



**RETURN BIDS TO:**

**RETOURNER LES SOUMISSIONS À:**

Public Works and Government Services Canada  
Canada Place/Place du Canada  
10th Floor/10e étage  
9700 Jasper Ave/9700 ave Jasper  
Edmonton  
Alberta  
T5J 4C3  
Bid Fax: (780) 497-3510

**SOLICITATION AMENDMENT  
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

**Comments - Commentaires**

**Vendor/Firm Name and Address**  
**Raison sociale et adresse du**  
**fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**  
Public Works and Government Services Canada  
Canada Place / Place du Canada  
10th Floor / 10e étage  
9700 Jasper Ave / 9700 ave Jasper  
Edmonton  
Alberta  
T5J 4C3

<b>Title - Sujet</b> Electrical Infrastructure Upgrades	
<b>Solicitation No. - N° de l'invitation</b> EP922-210870/A	<b>Amendment No. - N° modif.</b> 001
<b>Client Reference No. - N° de référence du client</b> CSC EP922-210870	<b>Date</b> 2020-09-23
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$PWU-201-11898	
<b>File No. - N° de dossier</b> PWU-0-43084 (201)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2020-10-13</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Mountain Daylight Saving Time MDT
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Ho (RPC), Hector	<b>Buyer Id - Id de l'acheteur</b> pwu201
<b>Telephone No. - N° de téléphone</b> (780) 901-0989 ( )	<b>FAX No. - N° de FAX</b> (780) 497-3510
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b>	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

Solicitation No. - N° de l'invitation  
EP922-210870/A

Amd. No. - N° de la modif.  
001

Buyer ID - Id de l'acheteur  
pwu201

Client Ref. No. - N° de réf. du client  
CSC EP922-210870

File No. - N° du dossier  
PWU-0-43084

CCC No./N° CCC - FMS No./N° VME

---

Cette modification #001 a été élevée pour inclure l'annexe E – Rapport d'évaluation de l'état des installations.



**FACILITY CONDITION ASSESSMENT  
BOWDEN INSTITUTION  
Innisfail, Alberta  
TS: 11344**

Prepared for:  
**Correctional Services Canada**

Prepared by:  
**ALTUS GROUP COST CONSULTING**

Issued: **April 30, 2012**



Unpublished Work © 2012 Altus Group Limited



## INDEX

1. Executive Summary
  2. Purpose and Scope
  3. Immediate Repairs & Capital Reserve Analysis
  4. System Description and Observations
  5. Report Qualifications
  6. Exhibits/Attachments
- Appendix A: Schedule of Documents Reviewed



## 1. EXECUTIVE SUMMARY



## **1. EXECUTIVE SUMMARY**

### **1.1 General Description**

Bowden Institution is a medium security facility, with a minimum security annex, located between the communities of Innisfail and Bowden, in the province of Alberta. The facility was opened in 1974.

The scope of work for this project involves a condition assessment of all major building mechanical and electrical systems (including active life safety/fire protection systems), as well as additional requirements, as noted in the Articles of Agreement document Appendix D – Statement of Work – Consulting and Professional Services.

As agreed, assessment of the former cow calf operation, the sewage lagoon, and perimeter security fence electronic systems, FDS, MDS, cameras and cables has been removed from the scope of work.

### **1.2 General Physical Condition**

The mechanical and electrical systems throughout the various buildings of the facility vary in age, type, and condition, from good to poor.

### **1.3 Significant Issues & Deficiencies**

A detailed analysis of the immediate and 5 year capital expenditures required is included in Section 3.

### **1.4 Recommendations for Additional Investigation or Action**

None.

### **1.5 Outstanding Information & Follow Up**

None.

### **1.6 Contingency & Escalation**

Our cost summaries include a specific contingency allowance of 10% and are priced in March 2012 dollars with no provision for escalation.

### **1.7 Planning & Zoning Issues**

Planning and zoning issues are excluded from this report.

### **1.8 Environmental Issues**

Environmental issues, including mould investigations, are excluded from this report.



## 2. PURPOSE & SCOPE



## 2. PURPOSE & SCOPE

### 2.1 Purpose & Scope

The mandate is to provide a general overview of all major building mechanical and electrical systems (including active life safety/fire protection systems), as well as additional requirements, as noted in the Articles of Agreement document Appendix D – Statement of Work – Consulting and Professional Services.

In addition, we have identified conditions observed which may result in future capital expenditures above those associated with routine maintenance.

Our property condition assessment procedures and documentation are conducted in general accordance with ASTM E 2188 – 08 Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process.

We understand our terms of reference to be as follows:

- a) Review all relevant documentation provided (drawings and previous reports).
- b) Visually review the buildings.
- c) Identify any major issues of note and provide resolutions along with any costs involved.
- d) Prepare a report on our findings including the identification of all the issues and our estimate of the individual capital expenditures required over a 5 year period specifically identifying any immediate action, with a threshold of \$5,000.

### 2.2 Basis of Analysis

The assessment of Capital Expenditures required is based on the following:

- a) Building systems failing to meet their performance level.
- b) Building systems that have reached or are projected to reach the end of their productive life cycle within a 5 year period.

### 2.3 Conclusions Methodology

Our conclusions are based on the following:

- a) On-site identification and measurement (where possible) of a specific deficiency item priced accordingly.
- b) Measurement of areas from drawings where available (e.g. roofing) and priced at current replacement cost prevailing unit rates. It should be noted that floor areas and parking counts reported are taken directly from documents provided and detailed quantities will need to be assessed for any tendering purposes. **Altus Group Limited has carried out no independent verification or measurement.**
- c) Information available from maintenance logs relating to mechanical equipment, etc., priced at prevailing replacement costs for similar or equivalent equipment.

We inspected the facility on Wednesday, February 1, 2012 and were accompanied by facility management / maintenance personnel.





**2. PURPOSE & SCOPE (cont'd)**

**2.4 Exclusions**

- a) Environmental issues including mould contamination.
- b) Tenant improvement allowances.
- c) Cost estimates are based on the assumption that Phenolic foam insulation does not exist in the roof assembly as roof cuts were not performed as part of this review to determine the type of insulation existing.
- d) Expenditure for capital items which are categorized as maintenance or operational in nature.
- e) We have excluded the Americans with Disabilities Act (ADA) accessibility survey as it is not applicable in Canada.
- f) Review or comment on tenant leases or tenant lease requirements is not included as part of this property condition assessment.



### 3. IMMEDIATE REPAIRS & CAPITAL RESERVE ANALYSIS



3. **IMMEDIATE REPAIRS & CAPITAL RESERVE ANALYSIS**

Our detailed summaries are enclosed, identifying the following:

- a) Immediate repairs and replacements required.
- b) Capital reserve expenditures, including the major building components/systems requiring replacement/repair to maintain the facility in fully satisfactory operating condition.

## Bowden Institution, Innisfail, Alberta

Bowden Institution, Innisfail, Alberta - Capital Reserve Expenditures					Year Built	# Storeys	Area (sf):
					1974	1, 2	Gross floor area
					397,254		
Item	Immediate Repairs	Capital Reserve Expenditures					Total
		Year 1	Year 2	Year 3	Year 4	Year 5	(Imm. + Yrs. 1-5)
<b>Exterior Walls / Windows</b>							
06 Native Cultural Centre - Repoint/repair exterior walls.		\$35,000					\$35,000
06 Native Cultural Centre - Replace windows (glass block).		\$15,000					\$15,000
06 Native Cultural Centre - Replace windows (single glazed).		\$10,000					\$10,000
<b>Roof</b>							
06 Native Cultural Centre - Roof replacement.			\$112,000				\$112,000
<b>Site</b>							
06 Native Cultural Centre - Allowance for concrete step and walkway repairs.		\$20,000					\$20,000
<b>Fire Protection and Life Safety</b>							
01-05 Living Units 1-5 - Refurbish or replace fire alarm panels.					\$125,000		\$125,000
18 Gymnasium - Refurbish or replace fire alarm panel.					\$20,000		\$20,000
19 Hobby Shop - Refurbish or replace fire alarm panel.					\$20,000		\$20,000
20 Kitchen / Dining Hall - Refurbish or replace fire alarm panel.					\$25,000		\$25,000
21 Administration Building - Refurbish or replace fire alarm panel.					\$75,000		\$75,000
<b>Mechanical</b>							
01-05 Living Units 1-5 - Refurbish Air Handling Units.		\$250,000					\$250,000
01-05 Living Units 1-5 - Refurbish Return Fans.		\$100,000					\$100,000
01-05 Living Units 1-5 - Replace Humidifiers.			\$50,000				\$50,000
01-05 Living Units 1-5 - Replace Boilers.		\$350,000					\$350,000
01-05 Living Units 1-5 - Replace Pumps.		\$45,000					\$45,000
06 Native Cultural Centre - Refurbish Make-Up Air Unit (MUA-1)			\$20,000				\$20,000
06 Native Cultural Centre - Replace Rooftop Unit (RTU-1)			\$15,000				\$15,000
06 Native Cultural Centre - Replace Exhaust Fan			\$2,300				\$2,300
06 Native Cultural Centre - Replace Unit Heaters			\$4,000				\$4,000
14 Private Family Visits 1&2 - Replace 2 Furnaces						\$7,000	\$7,000
14 Private Family Visits 1&2 - Replace Domestic Hot Water Tank						\$1,500	\$1,500
15 Private Family Visits 3&4 - Replace 2 Furnaces						\$7,000	\$7,000
15 Private Family Visits 3&4 - Replace Domestic Hot Water Tank						\$1,500	\$1,500
17 Dissociation/Segregation/Health - Refurbish Air Handling Units (AHU-1 & 2)			\$40,000				\$40,000
17 Dissociation/Segregation/Health - Refurbish Return Fans (RF-1 & 2)			\$7,000				\$7,000
17 Dissociation/Segregation/Health - Replace Condensing Unit (AC-3)						\$5,000	\$5,000
17 Dissociation/Segregation/Health - Replace Humidifiers for AHU-1 & 2			\$24,000				\$24,000
17 Dissociation/Segregation/Health - Replace Boilers (B-1, 2 & 3)				\$90,000			\$90,000
17 Dissociation/Segregation/Health - Replace Pumps (P-1 & 2)				\$70,000			\$70,000
17 Dissociation/Segregation/Health - Replace Rooftop Unit (AS-3)		\$20,000					\$20,000
17 Dissociation/Segregation/Health - Replace Rooftop Units (SF-1)		\$10,000					\$10,000
17 Dissociation/Segregation/Health - Replace 4 Force Flow Heaters					\$7,000		\$7,000
17 Dissociation/Segregation/Health - Retrofit Controls		\$15,000			\$7,000		\$22,000
18 Gymnasium - Refurbish Air Handling Unit (HC-1)			\$25,000				\$25,000
18 Gymnasium - Refurbish Air Handling Unit (HC-2)			\$25,000				\$25,000
18 Gymnasium - Refurbish Air Handling Unit (HC-3) assumed to be located in Room 1105			\$10,000				\$10,000
18 Gymnasium - Replace Heating Boilers (B-1 & 2)				\$80,000			\$80,000
18 Gymnasium - Replace Heating Pumps (P-1 & 2)				\$7,000			\$7,000
18 Gymnasium - Upgrade Plumbing Fixtures		\$10,000					\$10,000
18 Gymnasium - Retrofit Controls						\$15,000	\$15,000
19 Hobby Shop/Library - Refurbish Two Air Handling Units			\$50,000				\$50,000
19 Hobby Shop/Library - Replace Humidifiers (AHU's)			\$3,500				\$3,500
19 Hobby Shop/Library - Upgrade Plumbing Fixtures		\$7,500					\$7,500
19 Hobby Shop/Library - Retrofit Controls						\$10,000	\$10,000
20 Kitchen/Dining Hall - Refurbish Air Handling Unit (AHU-1)			\$50,000				\$50,000
20 Kitchen/Dining Hall - Refurbish Return Fan (RF-1)			\$7,500				\$7,500
20 Kitchen/Dining Hall - Replace Humidifier (AHU-1)			\$10,000				\$10,000
20 Kitchen/Dining Hall - Refurbish Make-Up Air Unit MUA-1			\$12,500				\$12,500
20 Kitchen/Dining Hall - Refurbish Make-Up Air Unit MUA-2			\$12,500				\$12,500
20 Kitchen/Dining Hall - Refurbish Make-Up Air Unit MUA-3			\$12,500				\$12,500
20 Kitchen/Dining Hall - Refurbish Make-Up Air Unit MUA-4			\$20,000				\$20,000
20 Kitchen/Dining Hall - Refurbish 4 Exhaust Fans (EF-1 to 4)			\$18,750				\$18,750
20 Kitchen/Dining Hall - Replace Heating Boilers (B-1 & 2)		\$80,000					\$80,000
20 Kitchen/Dining Hall - Replace Heating Pumps (P-1 & 2)		\$8,500					\$8,500
20 Kitchen/Dining Hall - Replace Domestic Heating Boilers (B-3 & 4)		\$50,000					\$50,000
20 Kitchen/Dining Hall - Replace Domestic Heating Pumps (P-3 & 4)		\$7,000					\$7,000
20 Kitchen/Dining Hall - Replace Condensing Unit (CU-2) Refrigeration					\$4,500		\$4,500
20 Kitchen/Dining Hall - Replace Compressors (Cooler, Garbage, Dairy, Fridges)						\$10,500	\$10,500
20 Kitchen/Dining Hall - Retrofit Controls						\$20,000	\$20,000
21 Administration Bldg - Refurbish Air Handling Unit (F-1)			\$50,000				\$50,000
21 Administration Bldg - Refurbish Air Handling Unit (F-3)			\$50,000				\$50,000
21 Administration Bldg - Refurbish Air Handling Unit (F-5)			\$20,000				\$20,000
21 Administration Bldg - Refurbish Air Handling Unit (F-7)			\$35,000				\$35,000
21 Administration Bldg - Refurbish Return Air Fan (F-2 for F-1)			\$15,000				\$15,000
21 Administration Bldg - Refurbish Return Air Fan (F-4 for F-3)			\$15,000				\$15,000
21 Administration Bldg - Refurbish Return Air Fan (F-6 for F-5)			\$8,000				\$8,000
21 Administration Bldg - Refurbish Return Air Fan (F-8 for F-7)			\$10,800				\$10,800
21 Administration Bldg - Replace Air Cooled Chiller				\$136,500			\$136,500
21 Administration Bldg - Replace Heating Boilers (B-1 & 2)		\$120,000					\$120,000
21 Administration Bldg - Replace Heating Pumps (P-1 & 2)		\$12,000					\$12,000
21 Administration Bldg - Replace Domestic Hot Water Pumps (P-3 & 4)		\$7,000					\$7,000
21 Administration Bldg - Upgrade Plumbing Fixtures		\$21,000	\$21,000	\$21,000	\$21,000	\$21,000	\$105,000
23 Checkpoint Charlie - Replace Force Flow Heaters			\$3,500				\$3,500
23 Checkpoint Charlie - Replace Domestic Hot Water Tank					\$1,000		\$1,000

