
091	Harold T. Barrett Junior High (195)	107	KIT	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	6.50	1,413	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	

Appendix C.1 Separate Price Re-lamping - HRSB Package 7 Lighting Line by Line

Room Information						Existing Fixture Information									Retrofit Fixture Information						Occupancy Sensor				Notes
BldgNo	BldgName	Room No	Type	Ceil Type	Ceil Height (ft)	Occ. Days/Year	Code	Description	Load	Mnt	Lens	Qty	Out	Hrs/Day	Running Hrs	R Code	R Description	Load	R Mnt	R Lens	R Qty	R Meas No	O Code	O Qty	O Time Saved	O MeasNo	Notes
091	Harold T. Barrett Junior High (195)	108	CAF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	16	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	16	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	110	JCL	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	111	VES	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	113	STO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	116	GYM	TIL	-	217.41	1-2441-T8-28W	2' x 4' fl., 4xF28T8 elec. Bal	95	SUR	CAG	60	13	14.50	3,152	1-2441-T8-RELAMP	4x28W T8 Relamp Only	95	SUR	CAG	60	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	119	AUX	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	17	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	17	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	120	CLA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	STE	NON	4	-	4.00	870	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	120	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	2	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	121	LIB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	STE	WRA	11	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	STE	WRA	11	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	121	LIB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	15	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	15	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	123	SRV	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	124	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	125	CON	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	7	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	7	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	129	ELV	CEM	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	131	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	132	CLA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	STE	WRA	4	-	7.00	1,522	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	STE	WRA	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	132	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	133	COR	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	134	STO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	135	CLA	TBA	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	STE	NON	4	-	4.00	870	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	135	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	2	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	136	CAN	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	138	WA1	DRY	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	NON	1	-	16.00	3,478	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	NON	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	138	WA1	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	139	WA1	DRY	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	NON	4	-	17.00	3,696	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	139	WA1	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	140	GOF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	5	3	7.50	1,631	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	5	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	140A	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	7.50	1,631	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	140A	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	K12	1	-	7.50	1,631	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	K12	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	141	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	141	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	K12	1	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	K12	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	141A	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	142	VES	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	142A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	143	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	144	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	146	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	7.50	1,631	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	146A	WA2	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	149	COA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	8.50	1,848	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	149A	LOU	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	5	-	8.50	1,848	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	5	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	149B	WA2	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	1	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	149C	WA2	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	1	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	152	COR	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	153	WA1	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	2	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	154	SHO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	VAP	4	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	VAP	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	155	WA1	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	3	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	156	COR	DRY	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	SUR	WRA	2	-	15.00	3,261	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	SUR	WRA	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	157	CHA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	VAP	2	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	VAP	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	157	CHA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	158	SHO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	VAP	2	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	VAP	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	159	CHA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	7	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	7	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	161	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	162	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	162	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	K12	1	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	K12	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	163	SHO	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	VAP	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	VAP	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	164	SHO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	VAP	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	VAP	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	165	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	CAG	4	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	CAG	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	166	COR	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	CAG	2	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	CAG	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	166A	VES	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	200	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	201	COM	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	STE	NON	4	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	201	COM	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	201A	OFF	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	202	CLA	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	STE	NON	4	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	202	CLA	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	203	LAB	TIL	-	217.41	1-1411-T8-28W	1xF28T8 elec. Bal	25	STE	NON	4	-	3.00	652	1-1411-28W-RELAMP	1xF28T8 Relamp Only	25	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	203	LAB	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	18	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	18	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	204	CLA	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	STE	NON	4	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	204	CLA	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	205	CLA	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	STE	NON	4	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	205	CLA	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	206	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	STE	NON	4	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	STE	NON	4	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	206	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	12	-	7.00	1,522	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	12	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	206A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	207	WA1	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	3	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	207A	VES	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	208	WA1	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	CUB	3	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	CUB	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	209	MEC	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	210	VES	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	17.00	3,696	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	ST.1	STA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	ST.1	STA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	K12	3	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	K12	3	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	ST.2	STA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
091	Harold T. Barrett Junior High (195)	ST.2	STA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	K12	3	-	23.98	5,214	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	K12	3	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	101	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	

Appendix C.1 Separate Price Re-lamping - HRSB Package 7 Lighting Line by Line

Room Information						Existing Fixture Information								Retrofit Fixture Information						Occupancy Sensor				Notes
BldgNo	BldgName	Room No	Type	Ceil Type	Ceil Height (ft)	Occ. Days/Year	Code	Description	Load	Mnt	Lens	Qty	Out	Hrs/Day	Running Hrs	R Code	R Description	Load	R Mnt	R Lens	R Qty	R Meas No	O Code	O Qty	O Time Saved	O MeasNo	Notes
112	Ian Forsyth Elementary (122)	101A	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	2.00	435	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	102	GOF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	2	-	9.50	2,065	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	2	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	103	LOU	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	6	-	10.50	2,283	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	6	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	103A	COA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	10.50	2,283	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	103B	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	7.50	1,631	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	105	COP	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	7	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	7	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	106	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	107	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	107A	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	108	JCL	STL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	109	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	0.17	36	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	110	STO	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	111	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	3	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	3	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	112	GYM	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	CAG	18	-	10.00	2,174	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	CAG	18	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	112B	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	112C	CAN	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	113	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	13.00	2,826	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	115	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	116	AUX	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	0.50	109	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	117	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.50	1,848	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	118	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	119	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.50	1,848	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	120	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.50	1,848	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	121	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.50	1,848	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	122	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.50	1,848	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	123	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	124	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	0.50	109	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	124A	MEC	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	1.00	217	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	126	OFF	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	9.00	1,957	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	127	JCL	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	128	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	129	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	130	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	131	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	132	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	133	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	134	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	135	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.50	1,848	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	136	AUX	TIL	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	6.50	1,413	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	136A	STO	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	138	LIB	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	20	-	6.00	1,304	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	20	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	139	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	15.00	3,261	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	140	COM	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	7.50	1,631	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	141	JCL	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	142	WA1	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	4	-	16.00	3,478	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	4	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	143	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	11	2	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	11	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	144	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	1	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	180	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	7	-	16.98	3,692	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	7	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	190	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	34	-	16.98	3,692	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	34	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	200	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	6	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	6	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	201	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	202	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	14	-	8.50	1,848	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	14	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	203	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	204	WA2	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	3.00	652	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	205	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	206	JCL	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	1	-	4.00	870	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	1	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	207	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	10	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	10	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	208	CLA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	8	-	8.00	1,739	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	8	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	209	COR	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	SUR	WRA	5	-	12.00	2,609	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	SUR	WRA	5	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	ST1	STA	TBA	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	WRA	4	-	16.98	3,692	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	WRA	4	A01	N/A	-	-	A01	
112	Ian Forsyth Elementary (122)	ST2	STA	DRY	-	217.41	1-1421-T8-28W	1' x 4' fl., 2xF28T8 elec. Bal	48	WAL	WRA	4	-	16.98	3,692	1-1421-T8-28W-RELAMP	2x28W T8 Lamp Relamp Only	48	WAL	WRA	4	A01	N/A	-	-	A01	

APPENDIX D

Summary of Total Retrofit Counts

1. Total Price – Supply and Install unless otherwise noted – School by School Breakdown

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1411-T8-LBF	120	1xF028/SS T8 low ballast factor elec. bal (28W)	12	12	12	
1-1421-T8-LBF	120	2xF028/SS T8 low ballast factor elec. bal (28W)	746	1,492	746	
1-2421-T8-KIT-RWH-RWR	120	2xF028/SS T8 elec. bal., kit & reflector, re-wire and relocate (28W)	12	24	12	
1-2421-T8-LBF	120	2xF028/SS T8 low ballast factor elec. bal (28W)	484	968	484	
1-2441-T8-LBF	120	4xF028/SST8 low ballast factor elec. bal (28W)	48	192		
1-DEL-(+PAINT)	120	Delete existing fixture and patch and paint	51			
1-DEL-(+PLATE)	120	Delete existing fixture and insert plate	2			
1-DEL-(+TILE)	120	Delete existing fixture and install new tile	133			
1-N1411-T8-CAG	120	NEW 1'x4' 1xF028/SS T8 fl. cage (28W)	12	12		
1-N1411-T8-STR	120	NEW 1'x4' 1xF028/SST8 fl. Strip (28W)	15	15		
1-N1411-T8-WRA	120	NEW 1'x4' 1xF028/SST8 fl. Wrap (28W)	203	203		
1-N1421-T8-WRA	120	NEW 1'x4' 2xF028/SST8 fl. Wrap (28W)	8	16		
1-N1821T-T8-CAG	120	NEW 1'x8' 2xF028/SS T8 fl. Cage (28W)	2	8		
1-N1821T-T8-WRA	120	NEW 1'x8' 2xF028/SS T8 fl. Wrap (28W)	349	698	349	349
1-N1841T-T8-CAG	120	NEW 1'x8' 4xF028/SS T8 fl. Cage (28W)	17	68		
1-N1841T-T8-LBF-STR	120	NEW 1'x8' 4xF028/SS T8 fl. low ballast factor strip (28W)	1	4		
1-N1841T-T8-STR	120	NEW 1'x8' 4xF028/SS T8 fl. Strip (28W)	5	20		
1-N2421-T8-K12	120	NEW 2'x4' 2xF028/SS T8 fl. k12 acrylic lens (28W)	2	8		
1-N2442-T8-HBF-GYM	120	NEW 2'x4' 4xF028/SS T8 fl. Gym Fixture High Ballast Factor (28W), 2 ballasts	36	144		
1-NEXT-LED	120	NEW LED Exit Sign	2			
A02						
Ceiling Occupancy Sensor	120V	New Ceiling mounted occupancy sensor	38			
Wall Mount OS	120V	New Wall mounted occupancy sensor	7			
Gym Occupancy Sensor	120V	New Occupancy Sensor for Gym	30			
Wall Switch OS	120V	New Wall Switch Occupancy Sensor	4			
A03						
Photocell	120V	New Photocell	2			
A04						
1-LED12A19	120	12W LED A19 lamp	18			
1-LED12A19(2)	120	2x12W LED A19 lamp	2			

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
1-LED15WPAR30	120	15W LED PAR30 LAMP	8			
1-LED18PAR38	120	18W LED PAR38 LAMP	42			
1-LED20A21	120	20W LED A21 LAMP	12			
1-NLED 2x2	120	New LED 2x2 Panel	99			
1-NLED11	120	New LED 16W Cakepan Square - Lithonia#FMLSL-11-14840	7			
1-NLED11R	120	New LED 16W Cakepan Round - Lithonia#FMLRL-11-14840	10			
A06						
1-NLED19W-WAL	120	New 19W LED wall pack - LITHONIA#TWHLED-10C-1000-40K-T3M-120-PE-VG-DDBXD	3			
1-NLED20W-CAN	120	New 20W LED Canopy - Newstar AGV11-OP-120-30	13			
1-NLED20W-WAL	120	New 20W LED wall pack - Lithonia TWS LED-1-50K-120-PE	5			
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-50K-T3M-120-PE-VG-FS-DDBXD	7			
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-700-40K-T3M-120-PE-VG-DDBXD	8			
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-700-40K-T3M-120-PE-FS-VG-DDBXD	1			
1-NLED58W-FLO	120	New 58W LED flood - LITHONIA#DSXF2LED-3-A530/50K-FL-120-PE-VG-DDBXD ("D-SERIES" 58WATTS)	9			
1-NLED72W-PAK	120	New 72W LED Wall pack - LITHONIA#TWHLED-10C-1000-40K-T3M-120-WG-DDBXD (39 WATTS)	7			
1-NLED74W-POL	120	New 74W LED pole - LITHONIA #CSX1-LED1-30B/700/40K-SR3-120-SPA-VG-BS-P/C-DBXD	9			
1-NLED80W-FLO	120	New 80W LED Flood - LITHONIA#DSXF2LED-3-A530/50K-FL-120-PE-VG-DDBXD	1			
1-NLED80W-FLO	120	New 80W LED Flood - LITHONIA#DSXF2LED-4-A530/50K-FL-120-PE-VG-DDBXD ("D-SERIES" 79 WATTS)	3			
1-NLED80W-WAL	120	New 80W LED Wall pack - LITHONIA#DSXF2LED3-A530/40K-FL-120-PE-FV-VG-DDBXD	11			

1.1. Total Price – Supply and Install unless otherwise noted – Halifax Central Junior High

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1421-T8-LBF	120	2xF028/SS T8 low ballast factor elec. bal (28W)	464	928	464	
1-2441-T8-LBF	120	4xF028/SST8 low ballast factor elec. bal (28W)	48	192		
1-N1411-T8-STR	120	NEW 1'x4' 1xF028/SST8 fl. Strip (28W)	6	6		
1-N1841T-T8-LBF-STR	120	NEW 1'x8' 4xF028/SS T8 fl. low ballast factor strip (28W)	1	4		
1-N1841T-T8-STR	120	NEW 1'x8' 4xF028/SS T8 fl. Strip (28W)	5	20		
1-NEXT-LED	120	NEW LED Exit Sign	2			
A02						
Ceiling Occupancy Sensor	120V	New Ceiling mounted occupancy sensor	3			
Wall Mount OS	120V	New Wall mounted occupancy sensor	1			
Gym Occupancy Sensor	120V	New Occupancy Sensor for Gym	4			
Wall Switch OS	120V	New Wall Switch Occupancy Sensor	1			
A04						
1-LED12A19	120	12W LED A19 lamp	3			
1-NLED11R	120	New LED 16W Cakepan Round - Lithonia#FMLRL-11-14840	1			
A06						
1-NLED20W-CAN	120	New 20W LED Canopy - Newstar AGV11-OP-120-30	2			
1-NLED72W-PAK	120	New 72W LED Wall pack - LITHONIA#TWHLED-10C-1000-40K-T3M-120-WG-DDBXD (39 WATTS)	1			
1-NLED80W-WAL	120	New 80W LED Wall pack - LITHONIA#DSXF2LED3-A530/40K-FL-120-PE-FV-VG-DDBXD	2			