## Bowden Institution, Innisfail, Alberta

28 Corcan Bldg - Replace Gas Fired Furnace serving Offices + Humidifiers			\$6,000				\$6,000
28 Corcan Bldg - Upgrade 3 Warehouse Air Handling Units Components			\$75,000				\$75,000
28 Corcan Bldg - Upgrade Metal Shop Air Handling Unit Components			\$25,000				\$25,000
28 Corcan Bldg - Upgrade Wood Shop Air Handling Unit Components			\$25,000				\$25,000
28 Corcan Bldg - Upgrade 2 Paint Shop Air Handling Unit Components		\$50,000					\$50,000
28 Corcan Bldg - Upgrade Storage Air Handling Unit Components		\$25,000					\$25,000
28 Corcan Bldg - Replace Exhaust Fans (EF-1 to 4)		\$30,000					\$30,000
28 Corcan Bldg - Replace Force Flow Heaters					\$7,000		\$7,000
33 Laundry - Refurbish Air Handling Unit (Laundry Area)			\$25,000				\$25,000
33 Laundry - Refurbish Air Handling Unit (BST Shop)			\$25,000				\$25,000
33 Laundry - Replace Heating Boilers (B-1 & 2)		\$40,000					\$40,000
33 Laundry - Replace Domestic Heating Boiler (B-3)		\$18,000					\$18,000
33 Laundry - Replace Insulation on Piping				\$8,500			\$8,500
72 Machinery 2 - Replace Unit Heaters			\$3,000				\$3,000
85 Compost Building - Replace Furnace						\$3,500	\$3,500
85 Compost Building - Replace Hot Water Tank						\$1,000	\$1,000
<b>Electrical</b>							
01-05 Living Units 1-5 - Replace Transformers - 600 V to 120/208, 75 kVa					\$37,500		\$37,500
01-05 Living Units 1-5 - Replace Transformers - 600 V to 120/208, 30 kVa					\$25,000		\$25,000
01-05 Living Units 1-5 - Replace Main Disconnects					\$17,500		\$17,500
01-05 Living Units 1-5 - Replace Transfer Switches					\$7,500		\$7,500
01-05 Living Units 1-5 - Upgrade Cell Door Locks		\$97,500	\$97,500	\$97,500			\$292,500
06 Native Cultural Centre - Replace Transformer - 600 V to 120/208, 45 kVa						\$6,500	\$6,500
06 Native Cultural Centre - Replace Main Disconnect / Panel, 400 Amp						\$3,500	\$3,500
06 Native Cultural Centre - Replace Transfer Switch 347/600, 250 Amp						\$1,500	\$1,500
17 Dissociation/Segregation/Health - Replace Transformer - 600V to 120/208, 50 kVa					\$6,000		\$6,000
17 Dissociation/Segregation/Health - Replace Transformer - 600V to 120/208, 45 kVa					\$6,000		\$6,000
17 Dissociation/Segregation/Health - Replace Transformer - 600V to 120/208, 45 kVa					\$6,000		\$6,000
17 Dissociation/Segregation/Health - Replace Main Breaker					\$3,500		\$3,500
17 Dissociation/Segregation/Health - Replace Transfer Switch					\$1,500		\$1,500
17 Dissociation/Segregation/Health - Upgrade Lighting		\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$25,000
17 Dissociation/Segregation/Health - Upgrade Cell Door Locks		\$9,500	\$9,500	\$9,500			\$28,500
18 Gymnasium - Replace Transformer - 600V to 120/208, 45 kVa					\$6,000		\$6,000
18 Gymnasium - Replace Main Breaker					\$3,500		\$3,500
18 Gymnasium - Replace Transfer Switch					\$1,500		\$1,500
18 Gymnasium - Upgrade Lighting + Power Panels					\$2,000	\$7,500	\$9,500
19 Hobby Shop/Library - Replace Transformer - 600V to 120/208, 45 kVa					\$6,000		\$6,000
19 Hobby Shop/Library - Replace Main Breaker					\$3,500		\$3,500
19 Hobby Shop/Library - Replace Transfer Switch					\$1,500		\$1,500
19 Hobby Shop/Library - Upgrade Lighting + Power Panels					\$2,000	\$7,500	\$9,500
20 Kitchen/Dining Hall - Replace Transformer - 600V to 120/208, 75 kVa					\$7,500		\$7,500
20 Kitchen/Dining Hall - Replace Transformer - 600V to 120/208, 30 kVa					\$5,000		\$5,000
20 Kitchen/Dining Hall - Replace Main Breaker					\$3,500		\$3,500
20 Kitchen/Dining Hall - Replace Transfer Switch					\$1,500		\$1,500
21 Administration Bldg - Replace Transformer - 600V to 120/208, 112.5 kVa					\$12,500		\$12,500
21 Administration Bldg - Replace Transformer - 600V to 120/208, 30 kVa					\$5,000		\$5,000
21 Administration Bldg - Replace Main Breaker					\$6,000		\$6,000
21 Administration Bldg - Replace Transfer Switch					\$3,500		\$3,500
22 Sallly Port/ Gate House - Replace Transformer - 600V to 120/208, 45 kVa					\$6,000		\$6,000
22 Sallly Port/ Gate House - Replace Main Breaker					\$1,500		\$1,500
23 Checkpoint Charlie - Upgrade Lighting + Power Panel					\$1,500		\$1,500
28 Corcan Bldg - Replace Transformer - 600V to 120/208, 225 kVa					\$25,000		\$25,000
28 Corcan Bldg - Replace Main Breaker					\$7,500		\$7,500
28 Corcan Bldg - Replace Transfer Switch					\$5,000		\$5,000
28 Corcan Bldg - Replace Lighting + Power Panels					\$1,500		\$1,500
31 Maintenance Bldg - Replace Transformer - 600V to 120/208, 15 kVa					\$4,500		\$4,500
31 Maintenance Bldg - Replace Main Breaker					\$3,500		\$3,500
31 Maintenance Bldg - Replace Transfer Switch					\$1,500		\$1,500
31 Maintenance Bldg - Replace Lighting + Power Panels					\$1,500		\$1,500
33 Laundry - Replace Transformer - 600V to 120/208					\$4,000		\$4,000
33 Laundry - Replace Transformer - 600V to 120/208, 45 kVa					\$6,000		\$6,000
33 Laundry - Replace Transformer - 600V to 120/208, 30 kVa					\$5,000		\$5,000
33 Laundry - Replace Motor Control Centre					\$10,000		\$10,000
33 Laundry - Replace Main Breaker					\$7,500		\$7,500
33 Laundry - Replace Transfer Switch					\$1,500		\$1,500
33 Laundry - Upgrade Lighting + Power Panels					\$9,000		\$9,000
70 Business Centre - Replace Transformer					\$6,000		\$6,000
70 Business Centre - Replace Main Breaker					\$1,500		\$1,500
70 Business Centre - Replace Transfer Switch					\$1,000		\$1,000
71 Machinery 1 - Replace Main Disconnect					\$1,500		\$1,500
71 Machinery 1 - Replace Lighting + Power Panel					\$1,000		\$1,000
72 Machinery 2 - Replace Main Disconnect					\$1,500		\$1,500
72 Machinery 2 - Replace Lighting + Power Panel					\$1,000		\$1,000
Electrical Trench - Test & Evaluate Cables and 26 Connection Points		\$100,000					\$100,000
Electrical Trench - Upgrade 26 Connection Points		\$52,000	\$52,000	\$52,000	\$52,000	\$52,000	\$260,000
Site - Replace Security Fence Double Light Standards		\$118,000	\$118,000	\$118,000	\$118,000	\$118,000	\$590,000
Site - Refurbish / Replace High-Mast Medium Security Light Standards			\$50,000	\$50,000	\$50,000		\$150,000
Site - Upgrade Electrically Controlled Entrance Gate						\$25,000	\$25,000
<b>Subtotal</b>	<b>\$0</b>	<b>\$1,738,000</b>	<b>\$1,275,850</b>	<b>\$745,000</b>	<b>\$834,000</b>	<b>\$329,500</b>	<b>\$4,922,350</b>
Contingency (10%)	\$0	\$173,800	\$127,585	\$74,500	\$83,400	\$32,950	\$492,235
<b>Subtotal Including Contingency</b>	<b>\$0</b>	<b>\$1,911,800</b>	<b>\$1,403,435</b>	<b>\$819,500</b>	<b>\$917,400</b>	<b>\$362,450</b>	<b>\$5,414,585</b>
<b>Escalation Allowance</b>	0%	0%	0%	0%	0%	0%	\$0
Escalation Total	-	-	-	-	-	-	\$0
<b>Total Estimated Financial Projections</b>	<b>\$0</b>	<b>\$1,911,800</b>	<b>\$1,403,435</b>	<b>\$819,500</b>	<b>\$917,400</b>	<b>\$362,450</b>	<b>\$5,414,585</b>
\$/Area/Year	0.00	4.81	3.53	2.06	2.31	0.91	\$2.73

## Bowden Institution, Innisfail, Alberta

Total Net Sq. Ft.	397,254
Total # Units	N/A
Avg. Sq. Ft./Unit	N/A
# of Buildings	31

Year Built	1974
Age (yrs)	38

Uninflated (Year 1-5)

\$	1,082,917	Avg. /Yr.
\$	2.73	Avg./sf/Yr

Reserve Term	5
--------------	---

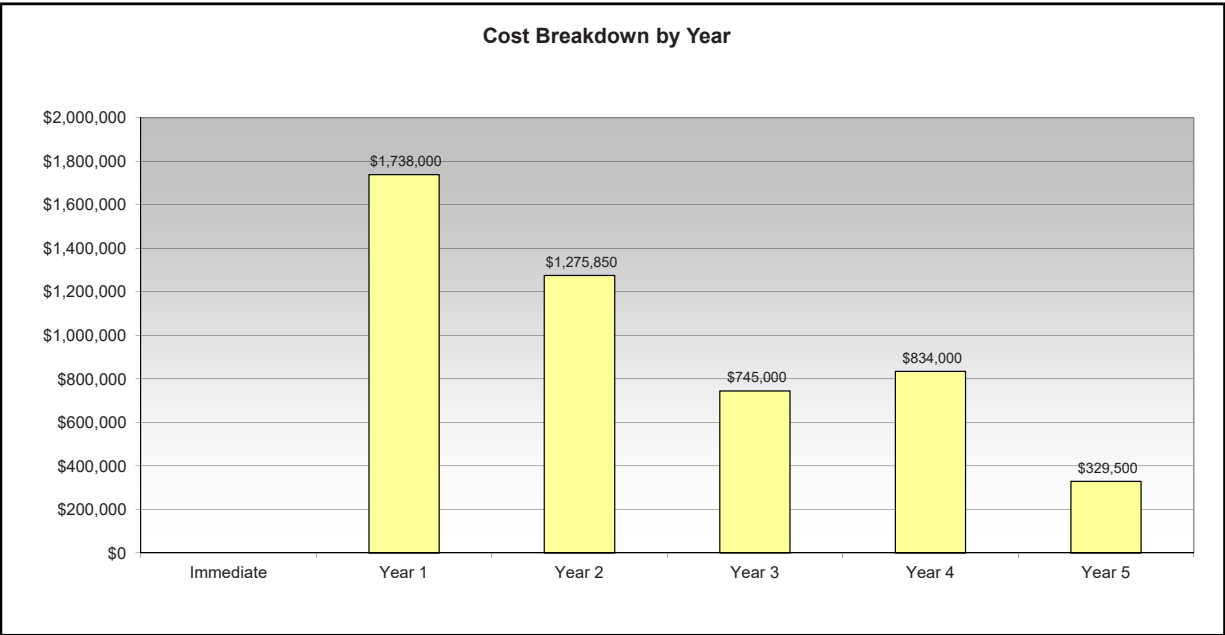
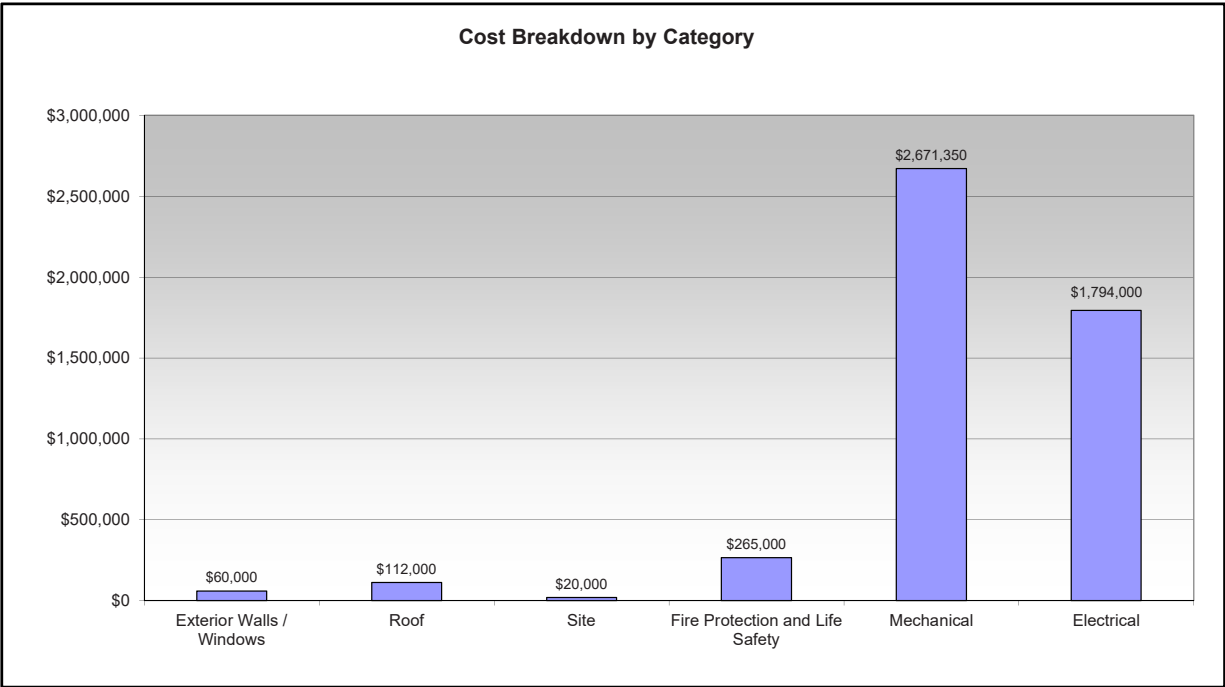
## NOTES:

- 1) Contingency of 10% has been carried to cover unforeseen items & cost increases.
- 2) Costs in March 2012 dollars with no provision for escalation.
- 3) HST is excluded.

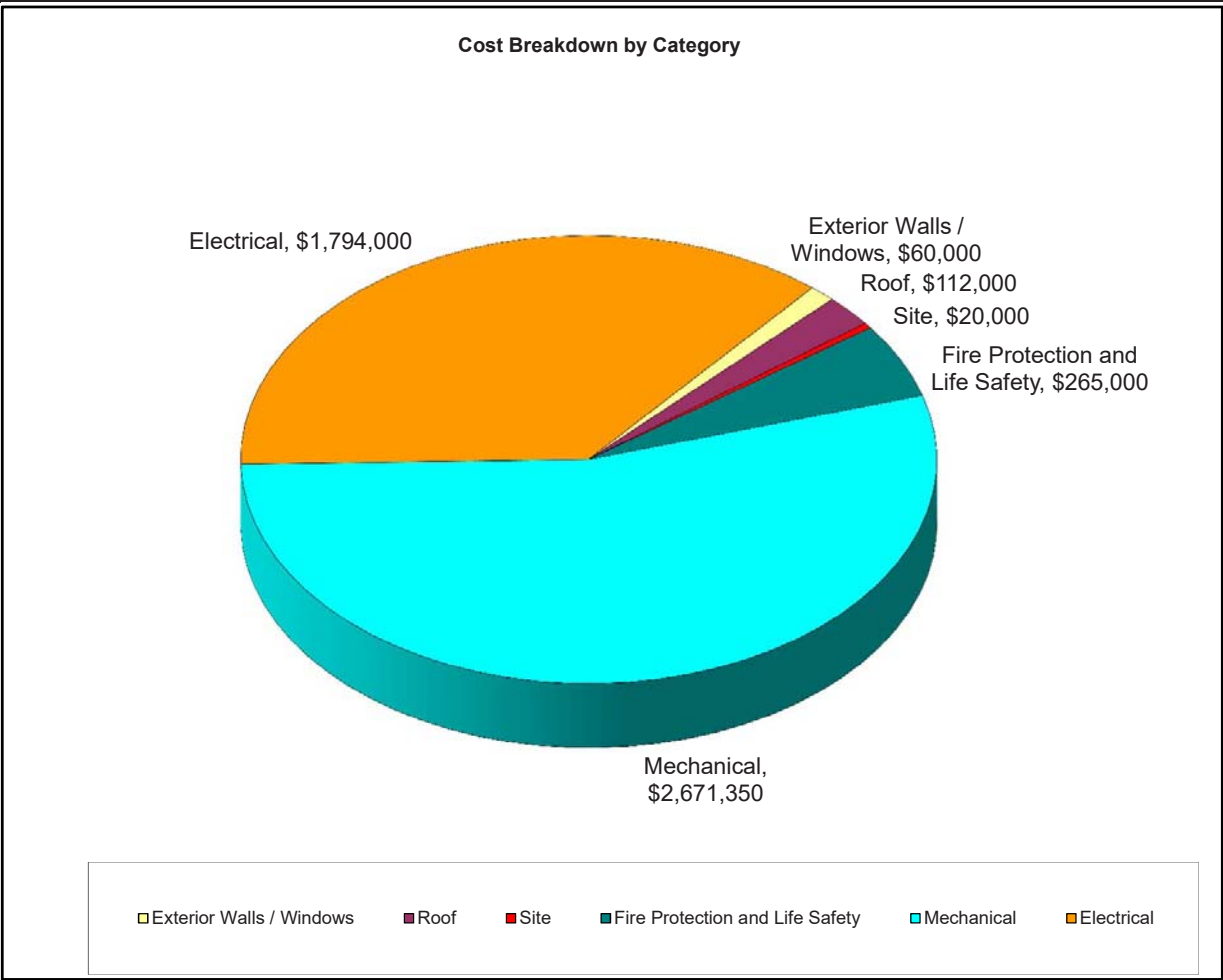
Expenditures should be reviewed regularly due to the current volatile market conditions, firstly to ensure adequacy and secondly to take advantage of competitive pricing in situations where the replacement item may have a two/three year time window.

Category	Immediate	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Exterior Walls / Windows	-	60,000	-	-	-	-	\$60,000
Roof	-	-	112,000	-	-	-	\$112,000
Site	-	20,000	-	-	-	-	\$20,000
Fire Protection and Life Safety	-	-	-	-	265,000	-	\$265,000
Mechanical	-	1,276,000	831,850	413,000	47,500	103,000	\$2,671,350
Electrical	-	382,000	332,000	332,000	521,500	226,500	\$1,794,000
<b>Total</b>	-	<b>1,738,000</b>	<b>1,275,850</b>	<b>745,000</b>	<b>834,000</b>	<b>329,500</b>	<b>\$4,922,350</b>
<b>Total Including Contingency (10%)</b>	-	<b>1,911,800</b>	<b>1,403,435</b>	<b>819,500</b>	<b>917,400</b>	<b>362,450</b>	<b>\$5,414,585</b>

Bowden Institution, Innisfail, Alberta



Bowden Institution, Innisfail, Alberta







#### 4. DESCRIPTION & CONDITION



#### **4. DESCRIPTION AND CONDITION**

The following buildings were included as part of this review:

- 1) 1-5 – Living Units 1-5
- 2) 6 – Native Cultural Centre
- 3) 7 – Water Treatment Plant
- 4) 13 - Chapel
- 5) 14 – Private Family Visits (PFV), Units 1&2
- 6) 15 – Private Family Visits (PFV), Units 3&4
- 7) 17 – Dissociation, Segregation, & Health Care
- 8) 18 - Gymnasium
- 9) 19 – Hobby Shop / Laundry
- 10) 20 – Kitchen / Dining Hall
- 11) 21 – Administration Building
- 12) 22 – Sally Port / Gate House
- 13) 23 – Check Point Charlie
- 14) 28 – CORCAN Industries
- 15) 31 – Maintenance Building
- 16) 33 – Laundry Building
- 17) 34 – MCCP Building
- 18) 61 – Annex CORCAN Warehouse
- 19) 70 – Agri-Business Centre
- 20) 71 – Agri-Centre Machinery Storage 1
- 21) 72 – Agri-Centre Machinery Storage 2
- 22) 77, 78, & 79 – Security Towers
- 23) 80 – Electrical Substation
- 24) 85 – Compost Building
- 25) 116 – Stores
- 26) Electrical Distribution Tunnel
- 27) Site Electrical / Lighting

Each building is discussed in detail in the following pages. A number of buildings throughout the facility are sheds with minimal or no mechanical / electrical services. As such, these building are not discussed in this report.

A review of the site components, architectural/interior finishes, exterior walls/windows, roofing, and building structures are generally not included as part of the scope of this review. There is no vertical transportation equipment installed at the facility.



#### 4. 1-5 – LIVING UNITS 1 TO 5

The buildings were constructed in 1985 and are 2 storeys above grade. The buildings each have a total floor area of approximately 25,306 square feet. Living Unit 1 is designated as barrier free.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

##### Description

The buildings are equipped with gas service that is fed from the buried gas service loop located on site.

The heating system for each building consists of two (2) gas fired hot water heating boilers and two (2) heating circulation pumps located in the 2<sup>nd</sup> floor penthouses. Hot water piping is circulated to the heating coils in the air handling units, duct mounted reheat coils, and the entrance force flow heaters through insulated piping.

The air handling units located in the 2<sup>nd</sup> floor penthouses provide conditioned air to the various areas throughout the buildings' dedicated supply zones. The conditioned air is distributed through galvanized steel ductwork and diffusers. Return air fans for the air handling units are also located in the 2<sup>nd</sup> floor penthouses.

There are several exhaust fans located on the roofs that exhaust the building washrooms, utility rooms, and electrical room.

The buildings' equipment is controlled by pneumatic HVAC control systems. The compressors are located in the 2<sup>nd</sup> floor penthouses and feed the air handling units, air intakes, and exhaust dampers.

##### Condition

The majority of the equipment is original to the buildings' construction in 1985.

The gas fired hot water heating boilers and heating circulation pumps are past their useful service life and should be scheduled for replacement in the near future. Maintenance staff confirmed that frequent maintenance is required to keep the boilers operational, and sourcing replacement components has been an issue and will continue to exacerbate with time.

The hot water heating piping and valves serving the unit heaters and the air handling units are original to the buildings, and are in good condition. With proper maintenance, the piping should remain in serviceable condition beyond the scope of this review.

The buildings' supply air handling units and return air fans are in serviceable condition; however, they are past their useful service life and should be scheduled to have their internal components upgraded. We recommend replacing the unit motors, shafts, belts and coils to extend the life of the equipment.

The humidifiers for the air handling units are past their useful service life and should be scheduled for replacement.

The duct mounted reheat coils are in serviceable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The buildings' equipment is controlled by pneumatic HVAC control systems that are approaching the end of their useful service life and should be scheduled for upgrades to the electronic controls.

The estimated costs for the above noted work are included in the cost table.



## **Plumbing Systems**

### **Description**

The buildings' water service is supplied from the service loop on site. All of the plumbing is distributed throughout the buildings to the washrooms through copper piping. Domestic hot water for each building is provided by 2 gas fired hot water heaters and storage tanks located in the 2<sup>nd</sup> floor penthouses.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the buildings to tie into the service loop located on site. The roof drains are collected through cast iron drains that are piped to central collectors that exit the buildings and tie into the service loop located on site.

### **Condition**

The buildings were constructed in 1985 and the majority of the plumbing fixtures and piping are from that era. The gas fired hot water heaters were installed approximately 3 years ago and are in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.

## **4.1.2 Electrical**

### **Main Service**

#### **Description**

The buildings' main incoming 600 V services are located in the electrical rooms. The systems includes a 112.5 kVA, 600V-120/208V, transformer, and a 550 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the buildings.

Power is distributed via conduit and wire to the distribution panels located throughout the buildings. The main switchgear feeds the power and lighting panels.

#### **Condition**

No problems were reported or observed and the equipment appears to be in good condition. With proper maintenance, the equipment should remain in serviceable condition beyond the scope of this review.

### **Lighting and Power**

#### **Description**

Lighting consists of recessed 1' x 5' T8 fluorescent fixtures installed in the drywall ceilings throughout the living units, and suspended 1' x 5' T8 fluorescent fixtures in the 2<sup>nd</sup> floor penthouses and areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

#### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.



## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

### **4.2.2 Fire Alarm System**

#### **Description**

There are Edwards EST 3 model fire alarm and smoke alarm systems that were installed as part of an overall upgrade, approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the buildings. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There are annunciator panels located in the penthouses which are linked to the entrance panel.

#### **Condition**

No problems were reported or observed. A phased upgrade program should be budgeted for, starting in the next 4 to 5 years, to keep the systems current. The cost to upgrade a portion of the buildings' fire alarm panels has been included in the cost table.

### **4.2.3 Sprinkler System**

#### **Description**

The buildings are protected by sprinkler and stand pipe systems throughout.

#### **Condition**

The sprinkler systems' annual inspection was last carried out in January 2012. No deficiencies were reported.

### **4.2.4 Security System**

#### **Description**

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### **Condition**

No problems were reported or observed with the security system.



#### 4.3 Controlled Entrances & Cell Door Locks

##### Description

Each living unit building was reported to have approximately 72 cell door locks plus the electrically controlled entrances. Both of these systems are controlled by a sub controller at the security desk and tie back into the head end hardware and software which controls the entire site, located in the MCCP building.

##### Condition

All the cell door locks and the electrically controlled entrances are at the end of their life expectancies, and should be scheduled for replacement over the next 5 years.

The estimated cost for this work is included in the cost table.



Typical Front Elevation



Typical Rear Elevation



Typical Domestic Hot Water Tanks



Typical Air Handling Unit – Refurbish Components



Typical Heating Pumps - Replace



Typical Heating Boilers - Replace





Typical Return Air Fan – Refurbish Components



Typical Main Electrical Service



Typical Transfer Switch - Replace



Typical Main Disconnect – Replace



Typical Transformer - Replace



Typical Humidifier (AHU) - Replace





#### 4. 6 – NATIVE CULTURAL CENTRE

The building was originally constructed in 1957, was fully renovated to its current use in 1989, and is 1 storey above grade with a full basement. The building has a total floor area of approximately 7,894 square feet.

A complete structural, architectural, mechanical, and electrical assessment of this building was requested. We understand that the proposed future use of the building will remain the same.

##### 4.1 Structural

###### Description

The ground floor framing was observed from the basement level and consists of precast concrete “T” beams supported by concrete block/masonry walls. The basement floor is a concrete slab-on-grade.

###### Condition

The building structure is visible below grade and generally concealed by interior finishes above grade. Generally, no significant cracking or deflection, which might be indicative of structural distress, was observed in the interior finishes.

Exposed areas of the structure observed appeared to be in good condition.

##### 4.2 Exterior Envelope

###### 4.2.1 Exterior Cladding

###### Description

The building above grade is clad entirely with brick. The windows throughout the building are a combination of single glazed units in wood frames which appear to be from the original construction, and glass block retrofits which were reportedly from the 1989 renovation of the building.

The doors are metal with single glazed window inserts at the main entrances.

###### Condition

Generally, the exterior brick walls appear to be in serviceable condition; however, there are signs of efflorescence at grade and locations of previous repairs. There are some areas of cracked/spalled bricks that require replacement and, in general, the brick mortar joints should be reviewed and repointed. The estimated cost for this work is included in the cost table.

All of the window units throughout the building should be replaced/upgraded. The estimated cost for this work is included in the cost table.

###### 4.2.2 Roof

###### Description

The building has a flat roof, with a reported modified bitumen membrane system. The roof has low curbs with metal cap flashings, and internal drains.

###### Condition

Access to the roof was prohibited at the time of the review. It was reported that the roofing has had patch repairs since its installation in 1989, but has not been completely replaced. No serious problems were reported; however, the roof is beyond its life expectancy and should be scheduled for replacement. The estimated cost for this work is included in the cost table.



#### **4.3 Architectural Finishes and Interiors**

##### **Description**

The interior finishes mainly consist of vinyl and ceramic tile flooring, painted drywall and concrete block walls, and suspended ceiling tiles.

##### **Condition**

The interior finishes are generally in fair to good condition. Minor repairs to the interior finishes can be managed as part of regular maintenance, as required.

#### **4.4 Services**

##### **4.4.1 Mechanical**

##### **HVAC Systems**

##### **Description**

A gas service feeds the building for the heating devices.

The building's heating and cooling are provided by one (1) electric packaged direct expansion gas fired roof top unit for the main level, and two (2) gas fired unit heaters located in the basement. In addition, there is a make-up air unit suspended from the ceiling in the basement which provides fresh air to the below grade service areas.

Conditioned air is provided by the above mentioned rooftop unit and make-up air unit, to the various areas above and below grade. The conditioned air is distributed through galvanized steel ductwork and diffusers. Washroom exhaust is ducted directly to the perimeter of the building.

There are exhaust fans located in mechanical rooms and on the roof that exhaust miscellaneous areas throughout the building such as washrooms, utility rooms, and electrical rooms.

The building's equipment is controlled by a pneumatic HVAC control system. The compressor is located in the basement mechanical room and feeds the air handling units, air intakes, and exhaust dampers.

##### **Condition**

The building was renovated in 1989 and the majority of the equipment is from that era.

The gas piping associated with the air handling unit and unit heaters is in good condition. With proper maintenance, this piping should remain in serviceable condition beyond the scope of this review.

The building's rooftop unit, make-up air unit located in the basement, and exhaust fans are in serviceable condition; however, all of the equipment is approaching the end of its useful service life and should be replaced within the next 5 years.

The building's equipment is controlled by a pneumatic HVAC control system that is approaching the end of its useful service life and should be scheduled for upgrades to the electronic controls.

##### **Plumbing Systems**

##### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms and kitchen through copper piping. Domestic hot water is provided by an instantaneous gas fired hot water heater, located in the lower level.



The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof drains are collected through cast iron drains that are piped to central collectors that exit the building and tie into the service loop located on site.

#### Condition

The building was renovated in 1989 and the majority of the plumbing fixtures and piping are from that era. The instantaneous gas fired hot water heater was installed approximately 3 years ago and is in good condition.

The plumbing fixtures are generally in good condition. Several of the fixtures have recently been upgraded to water efficient fixtures.

### **4.4.2 Electrical**

#### **Main Service**

##### Description

The building's main incoming 600 V service is located in the electrical room on the lower level. The system includes a 45 kVA, 600V-120/208V, transformer, and a 400 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

##### Condition

No problems were reported or observed and the equipment appears to be in good condition. With proper maintenance, the equipment should remain in serviceable condition beyond the scope of this review.