1.2. Total Price – Supply and Install unless otherwise noted – Harbour View Elementary

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-2421-T8-KIT-RWH-RWR	120	2xF028/SS T8 elec. bal., kit & reflector, re-wire and relocate (28W)	12	24	12	
1-DEL-(+TILE)	120	Delete existing fixture and install new tile	1			
1-N1411-T8-CAG	120	NEW 1'x4' 1xF028/SS T8 fl. cage (28W)	4	4		
1-N1411-T8-STR	120	NEW 1'x4' 1xF028/SST8 fl. Strip (28W)	1	1		
1-N1411-T8-WRA	120	NEW 1'x4' 1xF028/SST8 fl. Wrap (28W)	163	163		
1-N1421-T8-WRA	120	NEW 1'x4' 2xF028/SST8 fl. Wrap (28W)	8	16		
1-N1821T-T8-CAG	120	NEW 1'x8' 2xF028/SS T8 fl. Cage (28W)	1	2		
1-N1821T-T8-WRA	120	NEW 1'x8' 2xF028/SS T8 fl. Wrap (28W)	349	698	349	349
A02						
Ceiling Occupancy Sensor	120V	New Ceiling mounted occupancy sensor	5			
Wall Mount OS	120V	New Wall mounted occupancy sensor	4			
Gym Occupancy Sensor	120V	New Occupancy Sensor for Gym	6			
Wall Switch OS	120V	New Wall Switch Occupancy Sensor	1			
A04						
1-LED12A19	120	12W LED A19 lamp	3			
1-LED18PAR38	120	18W LED PAR38 LAMP	19			
1-NLED 2x2	120	New LED 2x2 Panel	6			
1-NLED11	120	New LED 16W Cakepan Square - Lithonia#FMLSL-11-14840	1			
1-NLED11R	120	New LED 16W Cakepan Round - Lithonia#FMLRL-11-14840	5			
A06						
1-NLED20W-WAL	120	New 20W LED wall pack - Lithonia TWS LED-1-50K-120-PE	2			
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-50K-T3M-120-PE-VG-FS-DDBXD	7			
1-NLED80W-FLO	120	New 80W LED Flood - LITHONIA#DSXF2LED-3-A530/50K-FL-120-PE-VG-DDBXD	1			

1.3. Total Price – Supply and Install unless otherwise noted – J.L. Ilsley High

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1411-T8-LBF	120	1xF028/SS T8 low ballast factor elec. bal (28W)	5	5	5	
1-DEL-(+PAINT)	120	Delete existing fixture and patch and paint	48			
1-N1841T-T8-CAG	120	NEW 1'x8' 4xF028/SS T8 fl. Cage (28W)	4	16		
1-N2442-T8-HBF-GYM	120	NEW 2'x4' 4xF028/SS T8 fl. Gym Fixture High Ballast Factor (28W), 2 ballasts	36	144		
A02						
Ceiling Occupancy Sensor	120V	New Ceiling mounted occupancy sensor	11			
Wall Mount OS	120V	New Wall mounted occupancy sensor	2			
Gym Occupancy Sensor	120V	New Occupancy Sensor for Gym	8			
Wall Switch OS	120V	New Wall switch occupancy sensor	2			
A03						
Photocell	120V	New Photocell	1			
A04						
1-LED12A19	120	12W LED A19 lamp	8			
1-LED12A19(2)	120	2x12W LED A19 lamp	2			
1-LED15WPAR30	120	15W LED PAR30 LAMP	8			
1-LED18PAR38	120	18W LED PAR38 LAMP	2			
1-LED20A21	120	20W LED A21 LAMP	10			
A06						
1-NLED20W-CAN	120	New 20W LED Canopy - Newstar AGV11-OP-120-30	2			
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-700-40K-T3M-120-PE-VG-DDBXD	1			
1-NLED58W-FLO	120	New 58W LED flood - LITHONIA#DSXF2LED-3-A530/50K-FL-120-PE-VG-DDBXD ("D-SERIES" 58WATTS)	5			
1-NLED72W-PAK	120	New 72W LED Wall pack - LITHONIA#TWHLED-10C-1000-40K-T3M-120-WG-DDBXD (39 WATTS)	6			
1-NLED80W-FLO	120	New 80W LED Flood - LITHONIA#DSXF2LED-4-A530/50K-FL-120-PE-VG-DDBXD ("D-SERIES" 79 WATTS)	3			

1.4. Total Price – Supply and Install unless otherwise noted – Chebucto Heights Elementary

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1411-T8-LBF	120	1xF028/SS T8 low ballast factor elec. bal (28W)	5	5	5	
1-1421-T8-LBF	120	2xF028/SS T8 low ballast factor elec. bal (28W)	265	530	265	
1-2421-T8-LBF	120	2xF028/SS T8 low ballast factor elec. bal (28W)	484	968	484	
1-DEL-(+PAINT)	120	Delete existing fixture and patch and paint	3			
1-DEL-(+PLATE)	120	Delete existing fixture and insert plate	1			
1-DEL-(+TILE)	120	Delete existing fixture and install new tile	133			
1-N1411-T8-CAG	120	NEW 1'x4' 1xF028/SS T8 fl. cage (28W)	8	8		
1-N1411-T8-STR	120	NEW 1'x4' 1xF028/SST8 fl. Strip (28W)	8	8		
1-N1411-T8-WRA	120	NEW 1'x4' 1xF028/SST8 fl. Wrap (28W)	40	40		
1-N1821T-T8-CAG	120	NEW 1'x8' 2xF028/SS T8 fl. Cage (28W)	1	2		
1-N1841T-T8-CAG	120	NEW 1'x8' 4xF028/SS T8 fl. Cage (28W)	13	52		
1-N2421-T8-K12	120	NEW 2'x4' 2xF028/SS T8 fl. k12 acrylic lens (28W)	2	4		
A02						
Ceiling Occupancy Sensor	120V	New Ceiling mounted occupancy sensor	5			
Gym Occupancy Sensor	120V	New Occupancy Sensor for Gym	4			
A04						
1-LED12A19	120	12W LED A19 lamp	3			
1-LED18PAR38	120	18W LED PAR38 LAMP	4			
1-NLED 2x2	120	New LED 2x2 Panel	93			
1-NLED11	120	New LED 16W Cakepan Square - Lithonia#FMLSL-11-14840	6			
1-NLED11R	120	New LED 16W Cakepan Round - Lithonia#FMLRL-11-14840	4			
A06						
1-NLED19W-WAL	120	New 19W LED wall pack - LITHONIA#TWHLED-10C-1000-40K-T3M-120-PE-VG-DDBXD	3			
1-NLED20W-CAN	120	New 20W LED Canopy - Newstar AGV11-OP-120-30	3			
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-700-40K-T3M-120-PE-VG-DDBXD	1			
1-NLED58W-FLO	120	New 58W LED flood - LITHONIA#DSXF2LED-3-A530/50K-FL-120-PE-VG-DDBXD ("D-SERIES" 58WATTS)	4			

1.5. Total Price – Supply and Install unless otherwise noted – Harold T Barrett Junior High

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1411-T8-LBF	120	1xF028/SS T8 low ballast factor elec. bal (28W)	2	2	2	
1-1421-T8-LBF	120	2xF028/SS T8 low ballast factor elec. bal (28W)	12	24	12	
A02						
Ceiling Occupancy Sensor	120V	New Ceiling mounted occupancy sensor	14			
Gym Occupancy Sensor	120V	New Occupancy Sensor for Gym	4			
A03						
Photocell	120V	New Photocell	1			
A06						
1-NLED20W-CAN	120	New 20W LED Canopy - Newstar AGV11-OP-120-30	6			
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-700-40K-T3M-120-PE-VG-DDBXD	6			
1-NLED74W-POL	120	New 74W LED pole - LITHONIA #CSX1-LED1-30B/700/40K-SR3-120-SPA-VG-BS-P/C-DBXD	9			

1.6. Total Price – Supply and Install unless otherwise noted – Ian Forsyth Elementary

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1421-T8-LBF	120	2xF028/SS T8 low ballast factor elec. bal (28W)	5	10	5	
A02						
Gym Occupancy Sensor	120V	New Occupancy Sensor for Gym	4			
A04						
1-LED12A19	120	12W LED A19 lamp	1			
1-LED18PAR38	120	18W LED PAR38 LAMP	17			
1-LED20A21	120	20W LED A21 LAMP	2			
A06						
1-NLED20W-WAL	120	New 20W LED wall pack - Lithonia TWS LED-1-50K-120-PE	3			
1-NLED27W-WAL	120	New 27W LED wall pack - LITHONIA#TWPLED-10C-700-40K-T3M-120-PE-FS-VG-DDBXD	1			
1-NLED80W-WAL	120	New 80W LED Wall pack - LITHONIA#DSXF2LED3-A530/40K-FL-120-PE-FV-VG-DDBXD	9			

2. Total Price – Supply and Install unless otherwise noted – School by School Breakdown – For Alternate Prices – Relamping Only

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1411-28W-RELAMP	120	1xF028/SS T8 relamp only	251	251		
1-1421-T8-28W-RELAMP	120	2xF028/SS T8 relamp only	2258	2258		
1-1821T-28W-LAMP	120	2xF028/SS T8 relamp only	1	1		
1-2441-T8-RELAMP	120	4xF028/SS T8 relamp only	75	75		

1.7. Total Price – Supply and Install unless otherwise noted – Harbour View Elementary

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1411-28W-RELAMP	120	1xF028/SS T8 relamp only	196	196		
1-1421-T8-28W-RELAMP	120	2xF028/SS T8 relamp only	234	234		
1-1821T-28W-LAMP	120	2xF028/SS T8 relamp only	1	1		
1-2441-T8-RELAMP	120	4xF028/SS T8 relamp only	15	15		

1.8. Total Price – Supply and Install unless otherwise noted – J.L. Ilsley High

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1411-28W-RELAMP	120	1xF028/SS T8 relamp only	6	6		
1-1421-T8-28W-RELAMP	120	2xF028/SS T8 relamp only	1,197	1,197		

1.9. Total Price – Supply and Install unless otherwise noted – Harold T. Barrett Junior High

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1411-28W-RELAMP	120	1xF028/SS T8 relamp only	49	49		
1-1421-T8-28W-RELAMP	120	2xF028/SS T8 relamp only	417	417		
1-2441-T8-RELAMP	120	4xF028/SS T8 relamp only	60	60		

1.10. Total Price – Supply and Install unless otherwise noted – Ian Forsyth Elementary

CODE	VOLTAGE	DESCRIPTION	TOTAL QTY	MATERIAL QUANTITY SUPPLIED BY OWNER/ESCo		
				Lamps	Ballasts	Fixtures
A01						
1-1421-T8-28W-RELAMP	120	2xF028/SS T8 relamp only	410	410		

APPENDIX E

Sample Form of As-Built Report

Project:	
Building:	

Room Information			Existing Feasibility Study			Retrofit Feasibility Study			Existing As Built			Retrofit As Built		
No.	Desc.	Hours	Code	QTY	Watts	Code	QTY	Watts	Code	QTY	Watts	Code	QTY	Watts
226	OFF	1,955	1-2421	2	77	1-2421-T8-LBF	2	42	1-2421	2	77	1-2421-T8-LBF	2	42
227	OFF	1,9558	1-1411	4	43	1-1411-T8	4	25	1-1411	4	43	1-1411-T8	4	25
228	CLA	1,738	1-2421	4	77	1-2421-T8-LBF	4	42	1-2421	4	77	1-2421-T8-LBF	4	42
229	CLA	1,738	1-1421	2	77	1-1411-T8-KIT-RWH	2	25	1-1421	2	77	1-1421-T8-LBF	2	42
230	CLA	1,738	1-1421	4	77	1-1411-T8-KIT-RWH	4	25	1-1421	4	77	1-1421-T8-LBF	4	42
231	CLA	1,738	1-1421	4	77	1-1411-T8-KIT-RWH	4	25	1-1421	4	77	1-1421-T8-LBF	4	42
232	CLA	1,738	1-1421	2	77	1-1411-T8-KIT-RWH	2	25	1-1421	2	77	1-1421-T8-LBF	2	42
242	CLA	1,738	1-1421-T8	4	59	1-1421-T8-LBF	4	42	1-1421	4	77	1-1421-T8-LBF	4	42
247	CLA	1,738	1-1421	2	77	1-N1411-T8-WRA	2	25	1-1421	2	77	1-N1411-T8-WRA	2	25
247	CLA	1,738	1-1421	4	77	1-N1821T-T8-WRA	4	48	1-1421	4	77	1-N1821T-T8-WRA	4	48
248	LOU	1,955	1-1421	4	77	1-N1821T-T8-WRA	4	48	1-1421	4	77	1-N1821T-T8-WRA	4	48
249	COR	3,476	1-1421	2	77	1-1411-T8-KIT-RWH	2	25	1-1421	2	77	1-1411-T8-KIT-RWH	2	25
249	COR	3,476	1-1421-T8	4	59	1-1411-T8-KIT-RWH	4	25	1-1421	4	77	1-1411-T8-KIT-RWH	4	25
312	CLA	1,738	1-1421	4	77	1-1421SQ-T8-LBF	4	43	1-1421	4	77	1-1421SQ-T8-LBF	4	43
315	CLA	1,738	1-1421	2	77	1-1411-T8-KIT	2	25	1-1421	2	77	1-1411-T8-KIT	2	25
319	CLA	1,738	1-1421-T8	4	59	1-1421-T8-LBF	4	42	1-1421	4	77	1-1421-T8-LBF	4	42
320	CLA	1,738	1-1421	4	77	1-1421-T8-LBF	4	42	1-1421	4	77	1-1421-T8-LBF	4	42
321	CLA	1,738	1-1421	2	77	1-1421-T8-LBF	2	42	1-1421	2	77	1-1421-T8-LBF	2	42
322	CLA	1,738	1-1421	2	77	1-1421SQ-T8-LBF	2	43	1-1421	2	77	1-1421SQ-T8-LBF	2	43
323	CLA	1,738	1-1421	4	77	1-1421SQ-T8-LBF	4	43	1-1421	4	77	1-1421SQ-T8-LBF	4	43
329	COM	1,955	1-1411	4	43	1-1411SD-T8-LBF	4	21	1-1411	4	43	1-1411SD-T8-LBF	4	21
330	LIB	1,955	1-1421	2	77	1-1421-T8-LBF	2	42	1-1421	2	77	1-1421-T8-LBF	2	42
336	CLA	1,738	1-1421	4	77	1-1411-T8-KIT	4	25	1-1421	4	77	1-1411-T8-KIT	4	25
337	CLA	1,738	1-1421	4	77	1-1421-T8-LBF	4	42	1-1421	4	77	1-1421-T8-LBF	4	42
337	CLA	1,738	1-1421	5	77	1-1421SQ-T8-LBF	5	43	1-1421	4	77	1-1421SQ-T8-LBF	4	43
338	CLA	1,738	1-1421	5	77	1-1421SQ-T8-LBF	5	43	1-1421	4	77	1-1421SQ-T8-LBF	4	43
341	OFF	1,955	1-1421	5	77	1-1411SD-T8-KIT	5	24	1-1421	4	77	1-1411SD-T8-KIT	4	24
341	OFF	1,955	1-1421	5	77	1-1411-T8-KIT	5	25	1-1421	4	77	1-1411-T8-KIT-RWH	4	25
342	CLA	1,738	1-1421	5	77	1-1411SD-T8-KIT	5	24	1-1421	4	77	1-1411SD-T8-KIT-RWH	4	24

APPENDIX F

Drawings

School	Drawing Name	Location
Harold T. Barrett Junior High		
Chebucto Heights Elementary		
J. L. Ilsley High		
Halifax Central Junior High		
Harbour View Elementary		
Ian Forsyth Elementary		

END OF APPENDIX F

APPENDIX G

Asbestos Report

ASBESTOS SURVEY,
Harbourview School

25 Alfred Street
Dartmouth, N.S., B3A 4E8

Prepared by:

Maritime Testing (1985) Limited
116-900 Windmill Rd
Dartmouth, N.S.

Prepared for:

Halifax Regional School Board
90 Alderney Dr., 3rd floor
Dartmouth, N.S.
B2Y 4S8

June 15, 1999

NEO-1256.87

INTRODUCTION

The Halifax Regional School Board has undertaken a mandate to conduct asbestos inventories in each of the schools in the School Board region. Maritime Testing (1985) Limited (MTL) was retained by the Board to conduct these inventories and prepare the asbestos survey reports. This report on Harbourview School represents one of the schools surveyed as part of this comprehensive inventory.

METHODS

Each school was inspected for building materials that might be composed of asbestos containing minerals (ACMs). Types of materials examined and sampled as needed could include but not necessarily be limited to:

mechanical systems:	insulation on pipes, fittings, boilers, air conveyance systems, structural materials
flooring:	sheet flooring, vinyl tiles
ceilings:	suspended ceilings, rigid ceilings, texture coats
walls:	texture coats, wallboards, plasters
building exterior:	wall panels, panels under entrances

Please note the following limitations regarding these surveys:

1. Sampling and inspection was not conducted if permanent visible damage would result from these activities. In such circumstances, inference is made to the potential for ACMs to be present based upon other observations made in the building (for example, holes are not cut into wall cavities to determine if insulated pipe work is present).

2. In each school, every room that was accessible was surveyed. In cases where access to a room was not possible, inference on that room is made based on what was observed throughout the rest of the school.

3. Plaster, unlike many other materials in schools such as floor tiles, ceiling tiles, etc., was originally fabricated on site. Each batch, which typically would be wheel barrow sized, could potentially be a bit different from the next. Asbestos, typically chrysotile, was used as well as other materials (hairs, wood) as a strengthening material and was applied “in shovelfuls” more or less at the

discretion of the worker. Samples collected routinely in schools are based upon perceived differences in texture, age of construction, etc., and may not reflect small differences from one batch to another, particularly since sample sizes are kept small to reduce damage. Accordingly, samples of plaster identified as not containing asbestos may well not be precisely indicative of the overall composition of the plaster in general. As a result, plaster should be assumed to contain asbestos unless a specific sample from the area in question has been analysed and shown to be asbestos free.

All inspections were scheduled such that sampling could be conducted after normal school hours. This school was surveyed on February 15, 1998.

Samples collected at the school were examined under both stereo and polarised light microscopy to determine fibre types and relative percentages of each asbestos mineral if it was present. As well, any ACMs were further categorised into one of three categories as noted below:

Priority 1: materials representing a potential health risk with normal routine building use and which require immediate removal. Such materials may include damaged ceiling tiles, damaged pipe insulation, damaged friable boiler insulation.

Priority 2: materials which do not pose a health risk under normal school usage but which pose a periodic risk to maintenance and custodial staff or which are currently undamaged but which might easily be damaged in the future; these materials require removal during the next suitable time (ie a major school break, next planned renovation project). Such materials may include undamaged ceiling tiles, damaged pipe insulation above ceilings, undamaged texture coats.

Priority 3: Non-friable materials or materials that are in good condition, are not generally accessible, and which currently pose no risk to any occupant. Such materials may include floor tiles, transite panels, mechanical insulation in good repair.

Refer to Appendix A for a summary of the Priorities of the ACMs.

Data are also available on an asbestos inventory data base, accessible from the school board offices prepared specifically by MTL for this project.

For a list of materials sampled, refer to Appendix B. Refer to Appendix C for a diagram of the school floor plan and sample locations. For a list of locations and quantities of asbestos containing materials, refer to Appendix D. Refer to Appendix E for a room by room account of ACM's. Refer to Appendix F for photos of Priority 1 ACMs.

INVENTORY RESULTS.

Boiler Room: There are two boiler rooms in this school. In the Old Boiler Room, the two boilers are insulated with cement trowelled over fibreglass. The cement contains 60% chrysotile asbestos. The cement is in good condition and a Priority 3. Pipe elbows throughout the room are insulated with cement that contains 60% chrysotile asbestos. The cement is in good condition and a Priority 3.

In the New Boiler Room , the boiler is encased in steel with no access to the insulation underneath. The insulation on the exhaust contains 60% chrysotile asbestos, is in good condition and a Priority 3. The pipe elbows are insulated with asbestos cement(60% chrysotile). The cement is in good condition and a Priority 3. The Hot Water Tank is insulated with asbestos cement (60% chrysotile) over fibreglass. The cement is in good condition and a Priority 3. The elbows of the roof drain are insulated with asbestos cement, are in good condition and a Priority 3.

Exterior: No materials on the exterior contain asbestos.

Floors: Various types of 9" tiles throughout the school contain 10% chrysotile asbestos. None of the other floor coverings contain asbestos. The tile is in good condition and a Priority 3.

Walls: None of the wall materials in this school contain asbestos.

Ceilings: In various locations throughout the school, the ceiling is made up of 2'x4' transite panels that contain 40% chrysotile asbestos. The tile is in good condition and a Priority 2. None of the other types of ceiling materials in this school contain asbestos.

Pipe Systems: The pipes throughout the school are insulated with fibreglass or cardboard on the runs and asbestos cement (60% chrysotile) on the elbows. Asbestos cement on elbows above the ceiling are a Priority 3 and below the ceiling are a Priority 2. None of the other pipe materials contain asbestos. Damaged asbestos cement on pipe elbows below the ceiling is a Priority 1.

Appendix A:

Summary: The following is a summary of Priorities of the various ACMs at this school:

Priority 1:
- Music Room, damaged asbestos cement on a pipe elbow below the ceiling
- Room 01, damaged asbestos cement on pipe elbow below the ceiling
- Guidance Room, damaged asbestos cement on pipe elbows below the ceiling
- Janitor's Room, damaged asbestos cement on pipe elbows below the ceiling
- Room 115, damaged asbestos cement on pipe elbows below the ceiling
- Room 113, damaged asbestos cement on pipe elbow below the ceiling
- Room 110, damaged asbestos cement on pipe elbow below the ceiling
- Room 111, damaged asbestos cement on pipe elbow below the ceiling

Priority 2:
- various locations throughout the school, asbestos cement on pipe elbows located below the ceiling
- various locations throughout the school, asbestos ceiling tiles

Priority 3:
- Old Boiler Room, asbestos cement on boilers
- Old Boiler Room, asbestos cement on pipe elbows
- New Boiler Room, asbestos cement on boiler exhaust
- New Boiler Room, asbestos cement on pipe elbows
- New Boiler Room, asbestos cement on Hot Water Tank
- Asbestos cement on roof drains throughout new Boiler Room
- 2'x4' suspended ceiling panel throughout building

Appendix B:

Samples taken and locations

#	Sample description	Location	ACM
	Boiler Room		
87.1	Insulation on Boiler Exhaust	New Boiler Room	yes
87.2	Cement on pipe elbow	New Boiler Room, Heating Supply Line	yes
87.3	Cement on Hot Water Tank	New Boiler Room	yes
87.4	Cement trowelled over Boiler	Old Boiler Room, Boiler #W.178	yes
87.5	Cement trowelled over fibreglass on pipe elbow	Old Boiler Room, Supply Line	yes
87.6	Cement trowelled over elbow of roof drain	New Boiler Room	yes
	Exterior		
	No materials on exterior were sampled.		
	Floors		
87.7	12" tile, gray/blue marble	Basement east storage room	no
87.8	12" tile, gray with white streaks	Basement East Stairwell	no
87.9	9" tile, gray with white streaks	Foyer outside Room 01	no
87.10	12" tile, off-white with beige and green	Foyer outside Room 01	no
87.11	Seamless flooring, gray with blue and brown	Room 03	no
87.17	12" tile, light beige with white and brown streaks	Music Room	no
87.18	9" tile, beige with white and brown streaks	Room 01	no
87.19	12" tile, pink	Room 01	no
87.21	9" tile, lime green with white streaks	Guidance Room	yes
87.22	9" tile, green with white streaks	Guidance Room	yes
87.23	12" tile, off-white with black specks	Janitor's Room by Guidance Room	no
87.24	12" tile, green marble	Girls Washroom	no

Appendix B:

Samples taken and locations

#	Sample description	Location	ACM
87.26	12" tile, pink	Janitor's Sink Room	no
87.27	Seamless flooring,green with black streaks	Storage room (1st floor)	no
87.28	12" tile, beige	Room 113	no
87.29	9" tile, white with black streaks	1st floor hallway, south end	no
87.30	9" tile, blue with dark blue and white streaks	1st floor hallway, south end	yes
87.31	Stair tread, red with red streaks	Joining hallway and exit	no
87.33	Aqua seamless	Caretaker's Supply Room	no
87.35	12" tile, gray marble	Gym Stage	no
87.36	12" tile, blue marble	Gym Stage	no
87.38	Seamless flooring, beige	Principal's Washroom	no
87.40	12" tile, green marble	East Hallway	no
87.43	12" tile, brown with dark and light brown pattern	North Hallway	no
87.44	Seamless flooring, tan	North Hallway	no
87.46	9" tile, gray	South west exit	no
87.47	12" tile, brown with dark brown spots	South west exit	no
	Walls		
	No wall samples were taken in this school.		
	Ceilings		
87.12	2'x4' suspended panel	Room 03	no
87.13	2'x4' suspended panel	Room 03	no
87.14	12" tile	Music Room	no
87.15	12" tile	Music Room	no
87.25	2'x2' suspended panel	Girls Washroom	no
87.48	2'x2' suspended panel	Library	no

Appendix B:

Samples taken and locations

#	Sample description	Location	ACM
87.49	2'x2' suspended panel	Library	no
87.32	2'x4' suspended panel	Boys Change Room	yes
87.37	12" tile	Gym Stage	no
87.39	2'x2' suspended tile	North West Exit	no
87.41	2'x2' suspended tile	Creative Play Room	no
87.42	2'x2' suspended tile	Creative Play Room	no
	Pipes		
87.16	cement on pipe elbow	Music Room	yes
87.34	cement on pipe elbow	Phys. Ed. Instructor's Room	yes
	Miscellaneous		
87.20	seamless covering on counter top, red	Music Room	no
87.27	seamless covering on counter top, green with black	Room 109	no
87.45	seamless covering on counter top, beige with brown	Room 207	no

Appendix C:
Floor Plans and Sample Locations

Appendix D:

Quantity and locations of ACMs.