#### **Lighting and Power**

##### Description

Lighting consists of 1' x 5' T8 fluorescent fixtures hung from the ceiling/structure.

Power distribution is provided to various outlets, and it appears that adequate circuits are provided.

##### Condition

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

### **4.5 Fire Protection and Life Safety Systems**

#### **4.5.1 Emergency Power**

##### Description

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

##### Condition

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.



#### 4.5.2 Fire Alarm System

##### Description

There is an Edwards EST 3 model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the basement which is linked to the entrance panel.

##### Condition

No problems were reported or observed. A phased upgrade program should be budgeted for, starting in the next 4 to 5 years, to keep the systems current. The cost to upgrade a portion of the buildings' fire alarm panels has been included in the cost table.

#### 4.5.3 Sprinkler System

##### Description

The building is protected by a sprinkler and stand pipe system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.5.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.



Front Elevation



North Elevation



South Elevation Windows - Replace



Brick Spalling/Deterioration at Grade



Fire Alarm Panel



Make-Up Air Unit (High Level) - Refurbish





Interior View – Lower Level



Main Electrical Service



Main Switchgear - Replace



Plumbing Fixtures – Upgrade



Concrete Stair Deterioration



Transformer - Replace



#### **4. 7 – WATER TREATMENT PLANT**

The building was reportedly constructed in 2010 and is 1 storey above grade, with a section below grade where the distribution mains exit the building to the site. The building has a total floor area of approximately 1,000 square feet.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

###### **Description**

A gas service feeds the building for the heating devices.

The building's heating is provided by one (1) gas fired unit heater suspended from the roof structure. There is a make-up air louver for ventilation.

###### **Condition**

The building was constructed in 2010 and all equipment is in good condition.

###### **Plumbing Systems**

###### **Description**

The building supplies the main water service loop on site for domestic water and fire water services. The piping is equipped with isolation valves, strainers, back flow preventers, flow switches and miscellaneous valves and fittings. All of the plumbing is fed through the water treatment system prior to being distributed to the site.

The roof drainage is by eaves troughs and downspouts, and is discharged directly onto the ground.

###### **Condition**

The building was constructed in 2010 and all equipment is in good condition.

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

The building's main incoming 600 V service is fed from a pad mounted transformer located adjacent to the building. There is an electrical distribution area in the main plant area, which includes a transformer and a transfer switch, main breaker, and distribution panels for power and lighting. Circuit breakers supply the building.

###### **Condition**

No problems were reported or observed and the equipment appears to be in good condition. With proper maintenance, the equipment should remain in serviceable condition beyond the scope of this review.

###### **Lighting and Power**

###### **Description**

Lighting consists of 1' x 5' T8 fluorescent fixtures suspended from the roof structure.

Power distribution is provided to various outlets, and adequate circuits are provided.



#### Condition

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

### **4.2 Fire Protection and Life Safety Systems**

#### **4.2.1 Emergency Power**

##### Description

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

##### Condition

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

#### **4.2.2 Fire Alarm System**

##### Description

The building is equipped with an Edwards EST model fire alarm and smoke alarm system. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building.

##### Condition

No problems were reported or observed.

#### **4.2.3 Sprinkler System**

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### **4.2.4 Security System**

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the M CCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the M CCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.





East Elevation



North Elevation



New Water Treatment Services



Supply Piping to Site Loop



Manhole to Trench



Site Transformer



#### **4. 13 – CHAPEL**

The building was originally constructed in 1963 and is single storey above grade. The building has a total floor area of approximately 4,073 square feet.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

###### **Description**

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The chapel is equipped with two (2) high efficiency gas fired furnaces that are located in the utility room, and ducted throughout the entire building through galvanized steel ductwork and diffusers.

There are several in-line exhaust fans that exhaust the building's washrooms, utility rooms, and electrical room to the perimeter.

###### **Condition**

All of the equipment is approximately 10 years old, and in good condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

###### **Plumbing Systems**

###### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping. Domestic hot water for the building is provided by a 40 US gallon gas fired hot water tank, located in the utility room.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof drainage is by eaves troughs and downspouts, and is discharged directly onto the ground.

###### **Condition**

The building was reportedly renovated in 1989 and the majority of the plumbing fixtures and piping are from that era. The gas fired hot water tank was installed approximately 5 years ago and is in good condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The plumbing fixtures are generally in good condition.

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

The building's incoming electrical service is sub fed from the adjacent Native Cultural Centre, in a below grade service trench. There is an electrical distribution panel for lighting and power located in the utility room. Circuit breakers supply the building.

###### **Condition**

No problems were reported or observed and the equipment appears to be in good condition. With proper maintenance, the equipment should remain in serviceable condition beyond the scope of this review.



## **Lighting and Power**

### **Description**

Lighting consists of ceiling and wall hung compact fluorescent fixtures throughout the various building areas, and chain hung fixtures in the utility areas. Power distribution is provided to various outlets, and adequate circuits are provided.

### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

### **4.2.2 Fire Alarm System**

#### **Description**

The building is equipped with an Edwards EST model fire alarm and smoke alarm system. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building.

#### **Condition**

No problems were reported or observed.

### **4.2.3 Sprinkler System**

#### **Description**

There is no sprinkler system installed in the building.

### **4.2.4 Security System**

#### **Description**

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### **Condition**

No problems were reported or observed with the security system.



North Elevation



West Elevation



Interior View



East Elevation



Furnaces



Domestic Hot Water Tank



#### **4. 14 – PRIVATE FAMILY VISITS (PFV), UNITS 1&2**

The building was originally constructed in 1985 and is single storey above grade. The building has a total floor area of approximately 1,105 square feet split between two units.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

###### **Description**

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building is equipped with two (2) mid-efficiency gas fired furnaces that are located in the utility room, and ducted to both units through galvanized steel ductwork and diffusers.

There are in-line exhaust fans that exhaust the building washrooms, kitchens, and utility room to the perimeter.

###### **Condition**

Both of the furnaces are approaching the end of their useful service life and should be scheduled for replacement within the next 5 years. The estimated cost for this work is included in the cost table.

###### **Plumbing Systems**

###### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping. Domestic hot water for the building is provided by a 40 US gallon gas fired hot water tank, located in the utility room.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof drainage is by eaves troughs and downspouts, and is discharged directly onto the ground.

###### **Condition**

The building was reportedly renovated in 1989 and the majority of the plumbing fixtures and piping are from that era. The gas fired hot water tank was installed approximately 5 years ago and is in good condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The plumbing fixtures are generally in good condition.

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

The building's incoming electrical service is sub fed from the adjacent Administration Building, in a below grade service trench. There is an electrical distribution panel for lighting and power located in the utility room. Circuit breakers supply the building.

###### **Condition**

No problems were reported or observed and the equipment appears to be in good condition. With proper maintenance, the equipment should remain in serviceable condition beyond the scope of this review.





## **Lighting and Power**

### **Description**

Lighting consists of ceiling and wall hung compact fluorescent fixtures throughout the units, and chain hung fixtures in the utility areas. Power distribution is provided to various outlets, and adequate circuits are provided.

### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

### **4.2.2 Fire Alarm System**

#### **Description**

The building is equipped with an Edwards EST 3 model fire alarm and smoke alarm system. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building.

#### **Condition**

No problems were reported or observed.

### **4.2.3 Sprinkler System**

#### **Description**

There is no sprinkler system installed in the building.

### **4.2.4 Security System**

#### **Description**

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### **Condition**

No problems were reported or observed with the security system.



#### **4. 15 – PRIVATE FAMILY VISITS (PFV), UNITS 3&4**

The building was originally constructed in 1995 and is single storey above grade. The building has a total floor area of approximately 1,590 square feet split between two units.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

###### **Description**

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building is equipped with two (2) mid-efficiency gas fired furnaces that are located in the utility room, and ducted to both units through galvanized steel ductwork and diffusers.

There are in-line exhaust fans that exhaust the building washrooms, kitchens, and utility room to the perimeter.

###### **Condition**

Both of the furnaces are approaching the end of their useful service life and should be scheduled for replacement within the next 5 years. The estimated cost for this work is included in the cost table.

###### **Plumbing Systems**

###### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping. Domestic hot water for the building is provided by a 40 US gallon gas fired hot water tank, located in the utility room.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof drainage is by eaves troughs and downspouts, and is discharged directly onto the ground.

###### **Condition**

The plumbing fixtures and piping are original (1995). The gas fired hot water tank was installed approximately 8 years ago and is in good condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The plumbing fixtures are generally in good condition.

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

The building's incoming electrical service is sub fed from the adjacent Administration Building, in a below grade service trench. There is an electrical distribution panel for lighting and power located in the utility room. Circuit breakers supply the building.

###### **Condition**

No problems were reported or observed and the equipment appears to be in good condition. With proper maintenance, the equipment should remain in serviceable condition beyond the scope of this review.



## **Lighting and Power**

### **Description**

Lighting consists of ceiling and wall hung compact fluorescent fixtures throughout the units, and chain hung fixtures in the utility areas. Power distribution is provided to various outlets, and adequate circuits are provided.

### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

### **4.2.2 Fire Alarm System**

#### **Description**

The building is equipped with an Edwards EST 3 model fire alarm and smoke alarm system. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building.

#### **Condition**

No problems were reported or observed.

### **4.2.3 Sprinkler System**

#### **Description**

There is no sprinkler system installed in the building.

### **4.2.4 Security System**

#### **Description**

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### **Condition**

No problems were reported or observed with the security system.





North-West Elevation (PFV 14)



North Elevation (PFV 14 & 15)



Utility Room (Typical for PFV 14 & 15)



Fire Alarm Panel (Typical for PFV 14 & 15)



Furnaces (Typical for PFV 14 & 15) - Replace



South Elevation (PFV 14)



#### 4. 17 – DISSOCIATION, SEGREGATION, & HEALTH CARE

The building was constructed in 1985 and is 2 storeys above grade, including the mechanical penthouse. The building has a total floor area of approximately 15,041 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

##### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating system consists of two (2) gas fired hot water heating boilers and two (2) heating circulation pumps located in the mechanical penthouse. Hot water piping is circulated to the heating coils in the air handling unit, duct mounted reheat coils, and the entrance force flow heaters through insulated piping.

The air handling unit located in the mechanical penthouse provides conditioned air to the various areas throughout the building's dedicated supply zones. The conditioned air is distributed through galvanized steel ductwork and diffusers. Return air fans for the air handling units are also located in the mechanical penthouse. In addition, there are two (2) rooftop units and three (3) condensing units that feed dedicated zones with heating and cooling.

There are several exhaust fans located on the roof that exhaust the building washrooms, utility rooms, and electrical room.

The building's equipment is controlled by an electronic HVAC control system that controls the air handling units, air intakes, exhaust dampers, pumps, boilers, etc.

##### Condition

The majority of the equipment is original to the building's construction in 1985.

The two (2) gas fired hot water heating boilers and two (2) heating circulation pumps are past their useful service life and should be scheduled for replacement in the near future.

The hot water heating piping and valves serving the unit heaters, and the air handling units, are original to the building, and are in good condition. With proper maintenance, this piping should remain in serviceable condition beyond the scope of this review.

The building's supply air handling unit and return air fan are in serviceable condition; however, they are past their useful service life and should be scheduled to have their internal components upgraded. We recommend replacing the unit motors, shafts, belts and coils to extend the life of the equipment.

The humidifier for the air handling unit is past its useful service life and should be scheduled for replacement.

The duct mounted reheat coils are in serviceable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The estimated costs for the above noted work are included in the cost table.



## **Plumbing Systems**

### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping. Domestic hot water for the building is provided by 2 gas fired hot water heaters/storage tanks, located in the mechanical penthouse.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roofs drains are collected through cast iron drains that are piped to central collectors that exit the building and tie into the service loop located on site.

### **Condition**

The building was constructed in 1985 and the majority of the plumbing fixtures and piping are from that era. The gas fired hot water heaters were installed approximately 8 years ago and are in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.

## **4.1.2 Electrical**

### **Main Service**

#### **Description**

The building's main incoming 600 V service is located in the electrical room. The system includes a 50 kVA, 600V-120/208V transformer, two (2) 45 kVA, 600V-120/208V transformers, a 225 amp 600/247 volt transfer switch, and a 500 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

#### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement. The estimated cost for this work is included in the cost table.

### **Lighting and Power**

#### **Description**

Lighting consists of recessed 1' x 5' T8 fluorescent fixtures installed in the drywall ceiling throughout the building, and suspended 1' x 5' T8 fluorescent fixtures in the mechanical penthouse and areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

#### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.



## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

### **4.2.2 Fire Alarm System**

#### **Description**

There is an Edwards EST model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the penthouse which is linked to the entrance panel.

#### **Condition**

No problems were reported or observed.

### **4.2.3 Sprinkler System**

#### **Description**

The building is protected by a sprinkler system throughout.

#### **Condition**

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

### **4.2.4 Security System**

#### **Description**

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### **Condition**

No problems were reported or observed with the security system.



#### 4.3 Controlled Entrances & Cell Door Locks

##### Description

The building is reported to have approximately 10 cell door locks plus the electrically controlled entrance. Both of these systems are controlled by a sub controller at the security desk and tie back into the head end hardware and software which controls the entire site, located in the MCCP building.

##### Condition

All of the approximately 10 cell door locks and the electrically controlled entrance are at the end of their life expectancies, and should be scheduled for replacement over the next 5 years.

The estimated cost for this work is included in the cost table.





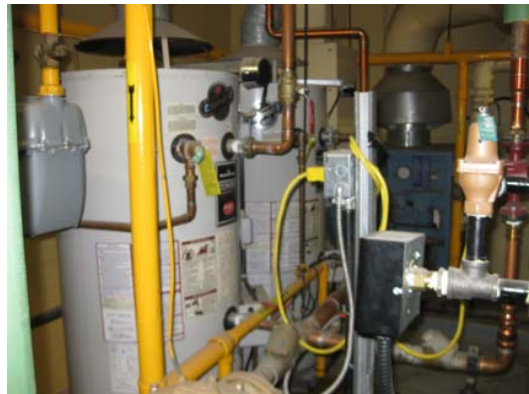
East Elevation



North Elevation & Entrance



Heating Boilers - Replace



Domestic Hot Water Tanks



Heating Pumps - Replace



Return Air Fan – Refurbish Components



Typical Air Handling Unit – Refurbish Components



Humidifier (AHU) - Replace



Rooftop Unit - Replace



Typical Condensing Unit



Rooftop Unit - Replace



Main Electrical Service



Transformer - Replace



Main Breaker & Transfer Switch - Replace





#### 4. 18 – GYMNASIUM

The building was constructed in 1983 and is generally single storey, with mezzanines at each end of the gymnasium. The building has a total floor area of approximately 18,748 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

###### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating system consists of two (2) gas fired hot water heating boilers and two (2) heating circulation pumps located in the mezzanine mechanical room. Hot water piping is circulated to the heating coils in the air handling units, duct mounted reheat coils, radiation, and the entrance force flow heaters through insulated piping.

The air handling units located in the mezzanine mechanical room provide conditioned air to the various areas throughout the building's dedicated supply zones. The conditioned air is distributed through galvanized steel ductwork and diffusers. Return air fans for the air handling units are also located in the mezzanine mechanical room. In addition, there appears to be an independent air handling unit located in Room 1105 that feeds the squash courts and weight room with conditioned air.