Boiler Room

Description	Locations	Quantity
insulation on boiler exhaust	New Boiler Room	15'x18" outside dia.
cement on pipe elbow	throughout New Boiler Room	100
cement on Hot Water Tank	New Boiler Room	12'x4.5' outside dia.
cement trowelled over (2) boiler	Old Boiler Room	200 $ft.^2$
cement on pipe elbows	throughout Old Boiler Room	45
cement on roof drain elbows	throughout New Boiler Room	6

Exterior

No materials on exterior of this school contains asbestos.

Floors

Description	Locations	Quantity ($ft.^2$)
9" tile, lime green with white streaks	Guidance Office	32
9" tile, green with white streaks	Guidance Office	122
9" tile, green with white streaks	Janitor's Room	147
9" tile, green with white streaks	1st floor, south hallway	50
9" tile, blue with dark blue and white streaks	1st floor, south hallway	50

Walls

No wall materials in this school contain asbestos.

Ceilings

Description	Locations	Quantity ($ft.^2$)
2'x4' suspended panel	Boys Change Room	232
2'x4' suspended panel	Girls Shower Area	100

Ceilings

Description	Locations	Quantity ($ft.^2$)
2'x4' suspended panel	Women's Staff Washroom	25
2'x4' suspended panel	Men's Staff washroom	25
2'x4' suspended panel	Storage Washroom	25

Pipes

Description	Locations	Quantity
cement on pipe elbow below ceiling	Storage Room under east Stairwell	6
cement on pipe elbow below ceiling	Music Room	29
cement on pipe elbow below ceiling	Room 01	45
cement on pipe elbow below ceiling	Room 01 Foyer	6
cement on pipe elbow below ceiling	Guidance Room	8
cement on pipe elbow below ceiling	Janitor's Room	2
cement on pipe elbow below ceiling	Boys washroom	9
cement on pipe elbow below ceiling	Room 115	6
cement on pipe elbow below ceiling	Girls washroom	2
cement on pipe elbow below ceiling	Room 113	5
cement on pipe elbow below ceiling	Room 110	5
cement on pipe elbow below ceiling	Room 112	3
cement on pipe elbow below ceiling	Room 111	4
cement on pipe elbow below ceiling	First Floor Hallway	10
cement on pipe elbow below ceiling	Book Storage Room	4
cement on pipe elbow below ceiling	Phys. Ed. Instructor's Room	3
cement on pipe elbow above ceiling	Room 03	6
cement on pipe elbow above ceiling	Joining Hallway	4
cement on pipe elbow above ceiling	Library	2
cement on pipe elbow above ceiling	Room 107	2

Pipes

Description	Locations	Quantity
cement on pipe elbow above ceiling	Room 108	2
cement on pipe elbow above ceiling	Gym Stage	6
cement on pipe elbow above ceiling	Centre Hallway	2
cement on pipe elbow above ceiling	Health Room amd Washroom	2
cement on pipe elbow above ceiling	Staff Room	2
cement on pipe elbow above ceiling	North West Exit	2
cement on pipe elbow above ceiling	Gym Storage and Change Room	3
cement on pipe elbow above ceiling	Room 103	1
cement on pipe elbow above ceiling	Room 104	2
cement on pipe elbow above ceiling	Room 105	2
cement on pipe elbow above ceiling	Room 106	2
cement on pipe elbow above ceiling	East Hallway	5

Appendix E:

ACM's Room by Room (for quantities refer to Appendix D).

Room	ACMs
1st floor, south hallway	9" tile, green with white streaks 9" tile, blue with dark blue and white streaks
Book Storage Room	cement on pipe elbows below ceiling
Boys washroom	cement on pipe elbows below ceiling
Boys Change Room	2'x4' suspended panel
Centre Hallway	cement on pipe elbows above ceiling
East Hallway	cement on pipe elbows above ceiling
First Floor Hallway	cement on pipe elbows below ceiling
Girls washroom	cement on pipe elbows below ceiling
Girls Shower Area	2'x4' suspended panel
Guidance Office	9" tile, green with white streaks 9" tile, lime green with white streaks cement on pipe elbows below ceiling
Gym Stage	cement on pipe elbows above ceiling
Gym Storage and Change Room	cement on pipe elbows above ceiling
Health Room amd Washroom	cement on pipe elbows above ceiling
Janitor's Room	9" tile, green with white streaks cement on pipe elbows below ceiling
Joining Hallway	cement on pipe elbows above ceiling
Library	cement on pipe elbows above ceiling
Men's Staff washroom	2'x4' suspended panel
Music Room	cement on pipe elbows below ceiling
New Boiler Room	cement on Hot Water Tank insulation on boiler exhaust
North West Exit	cement on pipe elbows above ceiling
Phys. Ed. Instructor's Room	cement on pipe elbows below ceiling

ACM's Room by Room (for quantities refer to Appendix D).

Room	ACMs
Room 112	cement on pipe elbows below ceiling
Room 111	cement on pipe elbows below ceiling
Room 01 Foyer	cement on pipe elbows below ceiling
Room 01	cement on pipe elbows below ceiling
Room 110	cement on pipe elbows below ceiling
Room 03	cement on pipe elbows above ceiling
Room 113	cement on pipe elbows below ceiling
Room 115	cement on pipe elbows below ceiling
Room 107	cement on pipe elbows above ceiling
Room 108	cement on pipe elbows above ceiling
Room 106	cement on pipe elbows above ceiling
Room 105	cement on pipe elbows above ceiling
Room 104	cement on pipe elbows above ceiling
Room 103	cement on pipe elbows above ceiling
Staff Room	cement on pipe elbows above ceiling
Storage Room under east Stairwell	cement on pipe elbows below ceiling
Storage Washroom	2'x4' suspended panel
throughout Old Boiler Room	cement on pipe elbows cement trowelled over (2) boiler
throughout New Boiler Room	cement on roof drain elbows cement on pipe elbows
Women's Staff Washroom	2'x4' suspended panel

Appendix F:
* other Priority 1's throughout the school are similar to this photo.

Music Room, damaged asbestos cement on a pipe elbow below the ceiling

ASBESTOS SURVEY,
Harold T. Barrett Junior High School
862 Beaverbank Rd.
Beaverbank, N.S., B4G 1A9

Prepared by:

Maritime Testing (1985) Limited
116-900 Windmill Rd
Dartmouth, N.S.

Prepared for:

Halifax Regional School Board
90 Alderney Dr., 3rd floor
Dartmouth, N.S.
B2Y 4S8

January 12, 1999

NEO-1256.15

INTRODUCTION

The Halifax Regional School Board has undertaken a mandate to conduct asbestos inventories in each of the schools in the School Board region. Maritime Testing (1985) Limited (MTL) was retained by the Board to conduct these inventories and prepare the asbestos survey reports. This report on Harold T. Barrett Junior High School represents one of the schools surveyed as part of this comprehensive inventory.

METHODS

Each school was inspected for building materials that might be composed of asbestos containing minerals (ACMs). Types of materials examined and sampled as needed could include but not necessarily be limited to:

mechanical systems:	insulation on pipes, fittings, boilers, air conveyance systems, structural materials
flooring:	sheet flooring, vinyl tiles
ceilings:	suspended ceilings, rigid ceilings, texture coats
walls:	texture coats, wallboards, plasters
building exterior:	wall panels, panels under entrances

Please note the following limitations regarding these surveys:

1. Sampling and inspection was not conducted if permanent visible damage would result from these activities. In such circumstances, inference is made to the potential for ACMs to be present based upon other observations made in the building (for example, holes are not cut into wall cavities to determine if insulated pipe work is present).

2. In each school, every room that was accessible was surveyed. In cases where access to a room was not possible, inference on that room is made based on what was observed throughout the rest of the school.

All inspections were scheduled such that sampling could be conducted after normal school hours. This school was surveyed on January 5, 1999.

Samples collected at the school were examined under both stereo and polarised light microscopy to determine fibre types and relative percentages of each asbestos mineral

if it was present. As well, any ACMs were further categorised into one of three categories as noted below:

Priority 1: materials representing a potential health risk with normal routine building use and which require immediate removal. Such materials may include damaged ceiling tiles, damaged pipe insulation, damaged friable boiler insulation.

Priority 2: materials which do not pose a health risk under normal school usage but which pose a periodic risk to maintenance and custodial staff or which are currently undamaged but which might easily be damaged in the future; these materials require removal during the next suitable time (ie a major school break, next planned renovation project). Such materials may include undamaged ceiling tiles, damaged pipe insulation above ceilings, undamaged texture coats.

Priority 3: Non-friable materials or materials that are in good condition, are not generally accessible, and which currently pose no risk to any occupant. Such materials may include floor tiles, transite panels, mechanical insulation in good repair.

Refer to Appendix A for a summary of the Priorities of the ACMs.

Data are also available on an asbestos inventory data base, accessible from the school board offices prepared specifically by MTL for this project.

For a list of materials sampled, refer to Appendix B. Refer to Appendix C for a diagram of the school floor plan and sample locations. For a list of locations and quantities of asbestos containing materials, refer to Appendix D. Refer to Appendix E for a room by room account of ACM's. Refer to Appendix F for photos of Priority 1 ACMs.

INVENTORY RESULTS.

This building was constructed in 1985.

Boiler Room: There are no materials in the Boiler Room that contain asbestos

Exterior: On the underside of the north east entrance overhang is asbestos transite panel (35% chrysotile). The panel is in good condition and a Priority 3. No other materials on the exterior contain asbestos.

Floors: None of the floor coverings in this school contain asbestos.

Walls: None of the wall materials in this school contain asbestos.

Ceilings: None of the ceiling materials in this school contain asbestos.

Pipe Systems: No pipe insulation in this school contains asbestos.

Appendix A:

Summary: The following is a summary of Priority of the various ACMs at this school:

Priority 1:	none
Priority 2:	none
Priority 3:	- exterior north east entrance, underside of entrance overhang, transite panelling

Appendix B:

Samples taken and locations

#	Sample description	Location	ACM
	Boiler Room		
15.40	insulation on boiler exhaust	Boiler #2 exhaust	no
15.41	cement trowelled over seams of fibreglass insulation on condensate tanks	condensate tank above boiler # 3	no
15.42	cement on pipe elbow	heating supply line	no
15.43	boiler gasket	rear hatch of green boiler	no
15.44	boiler gasket	rear hatch of Boiler #3	no
15.45	gasket on exhaust	beneath cap of bottom of green boiler exhaust	no
	Floors		
15.1	12" tile, brown flecked	Main Foyer	no
15.2	12" tile, off-white with gray fleck	Guidance Office	no
15.3	12" tile, white with a light brown fleck	Main Office	no
15.8	seamless flooring, beige with checks	Portable #7	no
15.9	seamless flooring, 8" checks with gray fleck	Portable #6	no
15.10	12" tile, brown fleck	2nd level	no
15.10	seamless flooring, brown with white	Foley Portable	no
	Walls		
15.6	acoustic panel	gym	no
	Ceilings		
15.4	2'x4' suspended tile	Room 107	no
15.5	2'x4' suspended tile	Music Room	no
15.7	1'x1' glued-on tile	Room 206	
	Pipes		

Appendix B:

Samples taken and locations

#	Sample description	Location	ACM
	no samples taken		

Appendix D:

Quantity and locations of ACMs.

Boiler Room

no ACMs exist

Exterior

Description	Locations	Quantity
transite panel	underside of northeast	40 ft.^{2}

Floors

no ACMs exist

Walls

no ACMs exist

Ceilings

no ACMS exist

Pipes

no ACMs exist

Appendix E:

ACM's Room by Room (for quantities refer to Appendix C).

Room	ACMs
Exterior, north east entrance	underside of entrance overhangs

Appendix F:

There are no Priority 1 ACMs in this school.

ASBESTOS BUILDING MATERIALS SURVEY
J. L. ILSLEY HIGH SCHOOL
38 SYLVIA ANENUE
HALIFAX, NOVA SCOTIA

Prepared for:

Halifax Regional School Board
6669 Bayers Road
Halifax, Nova Scotia
B3L 2B4

Pinchin LeBlanc Project 01-1241

September, 1998

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

Pinchin LeBlanc Environmental Ltd. was retained by the Halifax Regional School Board to perform a building survey of J. L. Ilsley High School, located at 38 Sylvia Avenue, Halifax, for asbestos-containing materials (ACM).

The following report presents a detailed investigation of condition, location, and type of ACM present in the subject building. This report should be read in conjunction with the Overview Report prepared by Pinchin LeBlanc Environmental in August of 1998. The Overview Report contains information regarding regulatory requirements, survey scope, survey methodology and survey limitations.

As most regulations distinguish between friable[1] and non-friable[2] materials when assigning appropriate work practices, the asbestos building materials survey conducted included both friable and common non-friable ACM.

2.0 SURVEY INFORMATION

SURVEY DATE: July 24-29, 1998

SURVEYORS: Trevor Houweling
Jeff Davis

AREAS NOT ACCESSED:	Room 222 (Location 68)	Room 226 (Location 72)
(No keys available)	Room 236 (Location 82)	Room 134 (Location 101)
	Room 136 (Location 102)	Room141 (Location 109)
	Room 120 (Location 114)	Cafeteria Kitchen (Loc. 151)

[1]The term friable is applied to a material that can be readily reduced to dust or powder by hand or moderate pressure. Friable ACM has a much greater potential to release airborne asbestos fibres when disturbed. The most common friable ACM used in the past are sprayed or trowelled materials (for fireproofing or thermal insulation), texture plaster (decorative or acoustic), and mechanical insulations.

[2]Common non-friable ACM include vinyl floor tiles, ceiling tiles, gasket materials, asbestos cement pipe or board (transite), and asbestos textiles. Although a product may be considered non-friable when new, if the product releases fine dust due to deterioration or during removal, the free dust is considered friable. For example, most lay-in or glued on acoustic ceiling tiles release significant dust during removal of large quantities of these tiles.

3.0 RESULTS OF SAMPLE ANALYSIS

A total of twenty-four (24) bulk samples were collected and submitted for asbestos content analysis at the Pinchin LeBlanc Environmental laboratory. The results of these analyses are presented in tabular form below, and a laboratory report is attached as Appendix I.

3.1 Table 1 - Asbestos Sample Summary Table

BULK ASBESTOS SAMPLE SUMMARY TABLE
J. L. Ilsley High School

Sample No.	Description	Asbestos
01	Loc. 01 Room 301, 12" Green Floor Tile	Chrysotile <0.1%
02	Loc. 01 Room 301, AT-1 2' x 2' Lay-in ceiling Tile (Pinhole)	None Detected
03	Loc. 02 Room 303, 12" Beige w/Speck Floor Tile	Chrysotile <0.1%
04	Loc. 12 Room 310, AT-2 2'x2' Transite Ceiling Tiles	Chrysotile 10-25%
05	Loc. 13 Room 312, Domestic Water Pipe Elbow Parging Cement	Chrysotile 50-75%
06	Loc. 14 Room 314, AT-3 2'x2' Lay-in Ceiling Tile (Pinhole)	None Detected
07	Loc. 15 Room 316, Non-Skid Flooring	None Detected
08	Loc. 15 Room 316, Transite Fumehood Liner Panels	Chrysotile 10-25%
09	Loc. 13 Room 312, 12" Lt. Brown w/Speck Floor Tile	None Detected
010	Loc. 22 Room 319, 2'x2' Lay-in Ceiling Tile (Fissure)	None Detected
011	Loc. 38 Stair No. 1, 12" White Floor Tile	None Detected
012	Loc. 55 Room 212, Domestic Water Pipe Elbow Parging Cement	Chrysotile 50-75%
013	Loc. 84 Fl. 2 Stair No. 1, Texture Ceiling Plaster	None Detected
014	Loc. 90 Library Magazine Room, Tar Over Fibreglass Drain Lines	None Detected
015	Loc. 93 Room 215, Wall Plaster	None Detected
016	Loc. 103 Boiler Rm 139 Heating Line Elbow Parging over Fibreglass	Chrysotile 50-75%
017	Loc. 103 Boiler Rm 139, Hot Water Tank Parging over Fibreglass	Chrysotile 50-75%
018	Loc. 103 Boiler Rm 139, City Water Pipe Elbow Parging Cement	Chrysotile 50-75%
019	Loc. 103 Boiler Rm 139, Boiler Exhaust Block Insulation	Amosite 10-25% Chrysotile 5-10%
020	Loc. 111 Room 126, Drywall Compound	None Detected
021	Loc. 113 Room 122, Transite Panel on Table	Chrysotile 10-25%
022	Loc. 125 Room 100, Vinyl Sheet Flooring	None Detected
023	Loc. 156 Room 117, Domestic Water Pipe Elbow Tar and Parging	Chrysotile 50-75%
024	Loc. 160 Building Exterior - Concrete Wall Parging	None Detected

Note that current provincial regulations classify materials which contain >1% asbestos by volume as asbestos-containing.
Materials which contain trace amounts of asbestos (<1% by volume) are considered by Health Canada to have asbestos as a "minor component".

4.0 FINDINGS

The ACM found during this survey is discussed below. Detailed information regarding specific conditions, locations, and recommendations for all asbestos materials is contained in the computerized Environmental Management System.

Survey drawings, marked with inspection Location Numbers (which correspond with the computerized Environmental Management System) and sampling locations, are attached as Appendix II. A tabular report outlining the location and condition of all known friable asbestos materials is attached as Appendix III. Photographs of certain items of concern are attached as Appendix IV.

.1 Sprayed or Trowelled Fireproofing or Thermal Insulation

No sprayed or trowelled fireproofing or thermal insulation was observed.

.2 Texture Finishes

Sampling of textured ceiling plaster in the Fl. 2 Stair No. 1 (Location 84) did not detect the presence of asbestos within this material.

.3 Mechanical Insulation

The majority of pipe elbows and fittings observed throughout the school are insulated with a grey parging cement which contains 50-75% chrysotile asbestos (samples 05, 012, 023). The majority of the friable parging cement is rated in GOOD and FAIR condition and is concealed by the lay-in ceiling tile system. The parging cement is covered either with a canvas or a tar covering.

Straight section of pipe are insulated with obvious non-asbestos fibreglass insulation. Sampling of the tar covering material over the fibreglass did not detect the presence of asbestos (sample 014).

Pipe elbows and fittings throughout the Boiler Room 139 (Location 103) are insulated with a parging cement that contains 50-75% chrysotile asbestos (samples 016, 018). The friable

parging cement is covered with a canvas covering, and except for a single elbow is rated in GOOD condition. Samples were collected of heating and city water system pipe elbows and fittings.

The hot water tank located in the Boiler Room 139 (Location 103), is insulated with a parging cement over a fibreglass base insulation. The friable parging cement covering was sampled (sample 017) and contains 50-75% chrysotile asbestos. Approximately 300 square feet of the parging cement covers the tank, 298 square feet of which is rated in GOOD condition and 2 of which is rated in FAIR condition. The parging cement is covered with a canvas covering.

The boiler exhaust is insulated with a preformed block insulation, often referred to as 'mag block'. The friable mag block insulation was sampled and contains 10-25% amosite and 1-5% chrysotile asbestos (sample 019). Approximately 30 square feet of the material is present, covered with a canvas covering, in GOOD condition.

The specific location and quantities of asbestos-containing mechanical insulation in FAIR and POOR condition recommended for remedial work is provided in tabular form in the Recommendations (Section 5.0) of this report.

The computerized Environmental Management System contains information regarding the location, condition and other details regarding all asbestos-containing items.

.4 Acoustic Ceiling Tiles

Asbestos-cement (Transite) ceiling panels, 2'x2' in size are present in Room 310, 114, and 110 (Locations 012, 122, 124). Transite contains 10-25% chrysotile asbestos (sample 04) and is considered a non-friable asbestos-containing product. These tiles are also discussed in section 4.6 Asbestos-Cement Products.

Three (3) visually distinct types of lay-in acoustic ceiling tile are present, none of which contain asbestos (samples 02, 06, 010).

.5 Plaster and Drywall Compound

Sampling of wall plaster in Room 215 (Location 93) did not indicate the presence of asbestos within this material (sample 015).

Sampling of drywall joint filling compound in Room 126 (Location 111) did not indicate the presence of asbestos within this material (sample 020).

.6 Asbestos Cement Products

Asbestos-cement (Transite) ceiling panels, 2'x2' in size are present in Room 310, 114, and 110 (Locations 012, 122, 124). Transite contains 10-25% chrysotile asbestos (sample 04) and is considered a non-friable asbestos-containing product.

Asbestos cement, or Transite panels are present in Room 316, Fl.3 Chem. Lab (Location 15) as fume hood liner panels. The fumehood liner panels were sampled and contain 10-25% chrysotile asbestos (sample 08).

Transite is present as a countertop in the Room 318 Science Lab (Location 017) and Room 122 (Location 113). Transite is considered a non-friable asbestos product and contains 10-25% chrysotile asbestos (sample 021).

All Transite is in GOOD condition.

.7 Vinyl Floor Tiles

Samples 01, 03, 09, 011 collected of various floor tiles throughout the school, did not indicate the presence of other than trace quantities (less than 1%) of asbestos within these tiles, (floor tile samples were analysed by the Polarized Light Microscopy, PLM method).

Current provincial regulations classify materials which contain 1% or more, asbestos by volume, as asbestos-containing materials. Materials which contain "trace quantities" of asbestos (less than 1%) are considered by Health Canada to have asbestos as a "minor component" of the material, and do not necessarily require special handling or disposal.

.8 Vinyl Sheet Flooring

No asbestos-containing vinyl sheet flooring was observed.

Sampling of non-skid flooring in the Chemistry Lab Room 316 (Location 15) did not detect the
presence of asbestos within the flooring material (sample 07).

.9 Other Asbestos-Containing Products

No other asbestos-containing products were observed.

The parging material over the building exterior concrete was sampled and does not contain asbestos (sample 024).

.10 Suspect Asbestos Containing Materials

In addition to the asbestos-containing materials (ACM) described above, a number of other materials may be present in the building that are potentially asbestos-containing. These materials are grouped under the heading of Suspect ACM (random sampling, the need for dismantling equipment, and the lack of access, limit our ability to determine the asbestos content). As the presence of asbestos is suspected, these materials will require additional sampling to determine the asbestos content prior to building demolition or renovations that are likely to disturb them.

Suspect ACM include:

a) Materials which are not accessible and/or can not be sampled without demolition, dismantling or causing irreparable damage include: components or wiring within motors or lights, high voltage wiring, mechanical packing and gaskets, underground services or piping, roofing felts and mastics, exterior fascias and soffits, and materials located inside electrical fixtures or switch gear, transformers etc.

b) Materials with a historically, but random, asbestos content include: plaster finishes, drywall joint filling compound, fire-doors, window caulking, concrete levelling compound. (Details regarding the specific use of these materials is available in the Overview Report).

The asbestos sample numbers referenced above are taken from the Bulk Analysis Report in Appendix I. Refer to the Environmental Management System software for detailed information, and recommendations on all materials.

5.0 RECOMMENDATIONS

1. The implementation of an Asbestos Management Programme is required due to the presence of asbestos. A discussion of the criteria for an Asbestos Management Programme is found in the Overview Report.

2. Use Type 1 precautions for any work involving asbestos-cement products such as Transite ceiling panels, fume hood liners and countertops.

3. The repair of damaged mechanical insulation, as outlined in the Table below, following Type 2 Repair procedures, is recommended. This remedial work should be performed at the earliest convenience, prior to any access to or activity within these areas. Generally the potential for access to these materials would be limited to building maintenance operations, although if not addressed the potential to affect occupied areas of the school exists.

Table 5.1 - Items for Remedial Action

Loc.	Description	Item	Good	Fair	Poor	Notes
13	Room 312	Elbow	40	10	1	Maintenance Access
52	Fl.2 Electrical/Air Handling Room	Elbows		6		Maintenance Access
55	Room 212 (Janitor)	Elbows	20	6	1	Maintenance Access
58	Room 218	Elbows		100		Above Lay-in Ceiling
103	Boiler Room 139	Elbows	94		1	Maintenance Access
103	Boiler Room 139	Water Tank	298		2	Maintenance Access
140	Room 109A Vice Principal	Elbows		3		Above Ceiling

4. All ACM must be removed prior to demolition. In addition we recommend, for practical considerations that all friable asbestos be removed before significant disturbance brought about by maintenance, renovation or alteration.

Scott McCarthy
Projects Manager/Senior Consultant
Pinchin LeBlanc Environmental Ltd.

Trevor Houweling
Project Consultant
Pinchin LeBlanc Environmental Ltd.