There are several exhaust fans for the building washrooms, utility rooms, and electrical room.

The building's equipment is controlled by an electronic HVAC control system that provides local controls only for the air handling units, air intakes, exhaust dampers, pumps, boilers, etc.

###### Condition

The majority of the equipment is original to the building's construction in 1983.

The two (2) gas fired hot water heating boilers and two (2) heating circulation pumps are past their useful service life and should be scheduled for replacement in the near future.

The hot water heating piping and valves serving the radiation, and the air handling units, are original to the building, and are in good condition. With proper maintenance, this piping should remain in serviceable condition beyond the scope of this review.

The building's supply air handling units and return air fans are in serviceable condition; however, they are past their useful service life and should be scheduled to have their internal components upgraded. We recommend replacing the unit motors, shafts, belts and coils to extend the life of the equipment.

The humidifier for the air handling unit is past its useful service life and should be scheduled for replacement.

The duct mounted reheat coils and radiators are in serviceable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The estimated costs for the above noted work are included in the cost table.

##### Plumbing Systems

###### Description

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping. Domestic hot water for the building is provided by 2 gas fired instantaneous hot water heaters, located in the mezzanine mechanical room.



The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof drainage is by eaves troughs and downspouts, and is discharged directly onto the ground.

#### Condition

The building was constructed in 1983 and the majority of the plumbing fixtures and piping are from that era. The gas fired hot water heaters were installed approximately 5 years ago and are in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.

### **4.1.2 Electrical**

#### **Main Service**

##### Description

The building's main incoming 600 V service is located in the electrical room. The system includes a 45 kVA, 600V-120/208V, transformer, a 250 amp 600/208 volt transfer switch, and a 1,200 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

##### Condition

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement. The estimated cost for this work is included in the cost table.

#### **Lighting and Power**

##### Description

Lighting consists of pendant 1' x 5' T8 fluorescent fixtures installed in the mezzanine fitness areas, pendant low sodium fixtures in the squash court and gymnasium, and suspended 1' x 5' T8 fluorescent fixtures in the mechanical room and areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

##### Condition

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

### **4.7 Fire Protection and Life Safety Systems**

#### **4.7.1 Emergency Power**

##### Description

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.



#### Condition

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further discussion.

#### 4.7.2 Fire Alarm System

##### Description

There is an Edwards EST model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the penthouse which is linked to the entrance panel.

##### Condition

No problems were reported or observed.

#### 4.7.3 Sprinkler System

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.2.4 Security System

##### Description

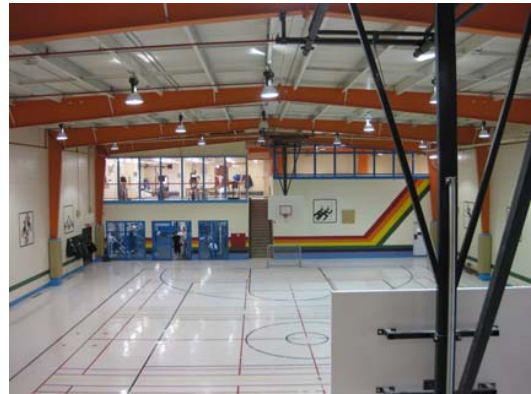
The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.



North-East Elevation



Interior View



Gymnasium Lighting



Mechanical Room



Air Handling Unit – Refurbish



Air Handling Unit - Refurbish



Heating Boiler - Replace



Instantaneous Domestic Hot Water



Heating Pumps - Replace



Upgrade Plumbing Fixtures



Entrance Force Flow Heater



Main Breakers - Replace





#### 4. 19 – HOBBY SHOP / LIBRARY

The building was constructed in 1986 and is single storey. The building has a total floor area of approximately 12,982 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

###### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating devices, such as perimeter radiators and entrance heaters, are fed from the boiler plant located in the adjacent Gymnasium. Hot water piping is circulated to the heating devices through insulated piping.

There are two (2) gas fired air handling units located in the mechanical room that provide conditioned air to the various areas throughout the building's dedicated supply zones. The conditioned air is distributed through galvanized steel ductwork and diffusers.

There are several exhaust fans for the building washrooms, utility rooms, and electrical room.

The building's equipment is controlled by an electronic HVAC control system that provides local controls only for the air handling units, air intakes, exhaust dampers, and fans.

###### Condition

The majority of the equipment is original to the building's construction in 1986.

The hot water heating piping and valves serving the radiation are reported to be in good condition. With proper maintenance, this piping should remain in serviceable condition beyond the scope of this review.

The building's supply air handling units are in serviceable condition; however, they are past their useful service life and should be scheduled to be replaced or refurbished.

The duct mounted reheat coils and radiators are in serviceable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The estimated costs for the above noted work are included in the cost table.

##### Plumbing Systems

###### Description

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping. Domestic hot water for the building is provided by 2 gas fired instantaneous hot water heaters.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roofs drains are collected through cast iron drains that are piped to central collectors that exit the building and tie into the service loop located on site.

###### Condition

The building was constructed in 1986 and the majority of the plumbing fixtures and piping are from that era. The gas fired hot water heaters were installed approximately 5 years ago and are in good condition.



The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.

#### **4.1.2 Electrical**

##### **Main Service**

###### **Description**

The building's main incoming 600 V service is located in the electrical room. The system includes a 45 kVA, 600V-120/208V transformer, a 250 amp 600/208 volt transfer switch, and a 1,200 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

###### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement. The estimated cost for this work is included in the cost table.

##### **Lighting and Power**

###### **Description**

Lighting consists of 1' x 5' T8 fluorescent fixtures installed in the drywall ceiling throughout the building, and suspended 1' x 5' T8 fluorescent fixtures in the mechanical room and areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

#### **4.2 Fire Protection and Life Safety Systems**

##### **4.2.1 Emergency Power**

###### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

###### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.



#### 4.2.2 Fire Alarm System

##### Description

There is an Edwards EST model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the penthouse which is linked to the entrance panel.

##### Condition

No problems were reported or observed.

#### 4.2.3 Sprinkler System

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.2.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.





South Elevation



Main Electrical Room



Fire Alarm Panel



Transformer - Replace



Interior View



Air Handling Unit - Replace



Perimeter Radiation



Roof Vents



View of Roof



Condensing Unit



#### 4. 20 – KITCHEN /DINING HALL

The building was constructed in 1985 and is single storey, with a mechanical/services penthouse. The building has a total floor area of approximately 18,525 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

##### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating system consists of two (2) gas fired hot water heating boilers and two (2) heating circulation pumps located in the mechanical penthouse. Hot water piping is circulated to the heating coils in the air handling units, duct mounted reheat coils, and the entrance force flow heaters through insulated piping.

The air handling unit located in the mechanical penthouse provides conditioned air to the dining hall's dedicated supply zones. The conditioned air is distributed through galvanized steel ductwork and diffusers. Return air fans for the air handling units are also located in the mechanical penthouse. In addition, there are four (4) make-up air units that are interlocked with four (4) kitchen exhaust fans, to ventilate the kitchen areas and hoods.

There are several exhaust fans located on the roof that exhaust the kitchen, washrooms, utility rooms, and electrical room. Also, there are two (2) condensing units on the roof for kitchen refrigeration.

There are 7 compressor systems located in the penthouse for the kitchen equipment.

The building's equipment is controlled by an electronic HVAC control system that controls the air handling units, air intakes, exhaust dampers, pumps, boilers, etc.

##### Condition

The majority of the equipment is original to the building's construction in 1985.

The two (2) gas fired hot water heating boilers and two (2) heating circulation pumps are past their useful service life and should be scheduled for replacement in the near future.

The hot water heating piping and valves serving the radiation and air handling units are reported to be in good condition. With proper maintenance, this piping should remain in serviceable condition beyond the scope of this review.

The building's supply air handling unit and kitchen make-up air units are in serviceable condition; however, they are past their useful service life and should be scheduled to be replaced or refurbished.

The humidifier for the air handling unit is past its useful service life and should be scheduled for replacement.

The duct mounted reheat coils and radiators are in serviceable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The compressor systems for the kitchen equipment should be modernized for ease of maintenance.

The estimated costs for the above noted work are included in the cost table.



## **Plumbing Systems**

### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping.

The domestic hot water system consists of two (2) gas fired hot water heating boilers and two (2) circulation pumps located in the mechanical penthouse.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roofs drains are collected through cast iron drains that are piped to central collectors that exit the building and tie into the service loop located on site.

### **Condition**

The building was constructed in 1985 and the majority of the plumbing equipment, fixtures and piping are from that era.

The two (2) gas fired domestic hot water heating boilers and two (2) circulation pumps are past their useful service life and should be scheduled for replacement in the near future.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.

## **4.1.2 Electrical**

### **Main Service**

#### **Description**

The building's main incoming 600 V service is located in the electrical room. The system includes a 75 kVA, 600V-120/208V transformer, a 30 kVA, 600V-120/208V transformer, a 400 amp 600/347 volt transfer switch, and a 1,200 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

#### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement. The estimated cost for this work is included in the cost table.

### **Lighting and Power**

#### **Description**

Lighting consists of 1' x 5' T8 fluorescent fixtures installed in the drywall ceiling throughout the building, and suspended 1' x 5' T8 fluorescent fixtures in the mechanical room and areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

#### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.



## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### Description

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### Condition

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

### **4.2.2 Fire Alarm System**

#### Description

There is an Edwards EST model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the penthouse which is linked to the entrance panel.

#### Condition

No problems were reported or observed.

### **4.2.3 Sprinkler System**

#### Description

The building is protected by a sprinkler system throughout.

#### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

### **4.2.4 Security System**

#### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### Condition

No problems were reported or observed with the security system.





West Elevation



South-East Entrance



Domestic Hot Water Boilers - Replace



Return Air Fan (AHU-1) – Refurbish



Air Handling Unit – Refurbish Components



Compressors (Kitchen Equipment) - Replace



Heating Boilers - Replace



Typical Make-Up Air Unit – Upgrade Components



Attic Ventilation Distribution



View of Roof & Boiler Stacks



Condensing Units – Replace Older Unit



Humidifier (AHU) - Replace



#### 4. 21 – ADMINISTRATION BUILDING

The building was constructed in 1985 and has 2 storeys above grade and 1 storey below grade. The building has a total floor area of approximately 75,031 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

##### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating system consists of two (2) gas fired hot water heating boilers and two (2) heating circulation pumps located in the upper level penthouse. Hot water piping is circulated to the heating coils in the air handling units, duct mounted reheat coils, and the entrance force flow heaters through insulated piping. There is also a glycol system for the preheat coils on the air handling units.

An air cooled chiller is located on the roof, and feeds chilled water to the administration air handling units' cooling coils through insulated piping and pumps.

There are three (3) air handling units located in the upper level penthouse that provide conditioned air to the above grade dedicated administration supply zones, and one (1) air handling unit in the basement for the below grade, and at grade, supply zones. The conditioned air is distributed through galvanized steel ductwork and diffusers. Return air fans for the air handling units are also located adjacent to the supply fans they are connected with. There are four (4) humidifiers, 1 for each of the air handling units.

There are several exhaust fans located on the roof that exhaust the kitchen, washrooms, utility rooms, and electrical room. Also, in the boiler room, there is a condensing unit for a split system located elsewhere in the building.

The building's equipment is controlled by an electronic HVAC control system that controls the air handling units, air intakes, exhaust dampers, pumps, boilers, etc.

##### Condition

The majority of the equipment is original to the building's construction in 1985.

The two (2) gas fired hot water heating boilers and two (2) heating circulation pumps are past their useful service life and should be scheduled for replacement in the near future.

The air cooled condensing unit and circulation pumps are past their useful service life and should be scheduled for replacement in the near future.

The hot water heating piping and valves serving the radiation and air handling units are reported to be in good condition. With proper maintenance, this piping should remain in serviceable condition beyond the scope of this review.

The building's supply air handling units are in serviceable condition; however, they are past their useful service life and should be scheduled to have their internal components upgraded. We recommend replacing the unit motors, shafts, belts and coils to extend the life of the equipment.

The humidifiers for the air handling units are past their useful service life and should be scheduled for replacement.

The duct mounted reheat coils and radiators are in serviceable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The estimated costs for the above noted work are included in the cost table.





## **Plumbing Systems**

### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping.

The domestic hot water system consists of two (2) gas fired instantaneous hot water heating devices and two (2) circulation pumps, located in the boiler room.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roofs drains are collected through cast iron drains that are piped to central collectors that exit the building and tie into the service loop located on site.

### **Condition**

The building was constructed in 1985 and the majority of the plumbing equipment, fixtures, and piping are from that era.

The gas fired instantaneous hot water heaters were installed approximately 3 years ago and are in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.

## **4.1.2 Electrical**

### **Main Service**

#### **Description**

The building's main incoming 600 V service is located in the electrical room. The system includes a 112.5 kVA 600V-120/208V transformer, a 30 kVA 600V-120/208V transformer, a 600 amp 600/347 volt transfer switch, and a 2,000 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

#### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement. The estimated cost for this work is included in the cost table.

### **Lighting and Power**

#### **Description**

Lighting consists of 1' x 4' T8 fluorescent fixtures installed in the drywall ceilings, 1'x 4' T8 fluorescent fixtures installed in the T-bar ceilings, and suspended 1' x 5' T8 fluorescent fixtures in the mechanical room and areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

#### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.



## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

### **4.2.2 Fire Alarm System**

#### **Description**

There is an Edwards EST 3 model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15-20 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the penthouse which is linked to the entrance panel.

#### **Condition**

No problems were reported or observed.

### **4.2.3 Sprinkler System**

#### **Description**

The building is protected by a sprinkler system throughout.

#### **Condition**

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

### **4.2.4 Security System**

#### **Description**

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### **Condition**

No problems were reported or observed with the security system.



South-East Elevation



South-East Entrance



Fire Alarm Panel – Refurbish or Replace



Air Handling Unit – Refurbish



New Backflow Preventers



Air Handling Unit – Refurbish



Air Cooled Chiller - Replace



Heating Boilers – Replace



Heating Pumps - Replace



Main Electrical Service & Fire Alarm Panel



Transformer - Replace



Transfer Switch - Replace



#### 4. 22 – SALLY PORT / GATE HOUSE

The building was constructed in 1986 and has 2 storeys above grade. The building has a total floor area of approximately 3,714 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

###### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating system consists of four (4) gas fired hi-efficiency furnaces, located in the 2<sup>nd</sup> floor mechanical room, complete with 2 roof mounted condensing units for cooling. The conditioned air is distributed through galvanized steel ductwork and diffusers. There are duct mounted humidifiers, one for each of the furnaces.

There are exhaust fans located on the roof that exhaust the washrooms, utility rooms, and electrical room.

The building's equipment is controlled by an electronic local HVAC control system.

###### Condition

The majority of the equipment has been upgraded in recent years, with the hi-efficiency furnaces being upgraded approximately 2 years ago.

The building's supply air handling systems are in good condition, and their remaining life should extend beyond the scope of this review.

##### Plumbing Systems

###### Description

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping.

The domestic hot water system consists of one (1) gas fired instantaneous hot water heating device.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roofs drains are collected through cast iron drains that are piped to central collectors that exit the building and tie into the service loop located on site.

###### Condition

The building was constructed in 1986 and the majority of the plumbing fixtures and piping appear to be from that era.

The gas fired instantaneous hot water heater was installed approximately 2-3 years ago and is in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.





#### **4.1.2 Electrical**

##### **Main Service**

###### **Description**

The building's main incoming 600 V service is located in the electrical room. The system includes a 45 kVA 600V-120/208V transformer, a 300 amp transfer switch, and a 150 amp 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

###### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all major components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement. The estimated cost for this work is included in the cost table.

##### **Lighting and Power**

###### **Description**

Lighting consists of a combination of 1' x 4' T8 fluorescent fixtures installed in the drywall ceiling areas, 1'x 4' T8 fluorescent fixtures installed in the T-bar ceiling areas, and suspended 1' x 4' T8 fluorescent fixtures in the mechanical room and areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

#### **4.2 Fire Protection and Life Safety Systems**

##### **4.2.1 Emergency Power**

###### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

###### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.



#### 4.2.2 Fire Alarm System

##### Description

There is an Edwards EST 3 model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15-20 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the penthouse which is linked to the entrance panel.

##### Condition

No problems were reported or observed.

#### 4.2.3 Sprinkler System

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.2.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.



North-East Elevation



East Elevation



High Efficiency Furnaces



Instantaneous Domestic Hot Water Heater



Equipment Disconnects



Main Breaker - Upgrade





#### 4. 23 – CHECK POINT CHARLIE

The building was constructed in 1986 and is single storey. The building has a total floor area of approximately 701 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

###### HVAC Systems

###### Description

The building is equipped with an electric service only for heating devices. The building's heating consists of three (3) electric force flow heaters recessed in the walls.

There is an exhaust fan for the washroom.

###### Condition

All of the heating devices are operating satisfactorily.

###### Plumbing Systems

###### Description

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping.

The domestic hot water system consists of one (1) electric hot water tank in the utility closet.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof drainage is by eaves troughs and downspouts, and is discharged directly onto the ground.

###### Condition

The building was constructed in 1986 and the plumbing fixtures and piping appear to be from that era.

The hot water heater was installed approximately 5 years ago and is in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.

##### 4.1.2 Electrical

###### Main Service

###### Description

The building's main incoming 600 V service is located in the electrical room. The system includes a 45 kVA 600V-120/208V transformer, a 300 amp transfer switch, and a 150 amp 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.



### Condition

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all major components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement. The estimated cost for this work is included in the cost table.

### Lighting and Power

#### Description

Lighting consists of a combination of 1' x 4' T8 fluorescent fixtures installed in the drywall ceiling areas, 1'x 4' T8 fluorescent fixtures installed in the T-bar ceiling areas, and suspended 1' x 4' T8 fluorescent fixtures in the mechanical room and areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

#### Condition

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### Description

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### Condition

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

### **4.2.2 Fire Alarm System**

#### Description

There is an Edwards EST 3 model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15-20 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the penthouse which is linked to the entrance panel.

#### Condition

No problems were reported or observed.



#### 4.2.3 Sprinkler System

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.2.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.



East Elevation



Force Flow Heater



Force Flow Heater - Replace



Fire Alarm Panel



Lighting & Power Panel - Replace



#### 4. 28 – CORCAN INDUSTRIES

The building was constructed in 1983 and is mainly a single storey warehouse, with 2 storey administration offices at the southwest end of the building. The building has a total floor area of approximately 39,872 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

##### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's systems are split between the administration office systems, and the warehouse/shop systems. The administration areas are provided with heating from three (3) gas fired furnaces located in the mechanical room at the lower level. Cooling is provided to select areas through two (2) split systems, with the condensing units located on the low canopy roof above the loading bays. Each furnace is provided with an in-line humidifier.

There are eight (8) gas fired air handling units (with access walkways for servicing) that are suspended from the roof structure in the metal shop, wood shop, paint shop, and the warehouse. These units are directly connected to louvers at the perimeter of the building that provide make-up air. Exhaust systems are situated strategically in the metal shop, wood shop, paint shop, and the warehouse areas to control dust collection and fumes from the manufacturing processes. Conditioned air is distributed to the dedicated areas through galvanized steel ductwork and diffusers. There are several exhaust fans that exhaust the lunchroom, washrooms, utility rooms, and electrical room to the perimeter. A dust collection system exists at the northeast corner of the building.

##### Condition

The administration area furnaces are reportedly in good working order. Two of the three furnaces were replaced in the past five years with new, more efficient, gas fired furnaces. The remaining furnace should also be replaced with a new high efficiency furnace which ties into the existing distribution systems. The humidifiers on all three of the furnaces should also be upgraded.

The majority of the air handling units in the warehouse/shop are original to the building's construction in 1983. The warehouse/shop supply air handling units and exhaust fans are in serviceable condition; however, they are past their useful service life and should be scheduled to have their internal components upgraded or replaced. We recommend replacing the unit motors, shafts, belts, and coils to extend the life of the equipment.

The estimated costs for the above noted work are included in the cost table.

It was indicated that the building may be considered for another purpose other than CORCAN manufacturing. It should be noted that the building was constructed for the dedicated purpose of manufacturing therefore it would need to have all systems completely replaced with new systems appropriately designed for the new function.



## **Plumbing Systems**

### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping.

The domestic hot water system consists of one (1) gas fired instantaneous hot water heating device for the administration washrooms located in the mechanical room, and small dedicated hot water tanks located at the points of use.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site at the south end of the building. The roof is drained by eaves troughs and downspouts which discharge directly onto the ground.

### **Condition**

The building was constructed in 1983 and the plumbing piping is mainly from the era; however, some of the valves and fittings in the main mechanical room have been replaced in recent years. There is a fairly new incoming water service consisting of a water meter and backflow preventers.

The gas fired instantaneous hot water heaters were installed approximately 3 years ago and are in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.

## **4.1.2 Electrical**

### **Main Service**

#### **Description**

The building's main incoming 600 V service is located in the electrical room and is fed from a pad mounted transformer at the south end of the building. The system includes a 225 kVA 600V-120/208V transformer, a 100 amp 600/347V transfer switch, and a 1,000 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

#### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement.

### **Lighting and Power**

#### **Description**

Lighting consists of 1' x 4' T8 fluorescent fixtures installed in the drywall ceiling areas, 1' x 4' T8 fluorescent fixtures installed in the T-bar ceiling areas, and suspended 1' x 5' T8 fluorescent fixtures in the mechanical room, warehouse, and shop areas.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.



### Condition

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### Description

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### Condition

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

### **4.2.2 Fire Alarm System**

#### Description

There is an Edwards EST 3 model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the penthouse which is linked to the entrance panel.

#### Condition

No problems were reported or observed.

### **4.2.3 Sprinkler System**

#### Description

The building is protected by a sprinkler system throughout.

#### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

### **4.2.4 Security System**

#### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### Condition

No problems were reported or observed with the security system.





South-West Elevation



East Elevation / Loading Dock



Office Furnaces – Replace Old Unit



Transfer Switch - Replace



Main Electrical Breakers - Upgrade



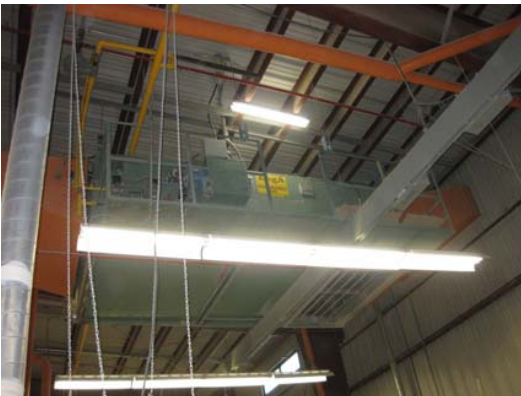
Transformer - Replace



Fire Alarm Panel



Air Handling Unit – Refurbish Components



Air Handling Unit – Refurbish Components



Air Handling Unit – Refurbish Components



Paint Booth and Exhaust System



Dust Collection System



#### **4. 31 – MAINTENANCE BUILDING**

The building was constructed in 1983 and is single storey, with maintenance office and work shop areas. The building has a total floor area of approximately 10,142 square feet.

##### **4.1 Services**

##### **4.1.1 Mechanical**

##### **HVAC Systems**

###### **Description**

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating systems consist of three (3) gas fired furnaces, two located in the mechanical room at the northeast side of the building, and one ceiling suspended in the carpentry shop. In addition to the furnaces, there is a make-up air unit on the roof that feeds the paint shop, four (4) gas fired unit heaters, and five (5) gas fired infrared unit heaters.

There are several exhaust fans located on the roof that ventilate the metal shop exhaust hood, the paint shop, garage, and washrooms.

Conditioned air is distributed to the dedicated areas through galvanized steel ductwork and diffusers.

###### **Condition**

The furnaces are reportedly in good working order. All 3 of the furnaces were replaced in the past 3 years with new high efficiency gas fired furnaces.

All of the exhaust fans, unit heaters, and infrared unit heaters are in serviceable condition, and should remain as such over the evaluation period subject to proper maintenance.

##### **Plumbing Systems**

###### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping.

The domestic hot water system consists of one (1) gas fired instantaneous hot water heating device for the washrooms located in the northeast mechanical room.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site, at the south end of the building. The roof is drained by scuppers and downspouts which discharge directly onto the ground.

###### **Condition**

The building was constructed in 1983 and the plumbing piping is mainly from that era; however, many of the valves and fittings have been replaced in recent years as part of regular maintenance.

The gas fired instantaneous hot water heater was installed approximately 3 years ago and is in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.



#### **4.1.2 Electrical**

##### **Main Service**

###### **Description**

The building's main incoming 600 V service is located in the electrical room and is fed from a pad mounted transformer at the north end of the building. The system includes a 15 kVA 600V-120/208V transformer, a 125 amp 600/347V transfer switch, and a 300 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

###### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement.

##### **Lighting and Power**

###### **Description**

Lighting consists mainly of suspended 1' x 5' T8 fluorescent fixtures throughout all service areas, corridors, offices, storage areas, and shop areas.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

#### **4.2 Fire Protection and Life Safety Systems**

##### **4.2.1 Emergency Power**

###### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

###### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.



#### 4.2.2 Fire Alarm System

##### Description

There is an Edwards EST 3 model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the northeast mechanical room which is linked to the entrance panel.

##### Condition

No problems were reported or observed.

#### 4.2.3 Sprinkler System

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.2.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.





North Elevation



Site Transformer from Electrical Trench



Furnaces – High Efficiency



Instantaneous Domestic Hot Water Heater



Transfer Switch & Fire Alarm Panel



Main Disconnect - Replace



Infrared Gas Fired Radiant Heater



East Elevation



Wood Shop Furnace – High Efficiency



Unit Heater





#### **4. 33 – LAUNDRY BUILDING**

The building was constructed in 1986 and is mainly single storey, with a mezzanine level to accommodate the mechanical room. The building has a total floor area of approximately 14,208 square feet.

##### **4.1 Services**

##### **4.1.1 Mechanical**

##### **HVAC Systems**

###### **Description**

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating system consists of two (2) gas fired hot water heating boilers and two (2) heating circulation pumps located in the mezzanine mechanical room. Hot water piping is circulated to the heating coils in the air handling units, duct mounted reheat coils, unit heaters, and the entrance force flow heaters through insulated piping.

There is one air handling unit suspended from the structure located in the laundry area, and one air handling unit suspended from the structure in the BST area, that provide conditioned air throughout the building's dedicated supply zones. The conditioned air is distributed through galvanized steel ductwork and diffusers.

There are several exhaust fans for the laundry area, washrooms, utility rooms, and mechanical/electrical room.

The building's equipment is controlled by an electronic HVAC control system that provides local controls only for the air handling units, air intakes, exhaust dampers, pumps, boilers, etc.

###### **Condition**

The majority of the equipment is original to the building's construction in 1986.

The two (2) gas fired hot water heating boilers and two (2) heating circulation pumps are past their useful service life and should be scheduled for replacement in the near future.

The hot water heating piping and valves serving the radiation are original to the building and in good condition. With proper maintenance, the piping should remain in serviceable condition beyond the scope of this review.

The building's supply air handling units and exhaust fans are in serviceable condition; however, they are past their useful service life and should be scheduled to have their internal components upgraded. We recommend replacing the unit motors, shafts, belts, and coils to extend the life of the equipment.

The unit heaters and radiators are in serviceable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The estimated costs for the above noted work are included in the cost table.

##### **Plumbing Systems**

###### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping. Domestic hot water for the laundry facility consists of one (1) gas fired hot water heating boiler, storage tanks, and circulation pumps located in the main laundry area.



The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof is drained by scuppers and downspouts which discharge directly onto the ground.

#### Condition

The building was constructed in 1986 and the majority of the plumbing fixtures and piping are from that era. The gas fired hot water heating boiler and circulation pumps are past their useful service life and should be scheduled for replacement in the near future.

The miscellaneous plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.

### **4.1.2 Electrical**

#### **Main Service**

##### Description

The building's main incoming 600 V service is located in the electrical room, and is fed from a pad mounted transformer at the north end of the building. The system includes a 45 kVA, 600V-120/208V transformer, a 150 amp 600/208V transfer switch, and a 1,000 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building. There is also an MCC (Motor Control Centre) for the mechanical equipment and laundry equipment.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

##### Condition

No problems were reported or observed and the equipment appears to be in reasonable condition. However, all components are approaching the end of their useful service life and should be scheduled for refurbishment or replacement.

#### **Lighting and Power**

##### Description

Lighting consists mainly of suspended 1' x 5' T8 fluorescent fixtures throughout all laundry areas, corridors, offices, storage areas, and utility areas.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

##### Condition

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

### **4.2 Fire Protection and Life Safety Systems**

#### **4.2.1 Emergency Power**

##### Description

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.



#### Condition

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

#### 4.2.2 Fire Alarm System

##### Description

There is an Edwards EST model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the mezzanine electrical room which is linked to the entrance panel.

##### Condition

No problems were reported or observed.

#### 4.2.3 Sprinkler System

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.2.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.



South-West Elevation



West Elevation / Loading Doors



Lighting, Bus Duct & Sprinklers



Hot Water Unit Heaters - Replace



MCC - Upgrade



Air Handling Unit - Refurbish



Laundry Hot Water Boiler - Replace



Domestic Hot Water Insulation - Replace



Heating Boilers - Replace



Heating Pumps - Refurbish



Main Electrical Disconnect – Refurbish/Replace



Fire Alarm Panel / Transformer - Replace





#### **4. 34 – MCCP BUILDING**

The MCCP Building was constructed in 1998 and is single storey. The building has a total floor area of approximately 1,055 square feet.

A review of the electrically controlled entrance system and the cell door lock system is included, as requested.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

###### **Description**

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating system consists of one (1) gas fired mid-efficiency furnace located in the utility room, complete with a condensing unit for cooling located outside on ground level. The conditioned air is distributed through galvanized steel ductwork and diffusers. There is a duct mounted humidifier and electronic air filter associated with the furnace.

There are in-line exhaust fans that exhaust the washroom and utility room.

The building's equipment is controlled by an electronic local HVAC control system.

###### **Condition**

The furnace, condensing unit, humidifier, and electronic air cleaner are all original to the building's construction in 1998, and are in reasonable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The building's exhaust fans are in good condition, and should remain in serviceable condition beyond the scope of this review.

###### **Plumbing Systems**

###### **Description**

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping.

The domestic hot water system consists of one (1) electric hot water tank (6 US gallons) located in the utility room.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof is drained by scuppers and downspouts which discharge directly onto the ground.