APPENDIX I

RESULTS OF BULK SAMPLE ANALYSIS FOR ASBESTOS

APPENDIX II

SURVEY DRAWINGS

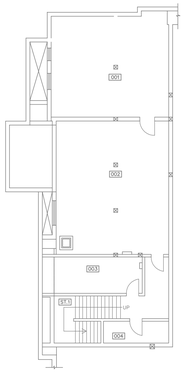
APPENDIX III

ALL ASBESTOS MATERIALS REPORT

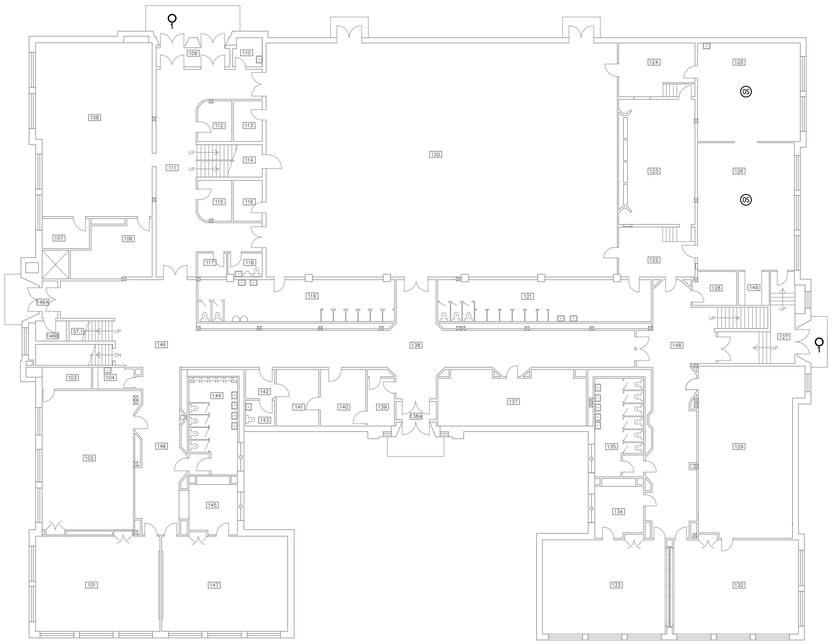
APPENDIX IV

PHOTOGRAPHS

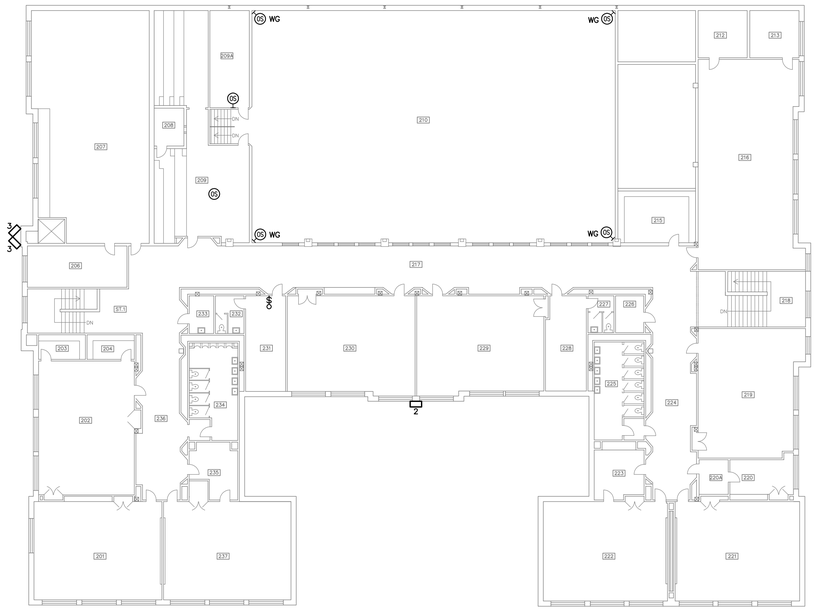
DRAWINGS



1 E-1 BASEMENT FLOOR PLAN - LIGHTING 1:200



2 E-1 GROUND FLOOR PLAN - LIGHTING 1:200



3 E-1 SECOND FLOOR PLAN - LIGHTING 1:200

LIGHTING

1 NEW SURFACE MOUNTED 20W LED CANOPY LUMINAIRE, SEE SPECIFICATIONS FOR TYPE.

2 NEW 27W EXTERIOR LED WALL PACK, SEE SPECIFICATIONS FOR TYPE.

3 NEW 58W EXTERIOR LED FLOOD LIGHT, FLOOD TYPE DISTRIBUTION, SEE SPECIFICATIONS FOR TYPE.

(OS) CEILING MOUNTED OCCUPANCY SENSOR

WG (OS) WALL/CORNER MOUNTED OCCUPANCY SENSOR, "WG" DENOTES WIREGUARD

NEW SWITCH MOUNTED OCCUPANCY SENSOR, SEE SPECIFICATIONS FOR TYPE.

4 E-1 ELECTRICAL SYMBOL LEGEND N.T.S.

GENERAL NOTES:

1. ALL EXISTING SWITCHING AND LUMINAIRES NOT SHOWN ON DRAWINGS SHALL REMAIN (UNLESS NOTED OTHERWISE.)
2. IN ROOMS WHERE LUMINAIRES ARE REMOVED AND EMERGENCY CIRCUITS EXIST, ENSURE THAT EMERGENCY CIRCUITS REMAIN. RE-FEED REMAINING LUMINAIRES AS REQUIRED. ALL EXISTING NIGHT LIGHT LUMINAIRES SHALL REMAIN UNSWITCHED
3. IN ROOMS WITH MULTIPLE SENSORS, WIRE SENSORS IN PARALLEL WITH EACH OTHER, AND WIRE SWITCHES IN SERIES WITH SENSORS. SWITCHES SHALL BE WIRED FROM THE SECONDARY SIDE OF THE POWER PACK. SUPPLY AND INSTALL ALL NECESSARY CONTACTORS AND POWER PACKS REQUIRED FOR EACH CIRCUIT CONTROL ALONG WITH ALL BACK BOXES, CONDUIT AND WIRING FOR A FULL AND COMPLETE WORKING SYSTEM. SENSORS TO CONTROL BOTH BALLASTS IN EACH LUMINAIRE, WHERE APPLICABLE.
4. IN ROOMS WHERE EXISTING LUMINAIRES ARE RELOCATED, REUSE POWER DROPS WHERE POSSIBLE OR PROVIDE NEW POWER DROPS AS REQUIRED.
5. LUMINAIRES SHOWN ON DRAWINGS ARE FOR QUANTITIES AND LOCATION; EXACT LOCATIONS SHALL BE VERIFIED ON SITE.
6. ADJUST SENSITIVITY ON OCCUPANCY SENSORS TO PICK-UP PEOPLE ENTERING A ROOM, BUT NOT WALKING BY IN A CORRIDOR OR ANOTHER ROOM.
7. CONTRACTOR TO VERIFY VOLTAGES PRIOR TO ORDERING MATERIAL.
8. ALL NEW AND RETROFITTED LUMINAIRES (120V & 347V) SHALL BE COMPLETE WITH A 'QUICK DISCONNECT'.
9. CONTRACTOR TO VERIFY DIAMETER OF EXISTING DOWN LIGHT(S) PRIOR TO ORDERING NEW REPLACEMENT MATERIAL TO ENSURE A COMPLETE AND WORKING SYSTEM.

5 E-1 NOTES N.T.S.

Halifax Regional School Board

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PROJECT

HALIFAX CENTRAL JUNIOR HIGH - LIGHTING RETROFIT UPGRADE

HALIFAX, NOVA SCOTIA

PROJECT NO.: 10-13-007

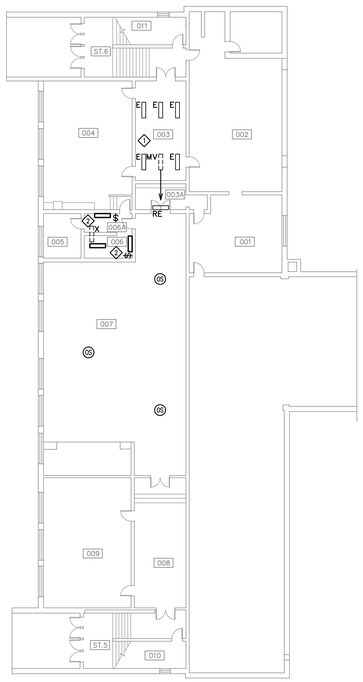
SHEET TITLE

LIGHTING PLANS, LEGEND AND NOTES

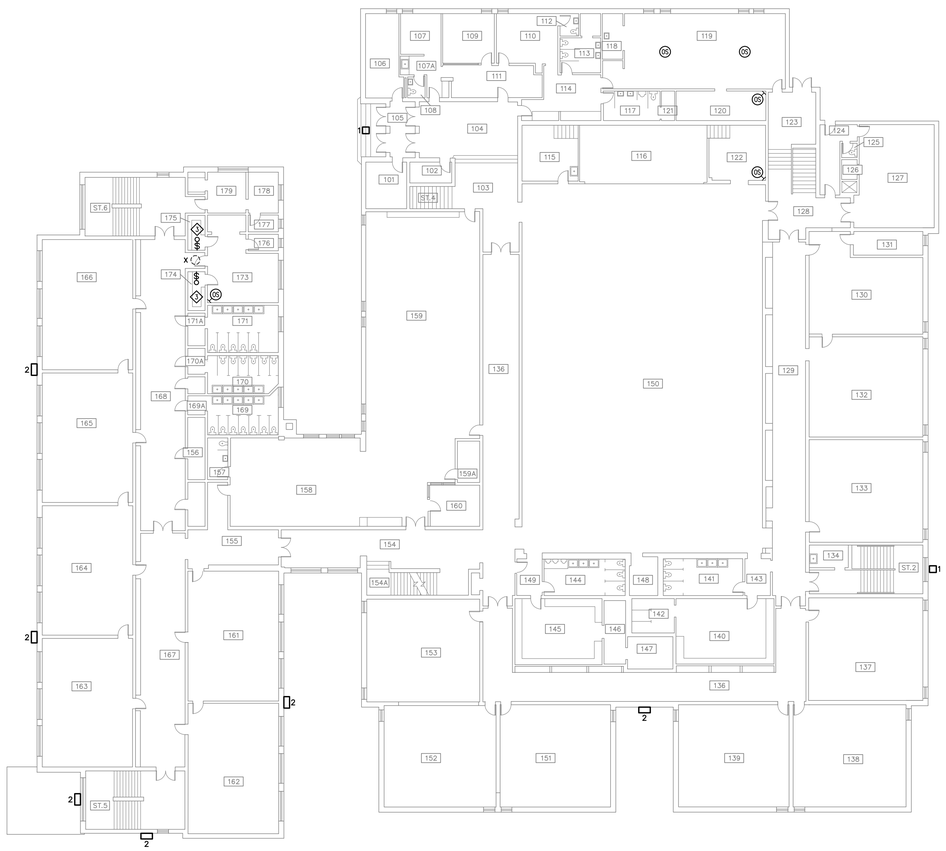
HRSB INTERNAL NO.:

E-1

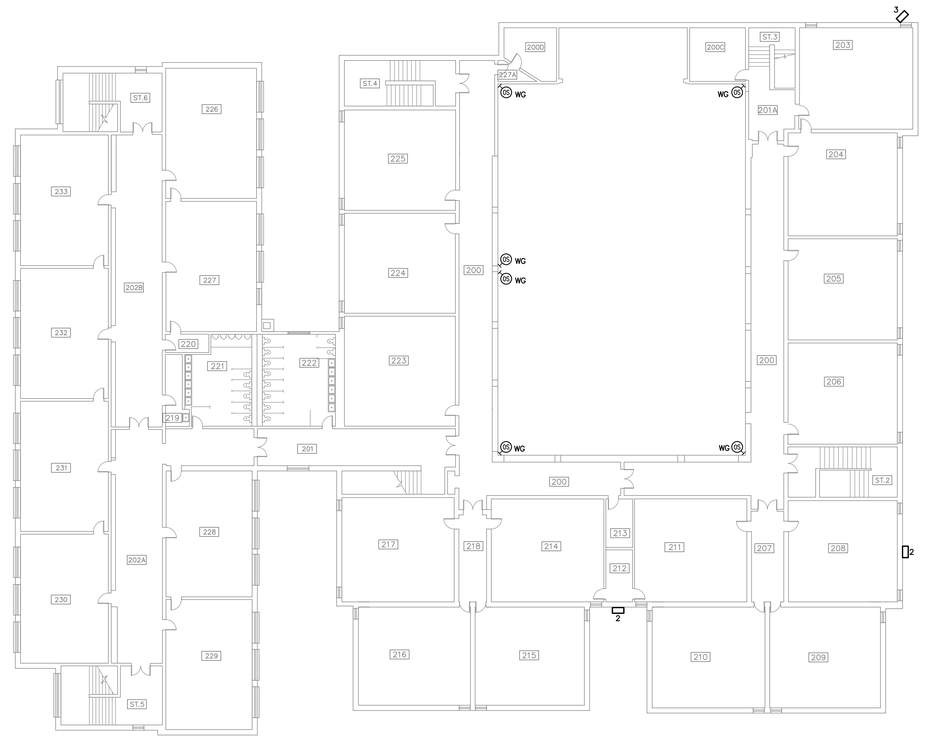
SHEET 1 OF 1



1 GROUND FLOOR PLAN - LIGHTING 1:200 (E-1)



2 FIRST FLOOR PLAN - LIGHTING 1:200 (E-1)



3 SECOND FLOOR PLAN - LIGHTING 1:200 (E-1)

LIGHTING

- 1 — NEW SURFACE MOUNTED 20W WAL-LYTE LUMINAIRE, SEE SPECIFICATIONS FOR TYPE.
- 2 — NEW 27W EXTERIOR LED WALL PACK, SEE SPECIFICATIONS FOR TYPE.
- 3 — NEW 58W EXTERIOR LED FLOOD LIGHT, FLOOD TYPE DISTRIBUTION, SEE SPECIFICATIONS FOR TYPE.
- NEW FLUORESCENT LUMINAIRE, SEE SPECIFICATIONS FOR TYPE.
- x — EXISTING FLUORESCENT LUMINAIRE TO BE REMOVED, REPAIR CEILING TO MATCH EXISTING.
- X — EXISTING FLUORESCENT LUMINAIRE TO BE REMOVED, REPAIR CEILING (OR WALL) TO MATCH EXISTING.
- E — EXISTING FLUORESCENT LUMINAIRE TO REMAIN, RETROFIT AS NOTED ON LINE-BY-LINE.
- MV — EXISTING FLUORESCENT LUMINAIRE TO BE RELOCATED
- RE — NEW LOCATION OF RELOCATED FLUORESCENT LUMINAIRE
- $ — NEW 15A, 120V TOGGLE SWITCH, TYPE AND COLOR TO MATCH EXISTING.
- $ — NEW SWITCH MOUNTED OCCUPANCY SENSOR, SEE SPECIFICATIONS FOR TYPE.
- (OS) — CEILING MOUNTED OCCUPANCY SENSOR
- WG (OS) — WALL/CORNER MOUNTED OCCUPANCY SENSOR, "WG" DENOTES WIREGUARD

4 ELECTRICAL SYMBOL LEGEND N.T.S. (E-1)

SPECIFIC NOTES:

1. RELOCATE EXISTING LUMINAIRE TO STORAGE ROOM 003A AND SWITCH SEPARATELY FROM ROOM 003. TWO 3-WAY SWITCHES PRESENTLY BETWEEN ROOMS 003 AND 003A, CHANGE TO TWO SINGLE POLE SWITCHES.
2. ADD A 1 LAMP WALL CUBE LUMINAIRE IN CORRIDOR 006A. ADD ONE, 120V SINGLE POLE TOGGLE SWITCH IN OFFICE 006 AND ONE IN CORRIDOR 006A.
3. ADD A 120V, 15A SINGLE POLE PIR SWITCH SENSOR. NO SWITCH PRESENTLY.