###### **Condition**

The building was constructed in 1998 and the majority of the plumbing fixtures and piping appear to be from that era.

The hot water tank was installed approximately 5 years ago and is in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.





#### **4.1.2 Electrical**

##### **Main Service**

###### **Description**

The building's main incoming 600 V service is located in the electrical room. The system includes a 45 kVA 600V-120/208V transformer, a 150 amp transfer switch, and a 225 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

###### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

##### **Lighting and Power**

###### **Description**

Lighting consists of a combination of 1' x 4' T8 fluorescent fixtures installed in the drywall ceiling areas, and suspended 1' x 4' T8 fluorescent fixtures in the general areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

#### **4.2 Fire Protection and Life Safety Systems**

##### **4.2.1 Emergency Power**

###### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

###### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.



#### 4.2.2 Fire Alarm System

##### Description

There is an Edwards EST 3 model fire alarm and smoke alarm system that was installed at the time of the building's construction approximately 14 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the utility room which is linked to the entrance panel.

##### Condition

No problems were reported or observed.

#### 4.2.3 Sprinkler System

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.2.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.

#### 4.3 Controlled Entrance & Cell Door Lock System

##### Description

The main electrically controlled system for the cell door locks is located in the MCCP (Main Communications & Controls Post) building. The head end hardware and software controls the entire site from this point, and sub controllers exist at the security desks in the designated buildings.

##### Condition

No problems were reported or observed. It was reported that the entire cell door lock system hardware and software was upgraded approximately 5 years ago. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

Refer to the Living Units 1-5 and the Dissociation, Segregation & Health Care buildings for a description of the individual cell door locks.



West Elevation



Site Security System



Electrical Services



Gas Fired Furnace



Condensing Unit



Domestic Hot Water Tank



#### 4. 61 – ANNEX CORCAN WAREHOUSE

The building was constructed in 1985 and is single storey. The building has a total floor area of approximately 7,500 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

###### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating system consists of two (2) gas fired unit heaters located in the staff gym, and four (4) gas fired unit heaters in the warehouse. There is one (1) gas fired furnace located in the office area that provides conditioned air through galvanized steel ductwork and diffusers.

There are in-line exhaust fans that exhaust the washroom and utility room.

###### Condition

The unit heaters are original and are in good condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The building exhaust fans are in good condition, and should remain in serviceable condition beyond the scope of this review.

The existing furnace should be replaced with a new high efficiency furnace.

##### Plumbing Systems

###### Description

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building through copper piping.

The domestic hot water system consists of three (3) gas fired hot water tanks located in the office, warehouse washroom, and the staff gym washrooms.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof is drained by scuppers and downspouts which discharge directly onto the ground.

###### Condition

The building was constructed in 1985 and the majority of the plumbing fixtures and piping appear to be from that era.

The hot water tanks were installed approximately 8 years ago and are in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.



#### **4.1.2 Electrical**

##### **Main Service**

###### **Description**

The building's main incoming service is located in the electrical area and consists of a 200 amp, 120/208 volt, 3 phase 4 wire electrical service, fed from a hydro pole adjacent to the building. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

###### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

##### **Lighting and Power**

###### **Description**

Lighting consists of a combination of 1' x 4' T8 fluorescent fixtures installed in the drywall ceiling areas, and suspended 1' x 4' T8 fluorescent fixtures in the general areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

#### **4.2 Fire Protection and Life Safety Systems**

##### **4.2.1 Emergency Power**

###### **Description**

There is no emergency power system installed in the building.

##### **4.2.2 Fire Alarm System**

###### **Description**

There is an Edwards EST model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the utility room which is linked to the entrance panel.

###### **Condition**

No problems were reported or observed.

##### **4.2.3 Sprinkler System**

###### **Description**

The building is protected by a sprinkler system throughout.



Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

4.2.4 Security System

Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

Condition

No problems were reported or observed with the security system.





South Elevation



Warehouse Lighting & Unit Heaters



View of Warehouse



Fire Alarm Panel & Distribution



Main Disconnect Panel



Domestic Hot Water Tank



#### 4. 70 – AGRI-BUSINESS CENTRE

The building was constructed in 1985 and is single storey. The building has a total floor area of approximately 6,064 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

###### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The building's heating system consists of one (1) gas fired high efficiency furnace located in the utility room serving the office areas, and gas fired infrared unit heaters in the garage. The conditioned air is distributed through galvanized steel ductwork and diffusers.

There are in-line exhaust fans that exhaust the washroom and utility room.

###### Condition

The furnace was reported to be approximately 10 years old, and is in good condition. With proper maintenance, it should remain in serviceable condition beyond the scope of this review.

The building exhaust fans are in good condition, and should remain in serviceable condition beyond the scope of this review.

##### Plumbing Systems

###### Description

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping.

The domestic hot water system consists of one (1) electric hot water tank (6 US gallons) located in the utility room.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof is drained by scuppers and downspouts which discharge directly onto the ground.

###### Condition

The building was constructed in 1985 and the majority of the plumbing fixtures and piping appear to be from that era.

The hot water tank was installed approximately 5 years ago and is in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.



#### **4.1.2 Electrical**

##### **Main Service**

###### **Description**

The building's main incoming 600 V service is located in the electrical room. The system includes a 30 kVA 600V-120/208V transformer, a 150 amp transfer switch, and a 200 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

###### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

##### **Lighting and Power**

###### **Description**

Lighting consists of a combination of 1' x 4' T8 fluorescent fixtures installed in the drywall ceiling areas, and suspended 1' x 4' T8 fluorescent fixtures in the general areas without ceiling finishes.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

#### **4.2 Fire Protection and Life Safety Systems**

##### **4.2.1 Emergency Power**

###### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

###### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.



#### 4.2.2 Fire Alarm System

##### Description

There is an Edwards EST model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the utility room which is linked to the entrance panel.

##### Condition

No problems were reported or observed.

#### 4.2.3 Sprinkler System

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.2.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.



South-East Elevation



North-East Elevation



Fire Alarm Panel



Transfer Switch & Main Breaker - Upgrade



Distribution Panels



Electrical/Gas Incoming Services & Furnace Vents



#### **4. 71 – AGRI-CENTRE MACHINERY STORAGE 1**

The building was constructed in 1985 and is single storey. The building has a total floor area of approximately 3,875 square feet.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

###### **Description**

There are no heating or cooling systems installed in the building.

###### **Plumbing Systems**

###### **Description**

There are no plumbing services installed in building. Rain water drains from the roof onto the ground.

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

The building's main incoming service is located just inside the door, and is fed from overhead power lines from the Business Centre. The system includes a 100 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

###### **Condition**

No problems were reported or observed; however, all of the equipment is beyond its expected service life and should be scheduled for replacement in the near future. The estimated cost for this work is included in the cost table.

###### **Lighting and Power**

###### **Description**

Lighting consists of a combination of 1' x 4' T8 fluorescent fixtures suspended from the roof structure.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.





#### **4.2 Fire Protection and Life Safety Systems**

##### **4.2.1 Emergency Power**

###### **Description**

There is no emergency power system installed in the building.

##### **4.2.2 Fire Alarm System**

###### **Description**

Manual pull stations, speakers, automatic smoke/heat detectors, and associated wiring are strategically located throughout the building.

###### **Condition**

No problems were reported or observed.

##### **4.2.3 Sprinkler System**

###### **Description**

There is no sprinkler system installed in the building.

##### **4.2.4 Security System**

###### **Description**

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

###### **Condition**

No problems were reported or observed with the security system.



South-East Elevation



North-East Elevation



Fire Alarm Panel



Transfer Switch & Main Breaker - Upgrade



#### **4. 72 – AGRI-CENTRE MACHINERY STORAGE 2**

The building was constructed in 1985 and is single storey. The building has a total floor area of approximately 3,875 square feet.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

###### **Description**

The building is equipped with a gas service that is fed from the buried gas service loop located on site. The building's heating system consists of two (2) gas fired unit heaters.

###### **Condition**

No problems were reported or observed

###### **Plumbing Systems**

###### **Description**

There are no plumbing services installed in the building. Rain water drains from the roof onto the ground.

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

The building's main incoming service is located just inside the door, and is fed from overhead power lines from the Business Centre. The system includes a 100 amp, 120/208 volt, 3 phase 4 wire electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panels.

###### **Condition**

No problems were reported or observed; however, all of the equipment is beyond its expected service life and should be scheduled for replacement in the near future. The estimated cost for this work is included in the cost table.

###### **Lighting and Power**

###### **Description**

Lighting consists of a combination of 1' x 4' T8 fluorescent fixtures suspended from the roof structure.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.



## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### **Description**

There is no emergency power system installed in the building.

### **4.2.2 Fire Alarm System**

#### **Description**

Manual pull stations, speakers, automatic smoke/heat detectors, and associated wiring are strategically located throughout the building.

#### **Condition**

The smoke detector system was added in 2011. No problems were reported or observed.

### **4.2.3 Sprinkler System**

#### **Description**

There is no sprinkler system installed in the building.

### **4.2.4 Security System**

#### **Description**

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### **Condition**

No problems were reported or observed with the security system.



South-West Elevation



Main Disconnect & Distribution Panel - Replace



Gas Fired Unit Heater - Replace



Work Space – Interior View



#### **4. 77, 78 & 79 – SECURITY TOWERS**

The three security towers (north, west & southeast) were constructed in 1985 and are elevated guard towers with an external steel structure staircase. The towers each have a floor area of approximately 151 square feet.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

###### **Description**

Each of the security towers is equipped with electric heating only.

###### **Plumbing Systems**

###### **Description**

There are no plumbing services installed in the security towers.

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

Each tower has an electrical system consisting of a power and lighting panel fed from the electrical site trench connection point below grade.

###### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

###### **Lighting and Power**

###### **Description**

Lighting and power distribution is provided to various lights and outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

##### **4.2 Fire Protection and Life Safety Systems**

###### **4.2.1 Emergency Power**

###### **Description**

Emergency power is fed from the central emergency distribution loop located in the electrical service tunnel, via the two diesel generators (750 kVA & 650 kVA) located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.





Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

Condition

The generators are tested once a month, and once a year with a load bank. No problems were observed or reported.

4.2.2 Fire Alarm System

Description

The towers were inaccessible therefore the existence of fire alarm systems could not be confirmed.

4.2.3 Sprinkler System

Description

There are no sprinkler systems installed in the towers.

4.2.4 Security System

Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

Condition

No problems were reported or observed with the security system.



North Security Tower



West Security Tower



#### **4. 80 – ELECTRICAL SUBSTATION**

The building was reportedly constructed in 1985 and is single storey. The building has a total floor area of approximately 2,207 square feet.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

###### **Description**

A gas service feeds the building for the heating devices.

The building's heating is provided by two (2) gas fired unit heaters suspended from the roof structure. There is a make-up air louver for ventilation.

###### **Condition**

The unit heaters appear to have been recently installed and are in good condition.

###### **Plumbing Systems**

###### **Description**

There are no plumbing services installed in the building.

The roof drainage is by eaves troughs and downspouts, which discharge directly onto the ground.

###### **Condition**

No problems were reported or observed.

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

The substation supplies the main 600 amp hydro service loop located in a trench around the entire site, feeding power to the individual buildings via a fuse and transformer. There is a 25 kV 600 amp service fed from a power pole located adjacent to the substation.

The electrical distribution is provided from a 25 kV primary switchboard that feeds the two distribution loops (A & B). Each loop is protected using a 600 amp fused disconnect switch. There is also a 30 kVA 600V-120/208V transformer and distribution panels for power and lighting in the substation.

###### **Condition**

No problems were reported or observed and the equipment appears to be in good condition. The distribution equipment should be tested once a year by high voltage qualified personnel. With proper maintenance, the equipment should remain in serviceable condition beyond the scope of this review.

###### **Lighting and Power**

###### **Description**

Lighting consists of 1' x 5' T8 fluorescent fixtures suspended from the roof structure.

Power distribution is provided to various outlets, and adequate circuits are provided.



### Condition

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

## **4.2 Fire Protection and Life Safety Systems**

### **4.2.1 Emergency Power**

#### Description

Emergency power is fed from the central emergency distribution loop located in the electrical service tunnel, via the two diesel generators (750 kVA & 650 kVA) located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

#### Condition

The generators are tested once a month, and once a year with a load bank. No problems were observed or reported.

### **4.2.2 Fire Alarm System**

#### Description

The building is equipped with an Edwards EST model fire alarm and smoke alarm system. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building.

#### Condition

No problems were reported or observed.

### **4.2.3 Sprinkler System**

#### Description

The building is protected by a sprinkler system throughout.

#### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

### **4.2.4 Security System**

#### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

#### Condition

No problems were reported or observed with the security system.



South-East Elevation



Diesel Generator #1



Diesel Generator #2



Fire Alarm Panel, Transformer & Disconnects



25 kV Primary Switchboard



600V Emergency Switchboard



Main Disconnect



Transformer - Replace



Unit Heater





#### 4. 85 – COMPOST BUILDING

The building was constructed in 1994 and is single storey. The building has a total floor area of approximately 4,216 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

###### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

The main compost processing area is equipped with two (2) gas fired infrared unit heaters and ventilation intake/exhaust louvers.

The building's office heating system consists of one (1) gas fired mid-efficiency furnace located in the utility room. The conditioned air is distributed through galvanized steel ductwork and diffusers.

There are in-line exhaust fans that exhaust the washroom and utility room, which vent to the perimeter of the building.

###### Condition

No problems were reported or observed and the equipment appears to be in reasonable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

##### Plumbing Systems

###### Description

The building's water service is supplied from the service loop on site. The plumbing is distributed throughout the building to the hose bibs and washroom through copper piping.

The domestic hot water system consists of one (1) gas fired hot water tank (40 US gallons) located in the utility room.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof is drained by scuppers and downspouts which discharge directly onto the ground.

###### Condition

The building was constructed in 1994 and the majority of the plumbing fixtures and piping appear to be from that era.

The hot water tank was installed approximately 5 years ago and is in good condition.

The plumbing fixtures are generally in good condition. Consideration should be given to upgrading to water efficient plumbing fixtures.



#### **4.1.2 Electrical**

##### **Main Service**

###### **Description**

The building's main incoming 600 V service is fed from a power pole located adjacent to the building. There is an electrical meter and main disconnect located on the exterior wall of the building. The electrical system includes a 75 kVA 600V-120/208V transformer, a 30 kVA 480V-208V transformer, a 200 amp main disconnect, and a 200 amp 120/208 volt, 3 phase 4 wire, electrical service. Circuit breakers supply the building.

Power is distributed via conduit and wire to the distribution panels located throughout the building. The main switchgear feeds the power and lighting panel.

###### **Condition**

No problems were reported or observed and the equipment appears to be in reasonable condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

##### **Lighting and Power**

###### **Description**

Lighting consists of 1' x 4' T8 fluorescent fixtures suspended from the structure.

Power distribution is provided to various outlets, and it was reported that adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

#### **4.2 Fire Protection and Life Safety Systems**

##### **4.2.1 Emergency Power**

###### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

###### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.



#### 4.2.2 Fire Alarm System

##### Description

There is an Edwards EST 3 model fire alarm and smoke alarm system that was installed as part of an overall upgrade approximately 15 years ago. Manual pull stations, speakers, automatic smoke/heat detectors, annunciation, and associated wiring are strategically located throughout the building. The central alarm and control facility (CACF) room is located in the security & guard office at the main entrance. There is an annunciator panel located in the utility room which is linked to the entrance panel.