GENERAL NOTES:

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8. ALL NEW AND RETROFITTED LUMINAIRES (120V & 347V) SHALL BE COMPLETE WITH A 'QUICK DISCONNECT'.
9. CONTRACTOR TO VERIFY DIAMETER OF EXISTING DOWN LIGHT(S) PRIOR TO ORDERING NEW REPLACEMENT MATERIAL TO ENSURE A COMPLETE AND WORKING SYSTEM.

5 NOTES N.T.S. (E-1)

Halifax Regional School Board

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PROJECT

HARBOUR VIEW ELEMENTARY - LIGHTING RETROFIT UPGRADE

HALIFAX, NOVA SCOTIA

PROJECT NO.: 10-13-007

SHEET TITLE

LIGHTING PLANS, LEGEND AND NOTES

HRSB INTERNAL NO.:

E-1

SHEET 1 OF 1

1
E-1 GROUND FLOOR PLAN - LIGHTING

1:200

2
E-1 ELECTRICAL SYMBOL LEGEND

N.T.S.

LIGHTING

1 NEW SURFACE MOUNTED 20W LED CANOPY LUMINAIRE, SEE SPECIFICATIONS FOR TYPE.

2 NEW 27W EXTERIOR LED WALL PACK, SEE SPECIFICATIONS FOR TYPE.

3 NEW 39W EXTERIOR LED WALL PACK, SEE SPECIFICATIONS FOR TYPE.

4 NEW 58W EXTERIOR LED FLOOD LIGHT, FLOOD TYPE DISTRIBUTION, SEE SPECIFICATIONS FOR TYPE.

5 NEW 79W EXTERIOR LED FLOOD LIGHT, FLOOD TYPE DISTRIBUTION, SEE SPECIFICATIONS FOR TYPE.

NEW FLUORESCENT LUMINAIRE, SEE SPECIFICATIONS FOR TYPE.

NEW LED 15PAR30 LAMP, SEE SPECIFICATIONS FOR TYPE.

OS CEILING MOUNTED OCCUPANCY SENSOR

WG OS WALL/CORNER MOUNTED OCCUPANCY SENSOR, "WG" INDICATES C/W WIREGUARD

NEW SWITCH MOUNTED OCCUPANCY SENSOR, SEE SPECIFICATIONS FOR TYPE.

3
E-1 NOTES

N.T.S.

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Halifax Regional School Board

PROGRAM

HALIFAX REGIONAL SCHOOL BOARD ENERGY PERFORMANCE PROGRAM

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PROJECT

J.L. ILSLEY HIGH SCHOOL - LIGHTING RETROFIT UPGRADE
HALIFAX, NOVA SCOTIA

PROJECT NO.: 10-13-007

SHEET TITLE

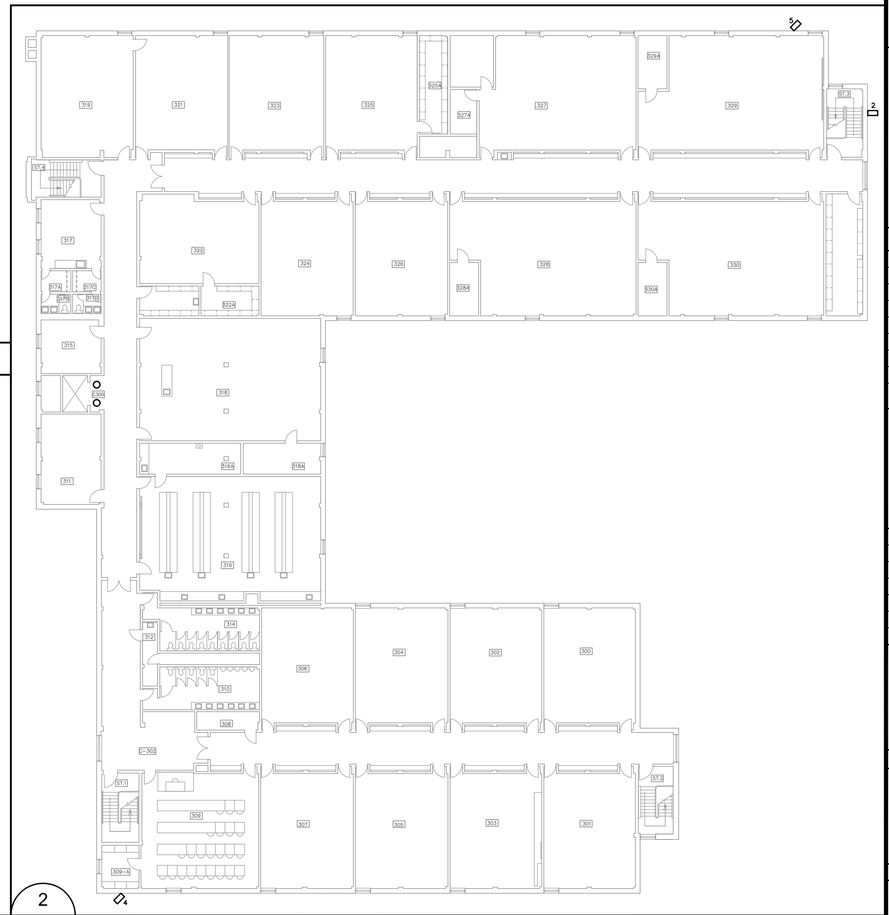
LIGHTING PLAN, LEGEND AND NOTES

HRSB INTERNAL NO.:

E-1

SHEET 1 OF 2

1
E-2 SECOND FLOOR PLAN - LIGHTING 1:200



2
E-2 THIRD FLOOR PLAN - LIGHTING 1:200

Halifax Regional
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C. DUPUIS
9908

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CHECKED BY:	B.C.
REVIEWED BY:	B.C.
APPROVED BY:	C.D.
AS-BUILT CHECK	–
DATE:	MARCH 2014

PROJECT

J.L. ILSLEY
HIGH SCHOOL -
LIGHTING RETROFIT
UPGRADE
HALIFAX, NOVA SCOTIA

PROJECT NO.: 10-13-007

SHEET TITLE

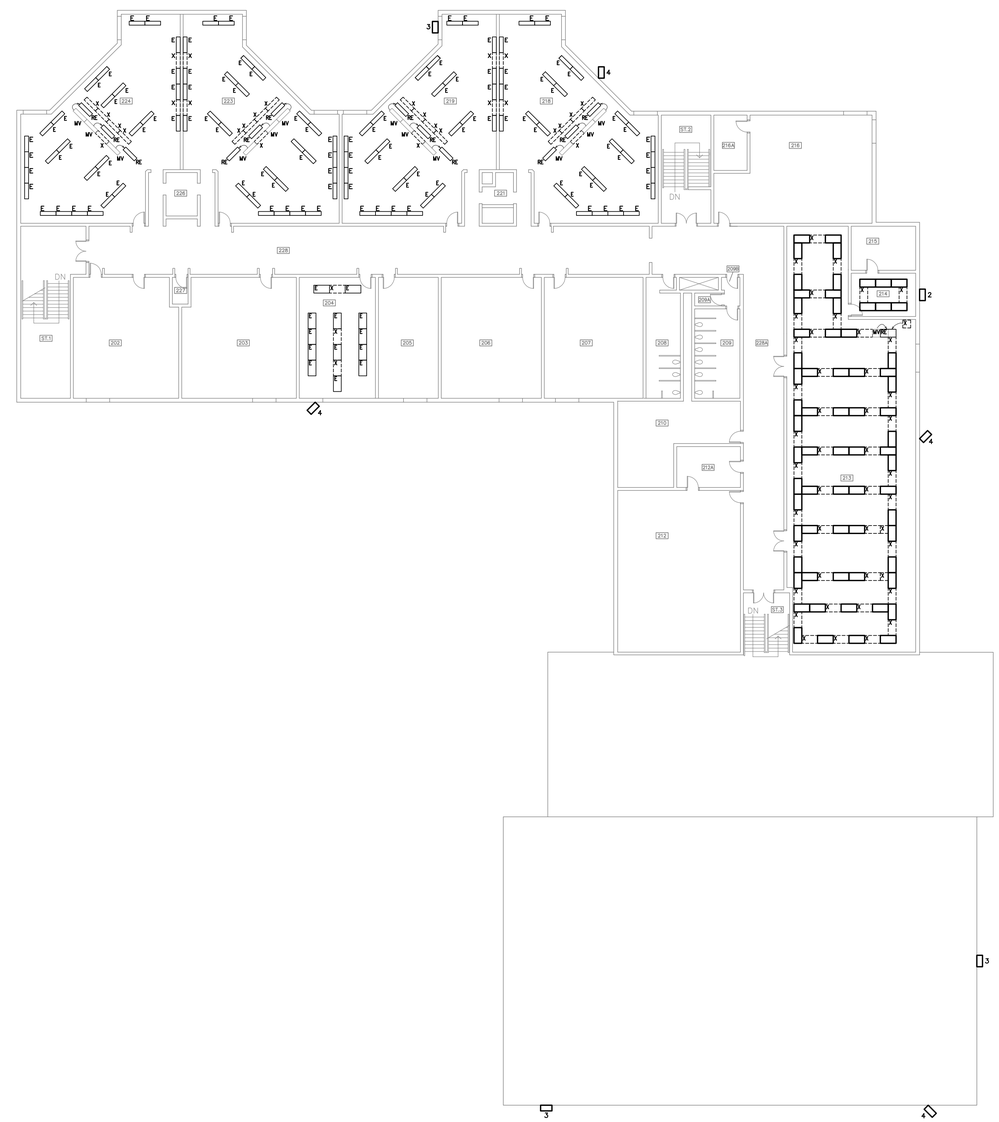
LIGHTING PLANS

HRSB INTERNAL NO.:

E-2

SHEET 2 OF 2

1 E-1 GROUND FLOOR & BASEMENT PLAN - LIGHTING 1:200



2 E-1 SECOND FLOOR PLAN - LIGHTING 1:200

LIGHTING

1	NEW SURFACE MOUNTED 20W LED CANOPY LUMINAIRE, SEE SPECIFICATIONS FOR TYPE.
2	NEW 27W EXTERIOR LED WALL PACK, SEE SPECIFICATIONS FOR TYPE.
3	NEW 39W EXTERIOR LED WALL PACK, SEE SPECIFICATIONS FOR TYPE.
4	NEW 58W EXTERIOR LED FLOOD LIGHT, FLOOD TYPE DISTRIBUTION, SEE SPECIFICATIONS FOR TYPE.
	NEW FLUORESCENT LUMINAIRE, SEE SPECIFICATIONS FOR TYPE.
MV	EXISTING FLUORESCENT LUMINAIRE TO BE RELOCATED
RE	NEW LOCATION OF RETROFITTED FLUORESCENT LUMINAIRE
X	EXISTING FLUORESCENT LUMINAIRE TO BE REMOVED, REPAIR CEILING (OR WALL) TO MATCH EXISTING.
E	EXISTING FLUORESCENT LUMINAIRE TO REMAIN, RETROFIT AS NOTED ON LINE-BY-LINE.
(OS)	CEILING MOUNTED OCCUPANCY SENSOR
WG (OS)	WALL/CORNER MOUNTED OCCUPANCY SENSOR, "WG" DENOTES WIREGUARD.