##### Condition

No problems were reported or observed.

#### 4.2.3 Sprinkler System

##### Description

There is no sprinkler system installed in the building.

#### 4.2.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.



South Elevation



North Elevation



30 kVa Transformer & Distribution Panel - Replace



75 kVa Transformer - Replace



Plumbing Fixtures



Fire Alarm Panel



Infrared Gas Fired Radiant Heater



Main Electrical Switchgear & Meter



Office Area Furnace - Replace



Domestic Hot Water Tank – Replace



Compost Area Ventilation



#### 4. 116 – STORES

The building was constructed in 1999 and is mainly single storey, with a 2 storey/mezzanine office area. The building has a total floor area of approximately 10,478 square feet.

##### 4.1 Services

##### 4.1.1 Mechanical

##### HVAC Systems

###### Description

The building is equipped with a gas service that is fed from the buried gas service loop located on site.

Heating in the warehouse area of the building is provided by four (4) gas fired unit heaters suspended from the ceiling structure. In addition, the warehouse is equipped with a gas fired make-up air unit (4,005 cfm), located in the upper floor mechanical room, which is ducted through the warehouse.

Heating and cooling for the office and administration areas are provided by two (2) gas fired high efficiency furnaces with corresponding condensing units. The furnaces are located in the upper floor mechanical room and provide conditioned air to the various office/administration areas through galvanized steel ductwork and diffusers.

There are several wall mounted general exhaust fans located in the warehouse area, and in-line exhaust fans, that exhaust the washrooms, utility rooms, and electrical room to the perimeter.

The building's equipment is controlled by a DDC control system operated by staff in the building.

###### Condition

All of the equipment, piping and controls are original to the building's construction in 1999.

All of the equipment is in good condition. With proper maintenance, this equipment should remain in serviceable condition beyond the scope of this review.

The control system is in good condition. With proper maintenance, the system should remain in serviceable condition beyond the scope of this review.

##### Plumbing Systems

###### Description

The building's water service is supplied from the service loop on site. All of the plumbing is distributed throughout the building to the washrooms through copper piping. Domestic hot water for the building is provided by a 40 US gallon gas fired hot water tank, located in the upper floor mechanical room.

The sanitary drains from the plumbing fixtures and miscellaneous service areas are collected with cast iron drains, and exit the building to tie into the service loop located on site. The roof drainage is by eaves troughs and downspouts, and is discharged directly onto the ground.

###### Condition

The building was constructed in 1999 and the majority of the plumbing fixtures and piping are from that era. The gas fired hot water tank was installed approximately 7 years ago and is in good condition.

The plumbing fixtures are generally in good condition.





#### **4.1.2 Electrical**

##### **Main Service**

###### **Description**

The building's main incoming 600 V service is fed from the below ground service trench. There is an electrical distribution area in the upper floor mechanical room, which includes a 600V–120/208V 30 kVA transformer, a 600 volt 1,000 amp transfer switch, a 400 amp main breaker, and distribution panels for power and lighting. Circuit breakers supply the building.

###### **Condition**

No problems were reported or observed and the equipment appears to be in good condition. With proper maintenance, the equipment should remain in serviceable condition beyond the scope of this review.

##### **Lighting and Power**

###### **Description**

Lighting consists of 16 low sodium ceiling suspended fixtures in the warehouse, fluorescent fixtures in T-bar ceilings throughout the office/administration areas, and chain hung fixtures in the utility areas. Power distribution is provided to various outlets, and adequate circuits are provided.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

#### **4.2 Fire Protection and Life Safety Systems**

##### **4.2.1 Emergency Power**

###### **Description**

Emergency power is fed from the central 600V emergency distribution loop located in the electrical service tunnel, and the main diesel generators located in the dedicated generator building. The majority of the buildings on site are fed through the service tunnel distribution.

Emergency switchboards supply power for lighting, receptacle panels, fire alarm systems, exit lights, and CCTV systems throughout the facility.

###### **Condition**

The generators are tested once a month, and once a year with a load bank. Refer to Building 80 - Electrical Substation for further description.

##### **4.2.2 Fire Alarm System**

###### **Description**

The building is equipped with an Edwards EST model fire alarm and smoke alarm system. Manual pull stations, speakers, automatic smoke/heat detectors, magnetic door holders, annunciation, and associated wiring are strategically located throughout the building.

###### **Condition**

No problems were reported or observed.



#### 4.2.3 Sprinkler System

##### Description

The building is protected by a sprinkler system throughout.

##### Condition

The sprinkler system's annual inspection was last carried out in January 2012. No deficiencies were reported.

#### 4.2.4 Security System

##### Description

The buildings throughout the facility are monitored by a CCTV system consisting of head end equipment located in the MCCP building, with cameras throughout the site at the various buildings, connected through conduit and wiring. The system is monitored from the security booth in the MCCP building with on-site security staff.

##### Condition

No problems were reported or observed with the security system.



South Elevation



Condensing Units (Office Cooling)



Stores Warehouse Lighting



Fire Alarm Panel



2<sup>nd</sup> Floor Mechanical/Electrical Room



Transfer Switch, Transformer & Main Disconnect



Office Area / Lunch Room Furnace - Typical



Warehouse Make-Up Air Unit



Unit Heater



#### **4. ELECTRICAL DISTRIBUTION TUNNEL**

There is a trench around the entire site feeding power from the substation (Building 80) to the individual buildings via a fuse and transformer. The main service in the trench is a 600 V hydro service that feeds the two distribution loops (A & B).

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

N/A

###### **Plumbing Systems**

N/A

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

The substation supplies the main 600 amp hydro service loop, located in a trench around the entire site, feeding power to the individual buildings via a fuse and transformer. The electrical distribution is provided by a 25 kV primary switchboard that feeds the two distribution loops (A & B). Each loop is protected using a 600 amp fused disconnect switch.

Electrical feeder cables in duct banks are distributed to approximately 26 connection points where the power is split to the individual buildings' electrical systems and site lighting systems. These individual connection points consist of junction boxes and break switches.

###### **Condition**

At the time of the site review, access to the trench was not possible therefore we could not confirm the actual condition of the electrical distribution systems. However, it was brought to our attention by the facility management staff that the individual building connection points are showing signs of corrosion and wear, and that sourcing replacement components is a problem due to the age of the components.

For the purpose of this study, we recommend that the feeder cables and connection points in the trench be further investigated to determine the extent of corrosion on the systems. An allowance is included in the cost table for the replacement/repair of all 26 connection point components. These distribution systems should be tested once a year by high voltage qualified personnel.

###### **Lighting and Power**

###### **Description**

Lighting reportedly consists of T8 strip fluorescent fixtures hung from the trench walls.

Power distribution is provided for the lighting circuit only.

###### **Condition**

No problems were reported or observed. All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.



## **4.2     Fire Protection and Life Safety Systems**

### **4.2.1     Emergency Power**

#### Description

Emergency power is fed from the central emergency distribution loop located in the electrical service tunnel, via the two diesel generators (750 kVA & 650 kVA) located in the dedicated generator building (substation). The majority of the buildings on site are fed through the service tunnel distribution.

The 600V emergency distribution loop supplies power to the individual buildings via a circuit breaker. The emergency distribution is provided from a 600V emergency switchboard that feeds the two distribution loops (A & B).

Emergency feeder cables in duct banks are distributed to approximately 26 connection points, as noted in the main service distribution section, where the power is split to the individual buildings' emergency systems. These individual connection points consist of junction boxes and break switches.

#### Condition

At the time of the site review, access to the trench was not possible therefore we could not confirm the actual condition of the emergency distribution. However, it was brought to our attention by the facility management staff that the individual building connection points are showing signs of corrosion and wear, and that sourcing replacement components is a problem due to the age of the components.

For the purpose of this study, we recommend that the feeder cables and connection points in the trench be further investigated to determine the extent of corrosion on the systems. An allowance is included in the cost table for the replacement/repair of all 26 connection point components.

### **4.2.2     Fire Alarm System**

N/A

### **4.2.3     Sprinkler System**

N/A

### **4.2.4     Security System**

N/A





Electrical Trench Access & Building Transformers



#### **4. SITE ELECTRICAL / LIGHTING**

The site is equipped with a combination of 6 high mast 8 head light standards strategically located in the medium security areas, and 59 perimeter security 2 head light standards strategically spaced around the institution's perimeter fencing. There are an additional 6 light standards in the parking lot areas.

##### **4.1 Services**

###### **4.1.1 Mechanical**

###### **HVAC Systems**

N/A

###### **Plumbing Systems**

N/A

###### **4.1.2 Electrical**

###### **Main Service**

###### **Description**

An underground radial feed to the overhead pole lines is fed from the substation.

###### **Condition**

At the time of the site review, access to the trench was not possible therefore we could not confirm the actual condition of the radial feed. The overhead pole lines are in fair to good condition. An allowance is included in the cost table for upgrading the light standards throughout the site, which will require further inspection of the cabling at each connection location. The estimated cost for this work is included in the cost table.

No problems were reported or observed. This distribution system should be tested once a year by qualified personnel.

###### **Lighting and Power**

###### **Description**

The 59 perimeter security fence light standards each consist of a concrete base, a straight round double davit steel pole, and two light fixtures.

The 6 high mast light standards each consist of a concrete base, a straight round high mast steel pole, and eight light fixtures.

The 6 parking area light standards each consist of a straight round concrete pole directly buried in the ground, double tapered elliptical arms, and two light fixtures.

Power distribution is provided for the lighting circuit only.

###### **Condition**

No problems were reported or observed. However, the majority of the lighting, poles, and guy wires are approaching the end of their life expectancy and should be scheduled for a replacement program.

The 59 perimeter security fence light standards are of a different design than normal therefore finding components for replacement may be difficult. For the purpose of this study, we have assumed that complete replacement of the poles, double arms, and light fixtures will be required.

The 6 high mast light standards should be refurbished and/or replaced in the next 5 years.



The 6 parking lot area double light standards are of a more recent vintage and are reported to be in good condition. With proper maintenance, these fixtures should remain in serviceable condition beyond the scope of this review.

All lighting fixtures should be maintained and re-lamped as per the manufacturers' recommendations.

#### **4.2     Fire Protection and Life Safety Systems**

##### **4.2.1   Emergency Power**

###### Description

Emergency power fed from the central emergency distribution loop to the entire security lighting and security fencing systems, for operation during power outages.

###### Condition

Refer to Building 80 – Electrical Substation for further description on the emergency power.

##### **4.2.2   Fire Alarm System**

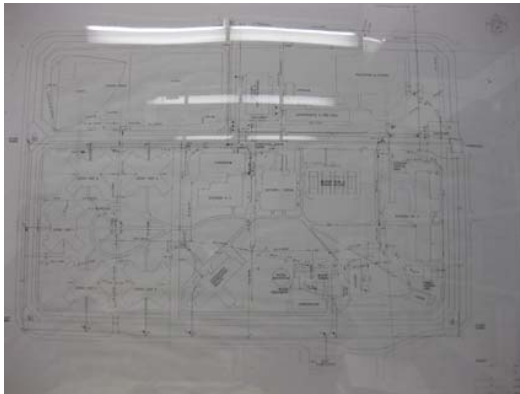
N/A

##### **4.2.3   Sprinkler System**

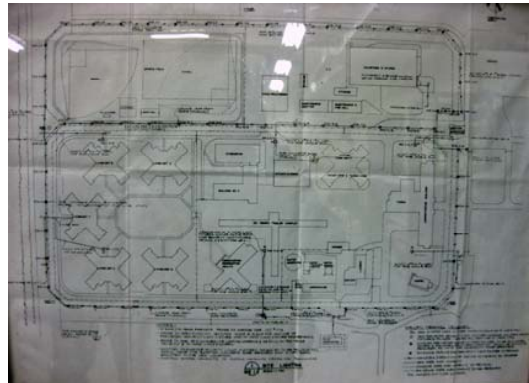
N/A

##### **4.2.4   Security System**

N/A



Site Services Distribution Layout



Site Lighting Layout & Distribution



Double Lighting Standard (Security Fence)



Double Lighting Standard (Parking Areas)



Gate House & Parking Area – High Mast Lighting



## 5. REPORT QUALIFICATIONS



## 5. REPORT QUALIFICATIONS

The qualifications described below apply to this report:

- a) All review surveys were visual only. No removal or testing of materials or components was carried out. The review was made on a random basis with no attempt to review or inspect every element or portion of the building. The intent of the review was to determine areas of visually obvious deterioration and need for repair and to determine, in a general way, the overall quality and sufficiency of the existing building conditions but not to ascertain the quality or sufficiency of any particular aspect of the building.
- b) This report is intended to provide **Correctional Services Canada** with a general description of the systems employed in the building and to comment on their general condition, which may be apparent at the time of our review. No calculations were performed to confirm the adequacy of the elements. No findings contained in this report shall be construed as a guarantee or warranty of the quality or sufficiency of any particular aspect of the building or the adequacy of any particular element of any system employed in the building.
- c) The timing of site visits is critical to building performance reviews. To observe the actual extent of problem areas, it is necessary to monitor the building conditions throughout the year and under varying weather conditions (for example, contraction and expansion of all component joints occur at different times of the year) in each specific area. As a result, all problems may not be visible at the time of our review and we shall not be responsible for any problems not readily visible or apparent at the time of our inspection.
- d) Any timeframe given for repair or replacement work represents a judgement based on the apparent condition and theoretical life span of components. Failure of the item, or optimum repair/replacement time, may be earlier or later than the time estimate due to conditions unknown and beyond our control. The property manager should pro-actively assess the time lines identified going forward.
- e) Any and all previous opinions expressed by Altus Group Limited, either verbally or in writing, regarding the condition of the building or cost estimates for repair of the above elements of the building cannot be relied upon unless contained herein and are superseded by this report. No portion of this report may be used as a separate entity; it is written to be read in its entirety.
- f) An overall contingency allowance of **10%** has been carried to cover any unforeseen capital repairs over the evaluation period of this report.
- g) It should be noted that floor areas and parking counts reported and provided by building management and the planning consultant (as identified in our summaries) have been used. No independent verification, measurement or assessment has been carried out by Altus Group Limited.
- h) Environmental issues are excluded from this report. No environmental issues have been addressed nor renewal costs included in our summaries.
- i) We have endeavoured to examine all the information provided and have assumed full disclosure of information from all parties on all building and maintenance issues.
- j) We are not responsible for the effects of any actions taken as a result of this report unless we are specifically advised of and participate in such action in which case our responsibility will be agreed to at that time.





- k) Altus Group Limited shall have no liability either in contract or in tort for services or matters beyond the scope of the services as outlined and qualified in this report.
- l) It should be noted that this report may not be circulated, published, reproduced or quoted from in whole or in part by any person without the express written permission of Altus Group Limited in each instance. Furthermore, this report is for the exclusive use and benefit of **Correctional Services Canada**. Altus Group Limited does not hold reporting responsibility to any other party and does not assume any liability whatsoever to any other party.



## 6. EXHIBITS & ATTACHMENTS



6. EXHIBITS & ATTACHMENTS

Appendix A	Schedule of Information Reviewed
------------	----------------------------------



**APPENDIX A**  
**INFORMATION REVIEWED**



### **INFORMATION REVIEWED**

In the preparation of this report, various plans/drawings for the buildings were provided for review, for reference purposes.