3 E-1 ELECTRICAL SYMBOL LEGEND N.T.S.

GENERAL NOTES:

1. ALL EXISTING SWITCHING AND LUMINAIRES NOT SHOWN ON DRAWNGS SHALL REMAIN (UNLESS NOTED OTHERWISE.)
2. IN ROOMS WHERE LUMINAIRES ARE REMOVED AND EMERGENCY CIRCUITS EXIST, ENSURE THAT EMERGENCY CIRCUITS REMAIN. RE-FEED REMAINING LUMINAIRES AS REQUIRED. ALL EXISTING NIGHT LIGHT LUMINAIRES SHALL REMAIN UNSWITCHED
3. IN ROOMS WITH MULTIPLE SENSORS, WIRE SENSORS IN PARALLEL WITH EACH OTHER, AND WIRE SWITCHES IN SERIES WITH SENSORS. SWITCHES SHALL BE WIRED FROM THE SECONDARY SIDE OF THE POWER PACK. SUPPLY AND INSTALL ALL NECESSARY CONTACTORS AND POWER PACKS REQUIRED FOR EACH CIRCUIT CONTROL ALONG WITH ALL BACK BOXES, CONDUIT AND WIRING FOR A FULL AND COMPLETE WORKING SYSTEM. SENSORS TO CONTROL BOTH BALLASTS IN EACH LUMINAIRE, WHERE APPLICABLE.
4. IN ROOMS WHERE EXISTING LUMINAIRES ARE RELOCATED, REUSE POWER DROPS WHERE POSSIBLE OR PROVIDE NEW POWER DROPS AS REQUIRED.
5. LUMINAIRES SHOWN ON DRAWNGS ARE FOR QUANTITIES AND LOCATION; EXACT LOCATIONS SHALL BE VERIFIED ON SITE.
6. ADJUST SENSITIVITY ON OCCUPANCY SENSORS TO PICK-UP PEOPLE ENTERING A ROOM, BUT NOT WALKING BY IN A CORRIDOR OR ANOTHER ROOM.
7. CONTRACTOR TO VERIFY VOLTAGES PRIOR TO ORDERING MATERIAL.
8. ALL NEW AND RETROFITTED LUMINAIRES (120V & 347V) SHALL BE COMPLETE WITH A "QUICK DISCONNECT".
9. CONTRACTOR TO VERIFY DIAMETER OF EXISTING DOWN LIGHT(S) PRIOR TO ORDERING NEW REPLACEMENT MATERIAL TO ENSURE A COMPLETE AND WORKING SYSTEM.

4 E-1 NOTES N.T.S.

Halifax Regional School Board

PROGRAM

HALIFAX REGIONAL SCHOOL BOARD ENERGY PERFORMANCE PROGRAM

ESCO

MCW Custom Energy Solutions Ltd.
7051 BAYERS ROAD, SUITE 102
HALIFAX, NS B3L 2C1
BUS: (902) 876-3182 FAX: (902) 876-2796
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1-A01-PACKAGE # 7

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NORTH

DATE yy-mm-dd	MARK	ISSUE
14/03/31	2	ISSUED FOR TENDER
14/03/14	1	ISSUED FOR REVIEW

STAMP

REGISTERED PROFESSIONAL ENGINEERS PROVINCE OF NOVA SCOTIA
DATE Mar. 31,2014
Claude Duguay
C. DUGUAY
9908

SCALE	AS NOTED
DRAWN BY:	R.P.C.
CHECKED BY:	B.C.
REVIEWED BY:	B.C.
APPROVED BY:	C.D.
AS-BUILT CHECK	–
DATE:	MARCH 2014

PROJECT

CHEBUCTO HEIGHTS ELEMENTARY - LIGHTING RETROFIT UPGRADE

HALIFAX, NOVA SCOTIA

PROJECT NO.: 10-13-007

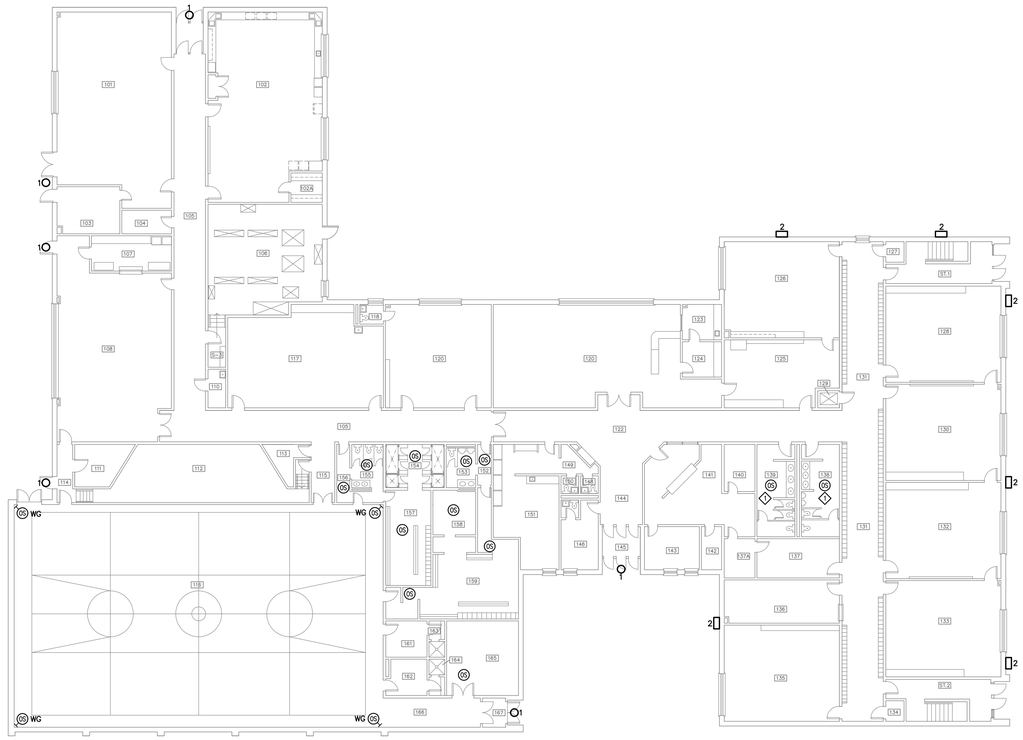
SHEET TITLE

LIGHTING PLANS, LEGEND, DETAIL AND NOTES

HRSB INTERNAL NO.:

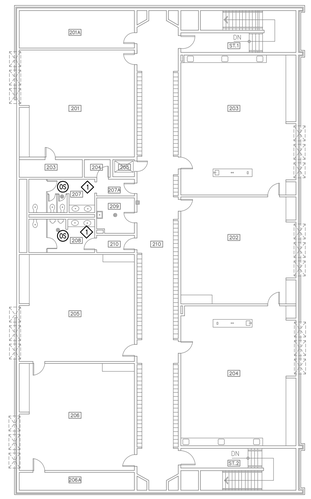
E-1

SHEET 1 OF 1



FIXTURE LOCATED IN PARKING AREA

1 E-1 GROUND FLOOR PLAN - LIGHTING 1:200



2 E-1 SECOND FLOOR PLAN - LIGHTING 1:200

LIGHTING

1 NEW SURFACE MOUNTED 20W LED CANOPY LUMINAIRE, SEE SPECIFICATIONS FOR TYPE.

2 NEW 27W EXTERIOR LED WALL PACK, SEE SPECIFICATIONS FOR TYPE.

3 NEW 58W EXTERIOR LED POLE LIGHT, SEE SPECIFICATIONS FOR TYPE.

(105) CEILING MOUNTED OCCUPANCY SENSOR

WG (105) WALL/CORNER MOUNTED OCCUPANCY SENSOR, "WG" INDICATES WIREGUARD.

3 E-1 ELECTRICAL SYMBOL LEGEND N.T.S.

4 E-1 - N.T.S.

SPECIFIC NOTES:

1 LUMINAIRE AT ENTRANCES TO REMAIN SWITCHED, REMAINING LUMINAIRES TO BE CONTROLLED BY SENSORS.

GENERAL NOTES:

1. ALL EXISTING SWITCHING AND LUMINAIRES NOT SHOWN ON DRAWINGS SHALL REMAIN (UNLESS NOTED OTHERWISE.)
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6. ADJUST SENSITIVITY ON OCCUPANCY SENSORS TO PICK-UP PEOPLE ENTERING A ROOM, BUT NOT WALKING BY IN A CORRIDOR OR ANOTHER ROOM.
7. CONTRACTOR TO VERIFY VOLTAGES PRIOR TO ORDERING MATERIAL.
8. ALL NEW AND RETROFITTED LUMINAIRES (120V & 347V) SHALL BE COMPLETE WITH A 'QUICK DISCONNECT'.
9. CONTRACTOR TO VERIFY DIAMETER OF EXISTING DOWN LIGHT(S) PRIOR TO ORDERING NEW REPLACEMENT MATERIAL TO ENSURE A COMPLETE AND WORKING SYSTEM.

5 E-1 NOTES N.T.S.

Halifax Regional School Board

PROGRAM

HALIFAX REGIONAL SCHOOL BOARD ENERGY PERFORMANCE PROGRAM

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STAMP

REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF NOVA SCOTIA — C. DUPUIS — 9908 — DATE: MAR. 31, 2014

SCALE	AS NOTED
DRAWN BY:	R.P.C.
CHECKED BY:	B.C.
REVIEWED BY:	B.C.
APPROVED BY:	C.D.
AS-BUILT CHECK	-
DATE:	MARCH 2014

PROJECT

HAROLD T. BARRETT JUNIOR HIGH - LIGHTING RETROFIT UPGRADE

HALIFAX, NOVA SCOTIA

PROJECT NO.: 10-13-007

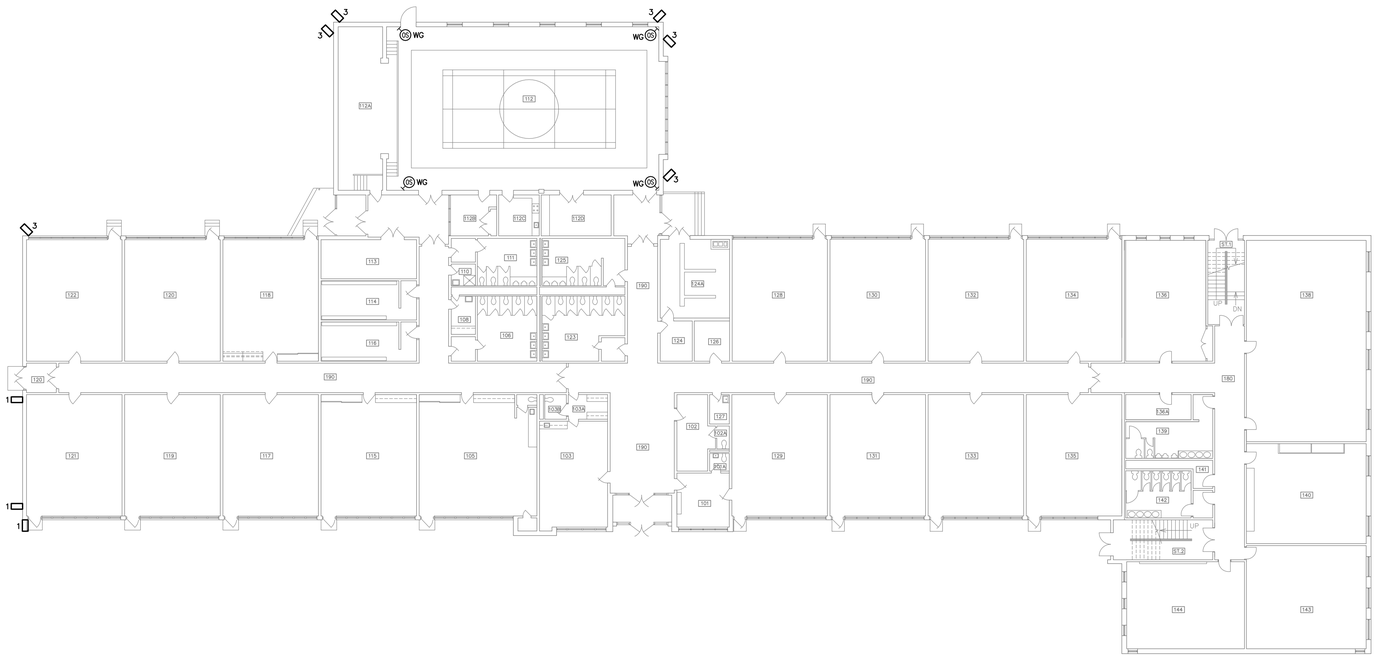
SHEET TITLE

LIGHTING PLAN, LEGEND, DETAIL AND NOTES

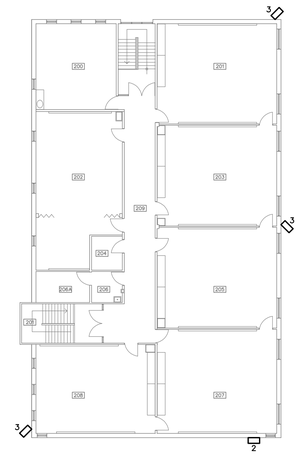
HRSB INTERNAL NO.:

E-1

SHEET 1 OF 1



1 E-1 GROUND FLOOR PLAN - LIGHTING 1:200



2 E-1 SECOND FLOOR PLAN - LIGHTING 1:200

LIGHTING

1 NEW WALL MOUNTED 20W LED WAL–YTE LUMINAIRE, SEE SPECIFICATIONS FOR TYPE.

2 NEW 27W EXTERIOR LED WALL PACK, SEE SPECIFICATIONS FOR TYPE.

3 NEW 58W EXTERIOR LED FLOOD LIGHT, FLOOD TYPE DISTRIBUTION, SEE SPECIFICATIONS FOR TYPE.

WC WALL/CORNER MOUNTED OCCUPANCY SENSOR C/W WIREGUARD

3 E-1 ELECTRICAL SYMBOL LEGEND N.T.S.

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4 E-1 NOTES N.T.S.

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PROJECT

IAN FORSYTH ELEMENTARY - LIGHTING RETROFIT UPGRADE
HALIFAX, NOVA SCOTIA

PROJECT NO.: 10–13–007

SHEET TITLE

LIGHTING PLAN, LEGEND AND NOTES

HRSB INTERNAL NO.:

E-1

SHEET 1 OF 1